Final Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales

November 2023

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

TITLE OF ENVIRONMENTAL REVIEW	Final Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales
RESPONSIBLE AGENCY AND OFFICIAL	National Marine Fisheries Service (NMFS) 1315 East West Highway Silver Spring, MD 20910
COOPERATING AGENCY	U.S. Bureau of Indian Affairs
CONTACT	Grace Ferrara NMFS Protected Resources Division, West Coast Region 7600 Sand Point Way NE, Building 1 Seattle, WA 98115 (206) 526-6172 grace.ferrara@noaa.gov
LOCATION OF PROPOSED ACTIVITIES	The coastal portion of the Tribe's usual and accustomed fishing grounds (U&A), off the northwest coast of Washington State.
PROPOSED ACTION	NMFS proposes to act on the Makah Tribe's request for a waiver of the Marine Mammal Protection Act (MMPA) to resume treaty-based hunting of eastern North Pacific gray whales (*Eschrichtius robustus*) for ceremonial and subsistence purposes.
ABSTRACT	In February 2005, the Makah Indian Tribe submitted to NMFS a request to resume treaty-based hunting of ENP gray whales in the coastal portion of the Tribe's U&A. The Tribe's request stems from the 1855 Treaty of Neah Bay, which expressly secures the Makah Tribe's right to hunt whales. To exercise that right, the Makah Tribe is seeking authorization from NMFS under the Marine Mammal Protection Act and Whaling Convention Act. This final environmental impact statement considers various alternatives to the Tribe's proposed action and principal components associated with a hunt, including: hunt timing and location; the number of whales harvested, struck, and struck and lost; cessation of whale hunting if a predetermined number of identified whales were harvested; the method of hunting; and the duration of regulations and permits.

Executive Summary

The action considered in this final environmental impact statement (FEIS) concerns the Makah Indian Tribe's February 2005 request to resume limited hunting of eastern North Pacific (ENP) gray whales (*Eschrichtius robustus*) in the coastal portion of the Tribe's usual and accustomed fishing grounds (U&A), off the coast of Washington State, for ceremonial and subsistence purposes. The Tribe's proposed action stems from the 1855 Treaty of Neah Bay, which expressly secures the Makah Tribe's right to hunt whales. To exercise that right, the Makah Tribe is seeking authorization from the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) under the Marine Mammal Protection Act (MMPA) and the Whaling Convention Act (WCA).

This FEIS, prepared pursuant to the National Environmental Policy Act (42 USC 4321 et seq.), considers various alternatives to the Tribe's proposed action. To develop the full range of action alternatives, we, NMFS, considered the principal components associated with a hunt, including: the time when whale hunting would occur; the area where whale hunting would occur; the annual, six-year, and ten-year limits on the number of whales harvested, struck, and struck and lost; cessation of whale hunting if a predetermined number of Pacific Coast Feeding Group (PCFG) whales were harvested; measures to protect western North Pacific (WNP) gray whales; and the method of hunting. The resultant alternatives are:

- **Alternative 1**, the No-action Alternative, would not authorize a Makah gray whale hunt.
- **Alternative 2**, the Tribe's Proposed Action Alternative, would allow harvest of four ENP gray whales per year on average (with a maximum of five in any one year) and up to 24 whales in any 6-year period. Hunting would be allowed in the Tribe's U&A outside the Strait of Juan de Fuca from December 1 to May 31. Hunting would not be allowed within 200 yards of Tatoosh Island and White Rock. The number of whales that could be struck would be limited to no more than seven in any calendar year and no more than 42 over

the 6-year period, while the number of whales struck and lost would be limited to three annually and 18 over the 6-year period. The maximum number of whales struck in any year would be seven, and the maximum number struck and lost would be three. Under this action alternative, in any year the hunt would cease if a calculated number of PCFG whales (based on the potential biological removal (PPR) formula used in NMFS' MMPA stock assessment reports) were landed and identified. Current calculations result in a harvest limit estimate of 3.0 PCFG whales.

- **Alternative 3** (offshore hunt) would have the same conditions as Alternative 2 regarding numbers of ENP whales struck, struck and lost, and harvested; seasonal restrictions; and regulatory conditions. Alternative 3 would also have the same hunt area as Alternative 2, except that it would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore, and assumes an all-motorized hunt with no use of a canoe. Alternative 3 would also differ from Alternative 2 in its approach to managing impacts to the PCFG. It would set an annual total mortality limit for PCFG whales equal to the PBR as applied to PCFG whales in NMFS' most recent MMPA stock assessment report. Current calculations result in a mortality limit estimate of 3.52 PCFG whales. This alternative would also have an additional annual mortality limit for female PCFG whales equal to one-half the PBR.

- **Alternative 4** would have the same conditions as Alternative 2 except the hunting season would be from June 1 through November 30, to avoid killing a WNP whale (because such whales would be feeding in the WNP at this time and not present in the Makah U&A). Because hunting would be allowed during the period that defines membership in the PCFG, Alternative 4 would also include restrictions specifically intended to manage impacts to the PCFG. Key restrictions include avoiding female whales, setting an annual total mortality limit using the PBR approach described for Alternative 3 (but using a lower recovery factor and accounting for other sources of human-caused mortality), and the presumption that all whales struck but not landed are PCFG whales. Current calculations result in a mortality limit estimate of 1 PCFG whale every other year.

- **Alternative 5** would have the same conditions as Alternative 2, except there would be two hunting seasons of 3 weeks each: one from December 1 through December 21 and one from May 10 through May 31. This split-season approach is intended to avoid killing a WNP whale and to minimize the chance of killing a PCFG whale. Alternative 5 would also differ from Alternative 2 by setting an annual PCFG mortality limit at 10 percent of

PBR. Current calculations result in a mortality limit estimate of 0.35 PCFG whales. This alternative would also count any whale struck but not landed as a PCFG whale in proportion to the observed presence of PCFG whales in the Makah U&A during that season.

- **Alternative 6** would have the same conditions as Alternative 2, except that strikes would be limited to seven over 2 years and an annual PCFG mortality limit would be set using the PBR formula as applied to the PCFG in NMFS' most recent stock assessment report (minus other sources of human-caused mortality). Current calculations result in a mortality limit estimate of 2.25 PCFG whales. Alternative 6 would also differ from Alternative 2 by counting all whales struck but not landed against the PCFG limit based on their proportional presence during the season they were struck and lost. In addition, the waiver of the MMPA take moratorium would expire 10 years after adoption, and regulations governing the hunt would limit the term of any hunt permit to not more than 3 years.

- **Alternative 7**, the Preferred Alternative, combines various elements from Alternatives 2 through 6. An alternating winter/spring, summer/fall hunt season would reduce risk to both the PCFG and the endangered WNP gray whale DPS. Like Alternative 6, the waiver would expire after 10 years, and regulations governing the hunt would limit the initial permit period to no more than three years with subsequent permits lasting no more than five years. No more than 25 whales may be struck during the course of the waiver period, with a maximum of three strikes in any given winter/spring hunt and a maximum of two strikes and one landed whale in summer/fall hunts. A limit of 16 PCFG whales may be struck under Alternative 7, up to 8 of which may be females. All struck and lost whales that could not be positively identified in winter/spring hunt years would count against the PCFG strike limit in proportion to their presence in the action are in that season based on recent abundance estimates. All struck whales in summer/fall hunt seasons are presumed to be PCFG whales.

We developed these alternatives and resources for review with input from NMFS staff, the applicant, the Makah Tribe, the cooperating agency (U.S. Bureau of Indian Affairs), and comments from the public. Opportunities for public inspection and comment were provided during the scoping for the draft environmental impact statement (DEIS) (77 FR 29967, May 21, 2012); for a total of 105 days upon the publication of the DEIS (80 FR 13373, March 13, 2015; 80 FR 30676, May 29, 2015); and for a total of 67 days upon the publication of a supplemental DEIS (87 FR 39804, July 5, 2022; 87 FR 50319, August 16, 2022; 87 FR 64454, October 25, 2022). The resources identified during scoping include: water quality, marine habitat and species, gray whales, other wildlife

species, economics, environmental justice, social environment, cultural resources, ceremonial and subsistence resources, noise, aesthetics, transportation, public services, public safety, human health, and the national and international regulatory environment. Table ES-1 summarizes the results of our analysis, using Alternative 1 (the No-action Alternative) as the baseline for assessing the impacts on the various resources.

This FEIS identifies Alternative 7 as the Preferred Alternative and addresses public comments received on the DEIS and SDEIS. Frequent and substantive comments are summarized and responses are provided in Appendix C. These comments, in conjunction with considerations described in this FEIS, will provide information to assist NMFS with its decision-making on the Tribe's request.

This FEIS is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This review began on May 21, 2016 with the publication of the Notice of Intent, and the agency has decided to proceed under the 1978 regulations.

Table ES-1 – Summary of Impacts from the Action Alternatives Analyzed in this FEIS Relative to the No-Action Alternative. Refer to Section 4 and Table 4-17 for more detailed narrative associated with our analysis of the various alternatives and resources.

Resources	No Action Alternative	Impact and Magnitude Relative to No-action Alternative
Ground Water	Current risk levels would continue.	No impacts to ground water, including drinking water sources, are expected under any of the action alternatives.
Marine Waters	Current risk levels would continue (includes occasional disposal of drift whale carcasses).	None of the action alternatives are likely to have more than minor, temporary effects on marine water quality. The risk of such effects is highest under Alternative 2 and lowest under Alternative 4.
Pelagic Species and Communities	Current levels of disturbance would continue.	None of the action alternatives have the potential to appreciably affect pelagic habitats. The risk of any effects is highest under Alternative 2 and lowest under Alternative 4.
Benthic Species and Communities	Current levels of disturbance would continue.	None of the action alternatives have the potential to appreciably affect benthic habitats. The risk of any effects is highest under Alternative 2 and lowest under Alternative 4.
ENP Gray Whale Stock	Current IWC-set catch limits would continue. ENP gray whale stock is likely to remain at or near carrying capacity.	None of the action alternatives are likely to increase the risk of adverse impacts on the ENP gray whale stock.
WNP Gray Whale Stock	The IWC has not set a catch limit for WNP gray whales.	Although the risk of impacting the WNP gray whale stock is low under all of the action alternatives, they all (except Alternative 4, under which hunting is unlikely to encounter WNP whales) pose some degree of risk, with Alternative 2 posing the most risk and Alternative 4 presenting the least risk.
PCFG Gray Whales	No hunting would occur in the PCFG seasonal range.	All action alternatives are likely to increase the risk of adverse impacts on PCFG gray whales. Alternative 2 would increase this risk the most, while Alternative 5 would likely increase it the least. Even under Alternative 2, however, the best available information indicates that the PCFG would remain viable.

Resources	No Action Alternative	Impact and Magnitude Relative to No-action Alternative
Gray Whales Using the Makah U&A and OR-SVI Areas	No hunting would occur in local survey areas.	All action alternatives are likely to increase the risk of adverse impacts on gray whales using local survey areas. Alternative 2 would likely have the most risk, while Alternative 5 would likely have the least risk. None of the alternatives are expected to deter gray whales from continuing to use these survey areas.
Individual Whales	On average, 124 whales could be harvested in the Chukotkan hunt annually, experiencing manner and time to death particular to that hunt. Approximately 3 percent would be struck and lost.	All action alternatives are likely to increase the risk of adverse impacts on individual gray whales. Alternative 2 would likely have the most risk, while Alternative 4 would likely have the least risk.
Marine Mammals	Current levels of disturbance would continue.	All action alternatives could increase the risk of adverse impacts on marine mammals. Alternative 2 would likely have the most risk, while Alternative 5 would likely have the least risk. Any impacts are likely to be temporary and are unlikely to have lasting effects on individuals or populations.
Other Marine Wildlife	Current levels of disturbance would continue.	All action alternatives could increase the risk of adverse impacts on other marine wildlife, although none are expected to have lasting effects. Alternative 2 would likely have the most risk of adverse impacts, while Alternative 5 would likely have the least risk.
Tourism	No opportunity for Tribe to promote hunt-related tourism and no likelihood of hunt-related boycott. Potential for small disproportionate effect on Tribe.	All action alternatives are likely to have a mix of beneficial and adverse impacts on tourism. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Household Use of Whale Products	Current limited availability of drift whales and whales incidentally caught in fishing operations (potentially one whale every 10 years).	All action alternatives are likely to have beneficial impacts on household use of whale products. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.
Whale-watching Industry	Current levels of revenues from, and employment in, whale-watching industry would continue.	None of the action alternatives are likely to increase the risk of adverse impacts on the whale-watching industry.
Shipping and Ocean Sport/ Commercial Fishing	Current passage conditions for ships and fishing vessels would continue.	While none of the action alternatives are expected to have more than a negligible impact on shipping or commercial fishing, they could increase the risk of adverse impacts, with Alternative 3 having the most risk of adverse impacts and Alternative 4 having the least.

Resources	No Action Alternative	Impact and Magnitude Relative to No-action Alternative
Management and Law Enforcement	No change from current conditions.	All action alternatives are likely to increase the management and law enforcement costs. Alternative 2 would likely have the greatest cost, while Alternative 4 would likely have the lowest cost.
Economics	Current levels of tourism would continue. Current occasional household use of products from drift whales and whales incidentally caught in fishing operations (potentially one whale every 10 years).	All action alternatives are likely to have a mix of beneficial and adverse impacts on economics, but an overall a negligible impact. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Ceremonial and Subsistence Resources	Current limited availability of drift whales and whales incidentally caught in fishing operations (potentially one whale every 10 years). Lack of access to resource has disproportionate impact on Tribe.	All action alternatives are likely to have beneficial impacts on ceremonial and subsistence resources. Alternative 2 would likely have the most beneficial impact, while Alternative 4 would likely have the least beneficial impact.
Social Environment	Potential for tension between Makah Tribe and others, including federal government.	All action alternatives are likely to have a mix of beneficial and adverse impacts on the social environment. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Makah Tribal Members, Other Tribes, and Other Individuals and Organizations	Likely no protests and related social tensions. No change from current level of tension between members opposed to the hunt and those supporting it. The latter may feel continued frustration with U.S. government.	All action alternatives are likely to have a mix of beneficial and adverse impacts on Makah tribal members, other tribes, and other individuals and organizations. Alternative 2 would have the greatest likelihood of mixed impacts while Alternative 4 would have the least.
Sites with Cultural Significance	No change from current conditions.	All action alternatives are likely to have a mix of beneficial and adverse impacts on sites with cultural significance. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Access to Whale Hunting Opportunities	No change from current conditions, i.e., no access to whale hunting opportunities.	All action alternatives are likely to have beneficial impacts on access to whale hunting opportunities. Alternative 2 would likely have the most beneficial impact, while Alternative 4 would likely have the least beneficial impact.

Resources	No Action Alternative	Impact and Magnitude Relative to No-action Alternative
Subsistence Use	The Tribe could pursue some subsistence uses of whales (such as using drift whales or whales incidentally caught in fishing operations), but they would have limited cultural value if not practiced in connection with actual whale hunts.	All action alternatives are likely to have beneficial impacts on subsistence use of whale products. Alternative 2 would likely have the most beneficial impact, while Alternative 4 would likely have the least beneficial impact.
Traditional Knowledge and Activities	The Tribe could continue to engage in many related activities, and could apply and transmit relevant knowledge, but this would have limited cultural value if not practiced in connection with actual whale hunts. Application and transfer of knowledge related to actual hunting would be limited to discussions of past whale hunting.	All action alternatives are likely to have beneficial impacts on traditional knowledge and activities. Alternative 2 would likely have the most beneficial impact, while Alternative 4 would likely have the least beneficial impact.
Spiritual Connection to Whaling	Spiritual connection to whaling would continue to be limited to connection to past whaling and spiritual connection may eventually wane.	All action alternatives are likely to have beneficial impacts on the Tribe's spiritual connection to whaling.
Cultural Identity	Tribal identity could erode in the absence of opportunities to participate in an activity central to Makah cultural identity.	All action alternatives are likely to have beneficial impacts on the Tribe's cultural identity.
Noise Levels at Receiving Properties	No change from current conditions.	All action alternatives are likely to increase the risk of adverse impacts on noise levels at receiving properties. Alternative 2 would likely have the most increased risk, while Alternative 4 would likely have the least increased risk.
On-scene Observers	Current lack of opportunity to view an authorized whale hunt would continue.	All action alternatives are likely to have a mix of beneficial and adverse impacts on on-scene observers. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Media Observers	Current lack of opportunity to view an authorized whale hunt would continue.	All action alternatives are likely to have a mix of beneficial and adverse impacts on media observers. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Highway, Marine, and Air Traffic	No change from current conditions.	All action alternatives are likely to increase the risk of adverse impacts on highway, marine, and air traffic. Alternative 2 would likely have the most risk, while Alternative 4 would likely have the least risk.

Resources	No Action Alternative	Impact and Magnitude Relative to No-action Alternative
Law Enforcement and Medical Facilities	No change from current conditions.	All action alternatives could increase the risk of adverse impacts on law enforcement and medical facilities. Alternative 2 would likely have the most risk, while Alternative 4 would likely have the least risk.
Injury from Weapons, Boating Accidents, and Land-based Protest Activities	No change from current conditions.	All action alternatives are likely to increase the risk of adverse impacts because of injury from weapons, boating accidents, and land-based protest activities. Alternative 2 would likely have the most increased risk, while Alternative 4 would likely have the least risk increase.
Nutritional Benefits, Environmental Contaminants, and Exposure to Food-borne Pathogens	No change from current conditions.	All action alternatives are likely to have a mix of beneficial and adverse impacts associated with nutritional benefits, environmental contaminants, and exposure to food-borne pathogens. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
Marine Mammals Nationally	It is uncertain, but possible, that a decision not to authorize a Makah whale hunt could discourage future requests for a waiver of the MMPA.	It is uncertain what, if any, impacts the action alternatives are likely to have on the national regulatory environment for marine mammals.
Worldwide Whaling	A U.S. decision not to authorize a Makah whale hunt is unlikely to influence the position of the United States or other countries regarding IWC issues.	It is uncertain what, if any, impacts the action alternatives are likely to have on worldwide whaling.

Acronyms and Abbreviations

1	ABL	allowable bycatch level
2	AEWC	Alaska Eskimo Whaling Commission
3	APL	Allowable Pacific Coast Feeding Group Limit
4	AWMP	Aboriginal Whaling Management Procedure
5	BIA	Bureau of Indian Affairs
6	C	Celsius
7	CEQ	Council on Environmental Quality
8	CFR	Code of Federal Regulations
9	cm	centimeters
10	CZMA	Coastal Zone Management Act
11	dB	decibel
12	DDT	dichloro-diphenyl-trichloroethane
13	DEIS	Draft Environmental Impact Statement
14	DNA	deoxyribonucleic acid
15	DPS	distinct population segment
16	dw	dry weight
17	EA	Environmental Assessment
18	Ecology	Washington Department of Ecology
19	EEZ	Exclusive Economic Zone
20	EIS	Environmental Impact Statement
21	ENP	eastern North Pacific
22	EPA	[U.S.] Environmental Protection Agency
23	ESA	Endangered Species Act
24	F	Fahrenheit
25	FAA	Federal Aviation Administration
26	FERC	Federal Energy Regulatory Commission
27	FONSI	Finding of No Significant Impact
28	FR	Federal Register
29	g	gram
30	GAMMS	Guidelines for Assessing Marine Mammal Stocks
31	Hz	hertz

1	ICRW	International Convention for the Regulation of Whaling
2	IU	international units
3	IUCN	International Union for Conservation of Nature
4	IWC	International Whaling Commission
5	JS1	Jolly-Seber model 1
6	K	carrying capacity
7	kg	kilogram
8	km	kilometer
9	Makah or Tribe	Makah Indian Tribe
10	MEZ	Moving Exclusionary Zone
11	mg	milligram
12	MHW	Marine Heatwave
13	mi	mile
14	ml	milliliter
15	MMC	Marine Mammal Commission
16	MMPA	Marine Mammal Protection Act
17	MNPL	maximum net productivity level
18	MSA	Magnuson-Stevens Act
19	MSY	maximum sustainable yield
20	MSYL	maximum sustainable yield level
21	MSYR	maximum sustainable yield rate
22	mtDNA	mitochondrial DNA
23	MUA	Makah U&A
24	NBC	northern British Columbia
25	NCA	northern California
26	NEPA	National Environmental Policy Act
27	NMFS	National Marine Fisheries Service
28	NMML	National Marine Mammal Laboratory
29	NOAA	National Oceanic and Atmospheric Administration
30	NOI	Notice of Intent
31	NWA	northern Washington Coast survey area
32	NWA-SJF	northern Washington Coast through Strait of Juan de Fuca
33	OCNMS	Olympic Coast National Marine Sanctuary
34	OR-SVI	Oregon through Southern Vancouver Island
35	OSP	optimum sustainable population

PBR	potential biological removal
PCBs	polychlorinated biphenyls
PCDD	polychlorinated dibenzodioxin
PCDF	polychlorinated dibenzofuran
PCFA	Pacific Coast Feeding Aggregation survey area
PCFG	Pacific Coast Feeding Group
PFMC	Pacific Fishery Management Council
pH	potential of hydrogen (acidity or alkalinity)
PL	public law
RCW	Revised Code of Washington
RNA	Regulated Navigation Area
ROD	Record of Decision
Sanctuary	Olympic Coast National Marine Sanctuary
SAR	stock assessment report
SDEIS	Supplemental Draft Environmental Impact Statement
SLA	strike limit algorithm
SJF	Strait of Juan de Fuca
SVI	southern Vancouver Island
SWG	Standing Working Group
TCDD	tetrachlorodibenzodioxin
TCDF	tetrachlorodibenzofuran
Treaty	1855 Treaty of Neah Bay
U&A	usual and accustomed fishing grounds
U.S.C.	United States Code
µg	microgram
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USC	United States Code
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WCA	Whaling Convention Act
WDFW	Washington Department of Fish and Wildlife
WNP	western North Pacific
ww	wet weight

Glossary

.50 and .577 caliber rifle = High-powered rifles designed to shoot a bullet of diameter 0.5 inches or 0.577 inches, respectively.

Aboriginal subsistence whaling = As defined in regulations implementing the Whaling Convention Act, aboriginal subsistence whaling refers to whaling authorized by paragraph 13 of the Schedule annexed to and constituting a part of the Convention (i.e., International Convention for the Regulation of Whaling). The Schedule does not otherwise define aboriginal subsistence whaling, but the International Whaling Commission adopted the following definition of subsistence use by consensus at its 2004 annual meeting: (1) The personal consumption of whale products for food, fuel, shelter, clothing, tools, or transportation by participants in the whale harvest; (2) The barter, trade, or sharing of whale products in their harvested form with relatives of the participants in the harvest, with others in the local community or with persons in locations other than the local community with whom local residents share familial, social, cultural, or economic ties. A generalized currency is involved in this barter and tra[d]e, but the predominant portion of the products from each whale are ordinarily directly consumed or utilized in their harvested form within the local community; (3) The making and selling of handicraft articles from whale products, when the whale is harvested for the purposes defined in (1) and (2) above. General principles governing aboriginal subsistence whaling are contained in the Schedule.

Aboriginal subsistence whaling quota = Number of whales that may be taken by a Native American whaling organization for subsistence uses.

Adaptive management plan = A management approach wherein a plan is changed and improved in response to lessons learned during plan implementation.

Alaska Eskimos/Alaska Natives = A group of native people living in the Arctic coastal regions of Alaska.

Algal bloom = A rapid and often visible increase in the population of (usually) phytoplankton algae in an aquatic system.

Allowable Bycatch Level (ABL) = As defined in the Makah Tribe's waiver request, the number of whales from the Pacific Coast Feeding Group (PCFG) that may be taken incidental to a hunt directed at the migratory portion of the Eastern North Pacific stock of gray whales. The ABL is calculated using the Marine Mammal Protection Act's potential biological removal approach but

the minimum population estimate is calculated from the number of previously seen whales in the Oregon-Southern Vancouver Island survey area.

Ancestral villages = A settlement that has been inhabited for many generations.

Ancient canoe runs = Sub- and inter-tidal areas where it is possible to see old pathways perpendicular to the shoreline that were cleared of boulders and cobbles to allow canoes to reach shore without being damaged.

Approach= causing a hunting or training vessel to be within 100 yards of a gray whale.

Baleen whale = A whale of the Suborder Mysteceti whose members have comb-like baleen plates (instead of teeth) which enable them to filter food from the water. As defined by the July 2012 Schedule to the International Convention for the Regulation of Whaling, baleen whale means any whale which has baleen or whale bone in the mouth (i.e. any whale other than a toothed whale).

Benthic = Living on the bottom of the ocean.

Benthos = The collection of organisms living on the bottom of the ocean.

Bequians = Inhabitants of Bequia, the second largest of the thirty-two islands and cays that make up the island state of St. Vincent & the Grenadines.

Bilateral agreement = An agreement between two countries detailing their mutual understanding, policies, and obligations on a particular matter.

Bunker fuel = A common and often low grade fuel used to power cargo ships.

Bureau of Indian Affairs = A United States agency within the Department of the Interior charged with the administration and management of land held in trust by the United States for American Indians, Indian tribes and Alaska Natives. In addition, the Bureau of Indian Affairs provides education services to approximately 48,000 Indians.

Calf (whale) = As defined by regulations implementing the Whaling Convention Act, a calf is any whale less than 1-year old or having milk in its stomach.

Cervical and cranial thoracic regions = Relating to the neck (cervical) or skull (cranial) in the chest (thoracic) region of a whale.

Cetacean = Refers to an animal belonging to the order Cetacea, which includes sea mammals such as whales and dolphins.

Chase boat = According to the Makah waiver request, a powered boat that assists in the whale hunt by staying in close proximity to the whaling crew in the canoe and towing a harvested whale to shore. In the Makah proposal each chase boat would be manned by a pilot, diver, rifleman, backup harpooner, and at least one other crew member, and would be equipped with a navigation system capable of fixing the vessel's position on the water.

Chukotka natives = Aboriginal people located in the far northeast of the Russian Federation.

Coastal Zone Management Act (CZMA) = A United States law that encourages coastal states to develop and implement coastal zone management plans to protect and enhance coastal zone resources.

Code of Federal Regulations (CFR) = The United States government's codification of the general and permanent rules and regulations (sometimes called administrative law) published in the Federal Register by the executive departments and agencies of the United States Federal Government. The CFR is published by the Office of the Federal Register, an agency of the National Archives and Records Administration.

Contracting Government = A country/government party to the International Convention for the Regulation of Whaling.

Cooperative agreement = As defined by regulations implementing the Whaling Convention Act, a cooperative agreement is a written agreement between the National Oceanic and Atmospheric Administration and a Native American whaling organization for the cooperative management of aboriginal subsistence whaling operations.

Council on Environmental Quality (CEQ) = A division of the White House established as part of the National Environmental Policy Act of 1969. The CEQ issues an annual report to the President of the United States on the state of the environment; coordinates United States environmental efforts and works closely with agencies and other White House offices in the development of environmental and energy policies and initiatives; oversees federal agency implementation of the environmental impact assessment process; and acts as a referee when agencies disagree over the adequacy of such assessments.

Cultural Anthropology Panel = A group of experts in cultural anthropology convened by the International Whaling Commission in 1979 to discuss the Alaska Eskimo bowhead hunts.

Darting gun = A hand thrown device consisting of a barrel (to hold an explosive projectile) that is attached to a wooden shaft equipped with a toggle-point harpoon. The barrel contains a trigger rod that ignites a propellant or 'pusher' charge which fires the explosive projectile into the whale's body.

Decibels = A unit of measurement for sounds, in particular the loudness of sounds.

Delegates = Members of delegations, headed by commissioners, representing member nations that are party to the International Whaling Commission.

Deoxyribonucleic acid (DNA) = A large, double-stranded, helical molecule found in the nucleus of cells that carries the genetic code for an organism.

Dispatch = To kill a whale with a rifle or penthrite grenade.

Diver = According to the Makah waiver request, a member of the whaling crew whose duties include diving into the water from the chase boat to attempt to sew a whale's mouth shut to prevent the whale from sinking after it has been struck by the harpooner and shot by the rifleman.

Drift whale = A whale that dies naturally or as a result of some human activity other than a directed hunt (for example, entanglement in fishing gear).

Eastern North Pacific (ENP) gray whales = Gray whales that feed during the summer and fall primarily in the Chukchi, Beaufort, and northwestern Bering Seas, but also as far south as California. ENP gray whales are considered a population stock under the MMPA. ENP gray whales were formerly listed as an endangered species under the ESA but subsequently recovered and were delisted in 1994 (59 FR 31094, June 16, 1994).

Ecotourism = Tourism that focuses on the natural ecological attributes of an area (e.g., whale-watching) and their preservation.

Ecotype = A subgroup of a species that is differentiated from other subgroups by distinct adaptations to a particular habitat.

Eight-gauge shoulder gun = A shoulder-mounted firearm with a long, smooth-bore barrel capable of shooting a 0.835-inch projectile.

Endangered species = As defined in the Endangered Species Act, an endangered species means any species which is in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act (ESA) = A United States law that provides for the conservation of endangered and threatened species of fish, wildlife, and plants.

Endangered species list = The List of Endangered and Threatened Wildlife (50 CFR 17.11; 50 C.F.R. §§ 223.201, 224.101), and the List of Endangered and Threatened Plants (50 CFR 17.12; 50 C.F.R. §§ 223.201, 224.101) name all species of mammals, birds, reptiles, amphibians, fishes, insects, plants, and other creatures that have been determined by the National Marie Fisheries Service or the United States Fish and Wildlife Service to be in the greatest need of Federal protection. Once listed, a species receives the full range of protections available under the Endangered Species Act, including prohibitions on killing, harming or otherwise taking a species.

Environmental Assessment (EA) = In the context of National Environmental Policy Act, an EA is a concise public document that analyzes the environmental impacts of a proposed Federal action and provides sufficient evidence to determine the level of significance of the impacts. The EA includes a brief analysis of the environmental impacts of the proposed action and its alternatives, and results in one of two determinations: (1) an Environmental Impact Statement is required; or (2) a Finding of No Significant Impact.

Environmental Impact Statement (EIS) = A detailed written statement required by the National Environmental Policy Act and prepared by a federal agency. The EIS is used by decision-makers to take environmental consequences into account. It describes a proposed action, the need for the action, alternatives considered, the affected environment, the environmental impacts of the proposed action, and other reasonable alternatives to the proposed action. An EIS is prepared in two stages: a draft and a final.

Environmental Protection Agency (EPA) = A United States agency responsible for protecting human health and the environment.

Eskimos = See Alaska Eskimos.

Evolutionarily significant unit (ESU) = A concept the National Marine Fisheries Service uses to identify distinct population segments of Pacific salmon under the Endangered Species Act. An ESU is a population or group of populations of Pacific salmon that (1) is substantially reproductively isolated from other populations and (2) contributes substantially to the evolutionary legacy of the biological species.

Exclusive economic zone (EEZ) = A coastal zone under national jurisdiction (up to 200-nautical miles wide) declared under the provisions of the 1982 United Nations Convention of the Law of the Sea, within which the United States has the rights over the use and exploration of marine resources. The United States EEZ in the northern portion of the Makah Usual and Accustomed fishing grounds is much narrower than 200 nautical miles due to the international boundary with Canada.

Federal Register = The United States government's daily publication of federal agency regulations and documents, including presidential proclamations, executive orders, and documents that must be published per acts of Congress.

Finding of No Significant Impact (FONSI) = A short National Environmental Policy Act document that presents the reasons why an action will not have a significant impact on the quality of the human environment and, therefore, will not require preparation of an Environmental Impact Statement. A Finding of No Significant Impact must be supported by the Environmental Assessment.

First Nation = A term referring to the aboriginal people located in what is now Canada.

Flense = To strip the blubber or skin from a dead whale.

Floats = Air-filled buoys attached by ropes to a struck or dead whale using a harpoon with a toggle point head. The floats keep the whale on the water surface so that it can be towed to shore for butchering.

Harassment = As defined in regulations implementing the Marine Mammal Protection Act, harassment means any act of pursuit, torment, or annoyance which: (1) has the potential to injure a marine mammal or marine mammal stock in the wild; or (2) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. In the case of a military readiness activity or a scientific research activity conducted by or on behalf of the Federal Government, the term harassment means (1) any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild; or (2) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered.

Harpooner = According to the Makah waiver request, a member of the whaling crew whose duties include throwing a long spear-like harpoon at a whale in order to embed a steel barb and

its accompanying line and floats into the animal. A backup harpooner accompanies a separate crew on the tribal chase boat.

Harvest = To kill and land a whale.

Haulout = A site where seals, sea lions, and other marine mammals climb out of the water to rest on land.

Hertz = A measurement of vibration or frequency expressed in cycles per second. One hertz equals one cycle per second.

Humane = As defined in regulations implementing the Marine Mammal Protection Act, the term humane refers to that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved.

Identified whale = An individual gray whale that has been identified from photographs and cataloged using a code unique to that animal.

Indian Civil Rights Act = A United States law that prohibits Indian tribal governments from enacting or enforcing laws that violate certain individual rights. It was adopted by the United States Congress to ensure that tribal governments respect basic rights of Indians and non-Indians.

International Convention for the Regulation of Whaling (ICRW) = An international treaty (also referred to as the "Convention") signed in 1946 designed to "provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry." A focus of the treaty was the establishment of the International Whaling Commission. There are presently 79 member nations to the ICRW, including the United States.

International Whaling Commission (IWC) = A body of commissioners charged with carrying out the provisions of the ICRW.

IWC aboriginal subsistence whaling = See Aboriginal subsistence whaling

IWC Commercial Whaling Moratorium = A moratorium on all commercial whaling approved by the International Whaling Commission in 1982 which effectively expanded the 1937 ban on commercial harvest of gray whales and right whales to all large whale species.

IWC Scientific Committee = A part of the International Whaling Commission (IWC), this group consists of approximately 200 of the world's leading whale scientists who provide advice

on the status of whale stocks. The IWC Scientific Committee meets in person biennially for two weeks 3-4 months preceding the main International Whaling Commission meeting. The Scientific Committee also calls special in-person and virtual meetings as needed to address particular subjects.

Land/Landing = As defined by regulations implementing the Whaling Convention Act, landing means bringing a whale or any parts thereof onto the ice or land in the course of whaling operations.

Landfill = A place where solid waste (garbage) is disposed between layers of dirt.

Level A harassment = As defined in regulations implementing the Marine Mammal Protection Act, Level A harassment means any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild. In the case of a military readiness activity or a scientific research activity conducted by or on behalf of the Federal Government, the term Level A harassment means any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild.

Level B harassment = As defined in regulations implementing the Marine Mammal Protection Act, Level B harassment means any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. In the case of a military readiness activity or a scientific research activity conducted by or on behalf of the Federal Government, the term Level B harassment means any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered.

Local aboriginal consumption = A phrase defined by the 1981 *Ad Hoc* Technical Working Group (but not formally adopted by the International Whaling Commission) to mean traditional uses of whale products by local aboriginal, indigenous or native communities in meeting their nutritional, subsistence and cultural requirements. The term includes trade in items which are by-products of subsistence catches.

Lose = As defined by the July 2012 Schedule to the International Convention for the Regulation of Whaling, lose means to either strike or take but not to land. ('Take' has a distinct meaning in the Marine Mammal Protection Act and International Convention for the Regulation of Whaling.)

Maa-Nulth First Nations = The Maa-nulth First Nations comprise five First Nations from Vancouver Island. They include: Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h First Nations, Toquaht Nation, Uchucklesaht Tribe, and the Ucluelet First Nation. Maa-nulth means "villages along the coast" in the Nuu-chah-nulth language. These villages/territories are located on the west coast of Vancouver Island surrounding Barkley Sound and Kyuquot Sound.

Makah Tribal Council = The governing body of the Makah Tribe. In three cooperative agreements with the Makah Tribe (in 1996, 1997, and 2001) the National Oceanic and Atmospheric Administration recognized the Makah Tribal Council as a Native American whaling organization and allowed the Council to issue permits to whaling captains in compliance with the cooperative agreements and Whaling Convention Act regulations.

Makah U&A whales= PCFG whales observed in either the northern Washington survey area (from Cape Alava to Cape Flattery) or Strait of Juan de Fuca survey area (from Cape Flattery to Admiralty Inlet) from June 1 to November 30.

Makah Whaling Commission = Members of the Makah Tribe that serve to review whaling crew qualifications, identify whaling crew and vessel participation, and provide other hunt restrictions and recommendations. The Makah Tribal Council would issue the permit to a whaling captain before any hunt, based on recommendations from the Makah Whaling Commission.

Maktak = Whale skin and layer of blubber used for food.

Magnuson Stevens Act (MSA) = Also known as the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. A United States law that is the governing authority for all fishery management activities that occur in federal waters within the United States 200 nautical mile limit, or Exclusive Economic Zone. The recent reauthorization mandates the use of annual catch limits and accountability measures to end overfishing, provides for widespread market-based fishery management through limited access programs, and calls for increased international cooperation.

Marine Mammal Commission (MMC) = An independent agency of the United States Government, established under Title II of the Marine Mammal Protection Act. The MMC was created to provide independent, science-based recommendations to the Secretary of Commerce on domestic and international programs and policies with respect to marine mammal protection and conservation and to carry out research programs.

Marine Mammal Protection Act (MMPA) = A United States law that prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on

the high seas, and the importation of marine mammals and marine mammal products into the United States

Maximum Net Productivity Level (MNPL) = A population level related to maximum net productivity, a rate of change defined in the National Marine Fisheries Service's Marine Mammal Protection Act regulations as the greatest net annual increment in population numbers or biomass resulting from additions to the population due to reproduction and/or growth less losses due to natural mortality.

Mitochondrial deoxyribonucleic acid (mtDNA) = DNA that is found in the mitochondria of cells. Unlike nuclear DNA, mtDNA is only inherited through the mother.

Moratorium = See IWC Commercial Whaling Moratorium

Moving Exclusion Zone (MEZ) = As defined in United States Coast Guard regulations, the MEZ is a vessel-based buffer within the Regulated Navigation Area designed to promote the safety of the whaling crew and other persons/watercraft operating in the vicinity of the whaling crew. The MEZ includes the column of water from the surface to the seabed with a radius of 500 yards centered on the Makah whale hunt vessel. Unless otherwise authorized by the Coast Guard, no person or vessel may enter the active MEZ except for an authorized Makah whale hunt and certain authorized media pool vessels.

Muzzle break = A device fitted to the end of the barrel that reduces gun recoil by re-directing gases that propel the bullet.

National Environmental Policy Act (NEPA) = A United States law declaring that it is the continuing policy of the Federal government to use all practicable means to create and maintain conditions under which people and nature can exist in productive harmony and fulfill the social, economic, and other needs of present and future generations of Americans. NEPA provides a mandate and a framework for Federal agencies to consider all reasonably foreseeable environmental effects of their proposed actions and to involve and inform the public in the decision-making process.

National Marine Fisheries Service (NMFS) = A United States agency within the National Oceanic and Atmospheric Administration and under the Department of Commerce charged with the stewardship of living marine resources through science-based conservation and management, and the promotion of healthy ecosystems.

National Oceanic and Atmospheric Administration (NOAA) = A scientific agency of the United States Department of Commerce focused on the conditions of the oceans and the atmosphere. NOAA warns of dangerous weather, charts seas and skies, guides the use and protection of ocean and coastal resources, and conducts research to improve understanding and stewardship of the environment. NOAA manages 13 National Marine Sanctuaries, including the Olympic Coast National Marine Sanctuary.

NOAA Office of International Affairs = An office within the National Oceanic and Atmospheric Administration that develops, coordinates, and promotes United States international policies in NOAA-related matters such as ecosystem-based management, climate change, earth observation, and weather forecasting.

Native American whaling organization = As defined by Whaling Convention Act regulations, an entity recognized by NMFS (e.g., the Makah Tribe) as representing and governing the relevant Native American whalers for the purposes of cooperative management of aboriginal subsistence whaling.

Non-binding resolution = A written motion adopted by a deliberative body (e.g., the United States Congress) that does not progress into a law but instead serves to formally express an opinion.

Observer = According to the Makah waiver request, a member of the Makah Department of Fisheries Management whose duties include observing the hunt and photographing any whale landed.

Occipital condyle = Skull bones located at the back and lower part of the cranium near the attachment of the spinal column.

Olympic Coast National Marine Sanctuary (OCNMS) = One of 13 marine sanctuaries in the United States administered by NOAA. It was designated as the first National Marine Sanctuary in the Pacific Northwest in 1994 and encompasses 3,310 square miles off of Washington State's Olympic Peninsula, extending 135 miles along the Washington Coast from about Cape Flattery to the mouth of the Copalis River.

Olympic National Park = A large national park located on Washington's Olympic Peninsula and managed by the United States National Park Service. Originally designated as the Olympic National Monument in 1909, it was re-designated a National Park in 1938 and became a World Heritage Site in 1981.

Optimum sustainable population (OSP) = As defined by regulations implementing the Marine Mammal Protection Act, the term optimum sustainable population means, with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Oregon to Southern Vancouver Island (OR-SVI) = An area surveyed for whales within the Pacific Coast Feeding Group range and encompassing coastal marine waters from Oregon to southern Vancouver Island, B.C.

Oregon to Southern Vancouver Island (OR-SVI) whales = PCFG whales observed in any survey area from southern Oregon to southern Vancouver Island (excluding areas in Puget Sound) from June 1 to November 30.

Pacific Coast Feeding Group (PCFG) range = A coastal marine area from northern California to northern Vancouver Island, B.C, used by PCFG gray whales.

Pacific Coast Feeding Group (PCFG) whales = Gray whales observed in at least 2 years between June 1 and November 30 in the PCFG area (along the U.S. and Canada coasts between 41°N and 52°N, excluding areas in Puget Sound) and entered into the Cascadia Research Collective's photo-identification catalog. For purposes of determining whether a harvested whale is a PCFG whale and therefore counts against a bycatch or mortality limit, the Tribe's proposal under Alternative 2 would include cataloged whales seen in at least 1 year, while the other action alternatives would include cataloged whales seen in 2 or more years. Under the MMPA, PCFG whales are considered part of the ENP gray whale population stock and have been described in the ENP gray whale SARs as a feeding aggregation.

Pacific Coast Feeding Group (PCFG) Mortality Limit = Term used in this FEIS to refer to calculated limits on all hunt-related mortality (i.e., whales that are struck and lost as well as whales that are landed) of Pacific Coast Feeding Group (PCFG) whales.

Pacific Fishery Management Council (PFMC) = One of eight regional fishery management councils established by the Magnuson Fishery Conservation and Management Act of 1976 for the purpose of managing fisheries from 3-200 miles offshore of the United States of America coastline. The PFMC is responsible for fisheries off the coasts of California, Oregon, and Washington.

Panmixia = The random mating of individuals within a population.

Pelagic = Of or in the upper layers of the open ocean.

Penthrite = Pentaerythritol tetranitrate or PETN. An odorless white crystalline solid used as a powerful explosive. Employed in whale hunting as a "penthrite grenade" discharged from a harpoon cannon.

Petroglyph = An ancient picture or inscription drawn or carved into a rock.

Pilot = According to the Makah waiver request, a member of the whaling crew whose duties include navigating the chase boat.

Plenary session = That portion of the annual International Whaling Commission meeting during which the full body of commissioners (or their deputy/alternate) debate and vote on proposals, resolutions, and motions before the International Whaling Commission.

Plenary power = Complete and unlimited power.

Pods = Small groups of marine mammals, especially whales.

Polychlorinated biphenyls (PCBs) = A class of toxic organic compounds known to accumulate in animal tissue. PCBs were primarily used as cooling and insulating fluids for industrial transformers and capacitors prior to being banned in the United States in the 1970s.

Potential Biological Removal Level (PBR) = As defined by regulations implementing the Marine Mammal Protection Act, the term PBR level means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population level. The PBR level is the product of the following factors: (1) The minimum population estimate of the stock; (2) One-half the maximum theoretical or estimated net productivity rate of the stock at a small population size; (3) A recovery factor of between 0.1 and 1.0.

Potlatch = A ceremonial gathering and gift-giving feast practiced by the Makah and other tribes of the Pacific Northwest that helps establish important proprietary rights regarding ownership of dances, songs, and other ceremonial and economic privileges.

Precedential effects = The effects of an action that would set a precedent for similar actions in the future.

Pupping = To give birth to pup seals or sea lions.

Record of Decision (ROD) = A National Environmental Policy Act document signed by the agency decisionmaker following the completion of an EIS. The ROD contains the decisions, alternatives considered, environmentally preferable alternative(s), factors considered in the agency's decisions, mitigation measures to be implemented; it also indicates whether all practicable means to avoid or minimize environmental harm have been adopted.

Recruitment = The process of adding individual whales to a population, group or area (usually by reproduction but also by migration).

Regulated navigation area (RNA) = As defined in United States Coast Guard regulations, the RNA is a marine zone the United States Coast Guard established within which the Makah whaling crew can activate a MEZ. The RNA promotes the safety of the whaling crew and other persons/watercraft operating in the vicinity of the whaling crew.

Regional Administrator = A National Marine Fisheries Service official who, among other duties, has been delegated authority to make the initial waiver determination under the Marine Mammal Protection Act on the Makah waiver request.

Rifleman = According to the Makah waiver request, a member of the whaling crew whose duties include shooting a harpooned whale using a high-powered rifle.

Rookeries = Sites where seals and sea lions congregate on shore to mate and give birth.

Russian Federation = A federation of independent states in northeastern Europe and northern Asia; formerly the Soviet Union.

Safety officer = According to the Makah waiver request, a member of the whaling crew whose duties include determining when the rifleman or whaler can discharge their weapon.

Salvage = To collect and utilize a dead, unclaimed whale.

Schedule = A document maintained by the International Whaling Convention that governs the conduct of whaling throughout the world. The measures described in the Schedule, among other things, provide for the protection of certain species; designate specified areas as whale sanctuaries in which commercial whaling may not occur if it were to resume; set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling; and prohibit the capture of suckling calves and female whales accompanied by calves. The compilation of catch reports and other statistical and biological records is also required. The

most recent Schedule was amended by the Commission at the 68th Annual Meeting in Portorož, Slovenia, October 2022.

Scoping = An open process agencies must conduct under the National Environmental Policy Act to determine the range and significance of the issues to be analyzed in depth in an Environmental Impact Statement.

Seabird breeding colonies = Sites at which seabirds congregate to breed (e.g., the numerous islands, rocks, and cliffs along the Washington coast).

Shoaling = Shallowing

Shrapnel = Fragments from an exploded projectile such as a bullet or bomb.

Stinker = As defined by regulations implementing the Whaling Convention Act, stinker refers to a dead, unclaimed whale found upon a beach, stranded in shallow water, or floating at sea.

Stinky whale = Whales that have a strong chemical smell and claimed to be inedible.

Stock = Under the Marine Mammal Protection Act, the term stock (or population stock) means a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature.

Strike/Struck = As defined by the July 2012 Schedule to the International Convention for the Regulation of Whaling, strike means to penetrate with a weapon used for whaling.

Subsistence catches = A phrase defined by the 1981 *Ad Hoc* Technical Working Group (but not formally adopted by the International Whaling Convention) to mean catches of whales by aboriginal subsistence whaling operations.

Take = As defined by the July 2012 Schedule to the International Convention for the Regulation of Whaling, take means to flag, buoy or make fast to a whale catcher. As defined by the Marine Mammal Protection Act, take means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

Thermocline = The depth where water temperature changes relatively rapidly and separates less dense, warmer waters from denser, colder waters.

Threatened species = As defined in the Endangered Species Act, a threatened species means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Toggle point = A specialized metal point that helps keep a harpoon from slipping out of a struck whale by means of a metal barb that actuates upon penetrating the whale's skin.

Training harpoon throws = A training harpoon throw is a harpoon throw made with a mock harpoon with blunted end incapable of penetrating a whale's skin.

Transfer station = A site used to temporarily store refuse prior to transporting it to the end point of disposal or treatment (e.g., a landfill).

Treaty of Neah Bay = The United States government and the Makah Tribe entered into the Treaty of Neah Bay on January 31, 1855. In addition to reserving the right of taking fish at all usual and accustomed grounds and stations, Article IV of the treaty secured the rights of whaling or sealing. The Treaty of Neah Bay is the only treaty between the United States and an Indian tribe that expressly provides for the right to hunt whales.

United States Coast Guard (USCG) = A branch of the United States Department of Homeland Security involved in maritime law, mariner assistance, and search and rescue in America's coasts, ports, and inland waterways as well as international waters with security and economic interests to the United States.

United States Fish and Wildlife Service (FWS) = A bureau within the United States Department of the Interior responsible for enforcing federal wildlife laws, protecting threatened and endangered species, managing migratory birds, restoring nationally significant fisheries, conserving and restoring wildlife habitat such as wetlands, and helping foreign governments with their international conservation efforts. The FWS manages 520 National Wildlife Refuges, including the Washington Islands National Wildlife Refuges.

Unsuccessful harpoon attempt = An unsuccessful harpoon attempt means the whale would not be struck (that is, would not have a harpoon embedded and would not show evidence of potentially lethal injury). This includes those associated with hunt training.

Usual and accustomed fishing grounds (U&A) = Areas in Washington where tribes have secured treaty rights to fish. The 1855 Treaty of Neah Bay secured these rights (including whaling and sealing rights) for the Makah tribe, and the tribe's U&A fishing grounds were adjudicated in *United States v. Washington*, 626 F.Supp. 1405, 1467 (W.D. Wash. 1985). The

boundaries of this U&A include United States waters in the western Strait of Juan de Fuca as well as open ocean areas of the Washington coast north of 48° 02'15" latitude and east of 125° 44'00" longitude.

Washington Islands National Wildlife Refuges = A complex of three National Wildlife Refuges (Flattery Rocks, Quillayute Needles, and Copalis) spanning over 100 miles of Washington's Pacific Coast. Refuge habitat consists of approximately 870 coastal rocks and reefs managed by the United States Fish and Wildlife Service primarily to protect seabird nesting.

Wasteful manner = As defined by NMFS regulations at 50 CFR 216.3: "[A]ny taking or method of taking which is likely to result in the killing of marine mammals beyond those needed for subsistence, subsistence uses, or for the making of authentic native articles of handicrafts and clothing, or which results in the waste of a substantial portion of the marine mammal and includes, without limitation, the employment of a method of taking which is not likely to assure the capture or killing of a marine mammal, or which is not immediately followed by a reasonable effort to retrieve the marine mammal."

Western North Pacific (WNP) gray whales = Gray whales that feed during the summer and fall in the Okhotsk Sea (primarily off northeast Sakhalin Island, Russia), some of which also feed off southeastern Kamchatka in the Bering Sea. WNP gray whales are considered a population stock under the MMPA, and the stock is designated as depleted. WNP gray whales are recognized as a distinct population segment (DPS) under the ESA and are designated as endangered.

Whale catcher = As defined by the Whaling Convention Act, a whale catcher is a vessel used for the purpose of hunting, killing, taking, towing, holding onto, or scouting for whales. The Makah tribe proposes to employ two types of whale catchers – a paddle-powered canoe(s) and a motorized chase boat.

Whaling captain = As defined by regulations implementing the Whaling Convention Act, a whaling captain or captain means any Native American who is authorized by a Native American whaling organization to be in charge of a vessel and whaling crew.

Whaling Convention Act (WCA) = A United States law that provides the framework for meeting United States obligations arising from the 1946 International Convention for the Regulation of Whaling. It provides for a United States Commissioner to the International Whaling Commission and authorizes the Secretary of State to present objections to that Commission's regulations. It establishes as unlawful whaling, transporting whales or selling whales, in violation of the Convention regulations. It sets up a whaling licensing framework,

with fines and imprisonment for violations. Enforcement is primarily the responsibility of the Secretary of Commerce.

Whaling crew = As defined by regulations implementing the Whaling Convention Act, a whaling crew means those Native Americans under the control of a captain. A Makah whaling crew consists of eight Makah tribal members; one serving as captain and the rest as a harpooner and paddlers.

Table of Contents

APPENDIX E RESPONSES TO COMMENTS ON THE 2015 DEIS

APPENDIX F RESPONSE TO COMMENTS ON THE 2012 NOTICE OF INTENT TO TERMINATED THE EXISTING DEIS AND PREPARE A NEW ENVIRONMENTAL IMPACT STATEMENT

Section 1

Purpose and Need

Table of Contents

List of Tables

List of Figures

1.0 PURPOSE AND NEED

1.1 Introduction

The National Marine Fisheries Service (NMFS) has prepared this Final Environmental Impact Statement (FEIS) for the Makah Indian Tribe's (Makah Tribe's or Tribe's) request for a waiver under the Marine Mammal Protection Act (MMPA) to resume ceremonial and subsistence harvest of eastern North Pacific (ENP) gray whales in their usual and accustomed fishing area (U&A). NMFS published a Draft Environmental Impact Statement (DEIS) on March 13, 2015 and received public comments through July 31, 2015 via email, mail, fax, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). We also held two public meetings in April 2015 to receive comments in person. We received more than 57,000 comments over the course of the 140-day comment period. Over 99% of comments were submitted as form letters.

In 2019, NMFS West Coast Region (WCR) issued a proposed waiver and proposed rule that would grant, in part, the Tribe's request and announced that NMFS would convene a hearing before an Administrative Law Judge (ALJ) on NMFS's proposals. During the hearing, held in November 2019, relevant information that became available after publication of the 2015 DEIS was presented, leading NMFS to determine that supplementing the DEIS was appropriate. We published a Supplemental DEIS on July 1, 2022 and received public comments until October 14, 2022. The public comment period was then briefly reopened from October 28 through November 3, 2022. We received 47 comments via email, mail, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Commenters on the DEIS and SDEIS included state and federal entities, nonprofit organizations, and interested individuals from the United States and around the world. Responses to substantive comments received on the DEIS and SDEIS can be found in Appendix C.

This FEIS integrates the analyses presented in the DEIS and SDEIS, incorporating feedback from public comments and the best available science.

1.1.1 Summary of the Proposed Action

NMFS proposes[1] to issue a waiver and implementing regulations that would authorize the Makah Indian Tribe to resume a limited ceremonial and subsistence hunt of ENP gray whales

[1] This FEIS has been prepared pursuant to the Council on Environmental Quality's (CEQ) NEPA regulations (40 CFR 1500-1508) to evaluate the impacts of this proposed action and six reasonable alternatives, including a No-action Alternative. The use of the term "proposed" indicates that NMFS has yet to make a final decision, which allows this FEIS to inform that decision when it is made.

(*Eschrichtius robustus*) in the coastal portion of the Tribe's U&A, off the coast of Washington State.

The Tribe proposes to harvest of up to 20 whales over a 5-year period, with no more than five gray whales harvested in any single year. The Tribe's proposal (Alternative 2) also includes measures intended to limit the number of harpoon strikes in any year, avoid the intentional harvest of gray whales identified as part of the Pacific Coast Feeding Group (PCFG[2]), limit the annual harvest of PCFG whales based on the abundance of a subset of PCFG whales, ensure that the hunt is as humane as practicable, and protect public safety. This FEIS uses the term 'hunt' to include all activities associated with approaching, striking, killing, and landing whales, and the term 'harvest' to mean killing and landing a whale.

The 1855 Treaty of Neah Bay expressly secures the Makah Tribe's right to hunt whales. To exercise that right under the Ninth Circuit Court of Appeals decision in *Anderson v. Evans* (2004), however, the Makah must obtain authorization from NMFS. Two statutes govern any authorization: the MMPA (16 USC 1361 *et seq.*) and the Whaling Convention Act (WCA) (16 USC 916 *et seq.*). Specifically, to authorize Makah gray whale hunting, we, NMFS, must perform the following actions:

- Waive the moratorium prohibiting take of marine mammals under Section 101(a)(3)(A) of the MMPA.
- Promulgate regulations implementing the waiver and governing the hunts in accordance with Section 103 of the MMPA.
- Issue hunt permits to the Makah under Section 104 of the MMPA and the hunt regulations.
- Enter into a cooperative agreement with the Tribe for co-management of any gray whale hunt and publish any relevant aboriginal subsistence whaling quotas under the provisions of the WCA.

In February 2005, the Makah Tribe formally requested a waiver of the take moratorium under the MMPA to hunt gray whales (Appendix A). We published a notice of intent (NOI) to prepare an EIS in response to the Tribe's request (70 FR 49911, August 25, 2005). In January 2006, the Tribe asked us to take all necessary actions under whatever authorities we may deem applicable, and we announced that we would expand the scope of the EIS to include the WCA (71 FR 9781,

[2] In previous documents we referred to this feeding group as the Pacific Coast Feeding Aggregation or PCFA (NMFS 2008a). In this document we use PCFG, the term adopted by the International Whaling Commission (IWC) and more recent scientific assessments (IWC 2011a).

February 27, 2006). To assist in our MMPA and WCA determinations, we are preparing this FEIS under the National Environmental Policy Act (NEPA) as the lead agency reviewing this action (42 USC 4321 *et seq.*). See Subsection 1.2, Legal Framework, for more detail. The Tribe's proposal is described in Table 1-1. It is described in detail in Section 2, Alternatives.

Table 1-1. Summary of the Makah's Proposed Action

Species restrictions	Hunt ENP gray whales only.
Age/sex restrictions	Prohibit hunting of calves or whales accompanied by calves.
Number restrictions	Harvest up to 20 whales in a 5-year period, with a maximum of 5 whales harvested, 7 struck, and 3 struck and lost per calendar year. Reduce numbers of harvested, struck, and struck and lost whales as necessary in accordance with United States' obligations under the International Convention for the Regulation of Whaling (ICRW), or to prevent the ENP gray whale stock from falling below optimum sustainable population (OSP) levels under the MMPA. Cease hunting in any year if the number of harvested whales exceeds an allowable bycatch level based on matches in the National Marine Mammal Laboratory's photographic identification catalog for PCFG gray whales.[3]
Area restrictions	Hunt within the coastal portion of the Makah U&A, excluding the Strait of Juan de Fuca. Prohibit hunting within 200 yards (183 meters) of Tatoosh Island and White Rock during May to protect nesting seabirds.
Timing restrictions	Prohibit hunting from June 1 through November 30 during any calendar year to avoid intentional harvest of whales feeding off the coast of Washington during the summer feeding period.
Method of hunt restrictions	Hunt using traditional methods, except for the mandatory use of a .50 caliber rifle to kill the whale.
Use restrictions	Limit use of whale products to ceremonial and subsistence purposes. Prohibit the commercial sale or offer for sale of any whale products, except for sale or offer for sale of traditional handicrafts made from non-edible whale parts within the United States.

1.1.2 Makah Tribe's Proposed Hunt Location

The Makah Tribe proposes to resume gray whale hunting in the coastal portion of the Tribe's U&A, as adjudicated by the Western District Court of Washington in *United States v. Washington* (1974 and 1985). The Makah U&A includes marine waters off the northwest coast of Washington State and the western portion of the Strait of Juan de Fuca (Figure 1-1). The area proposed by the Tribe for hunting (Figure 1-1) is smaller than its adjudicated U&A because the Tribe proposes to exclude the Strait of Juan de Fuca to address concerns about public safety and the effects of hunts on gray whales in that area of its U&A.

Figure 1-1 also shows a larger action area, encompassing the entire Makah U&A and adjacent marine waters, as well as land areas with the potential to be affected by one or more of the action

[3] The National Marine Mammal Laboratory does not maintain a comprehensive PCFG catalog. Rather, a non-governmental organization, Cascadia Research Collective, maintains a database of photographically identified ENP gray whales (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).

alternatives. (The entire range of the PCFG is shown in Figure 3-9, Spatial Scales Associated with the Action Area) The action area includes the following sites:

- Beaches where a gray whale may be landed and butchered.
- Rocks and islands of the Washington Islands National Wildlife Refuges within the waters of the Olympic Coast National Marine Sanctuary (OCNMS or Sanctuary), where sanctuary resources such as seabirds and hauled-out marine mammals might be affected.
- The Makah and Ozette Reservations and the community of Neah Bay (where many tribal members reside and public services are located).
- Other shoreline areas that provide physical or visual access to the Makah's U&A (e.g., vantage points provided by the coastal strip of the Olympic National Park).

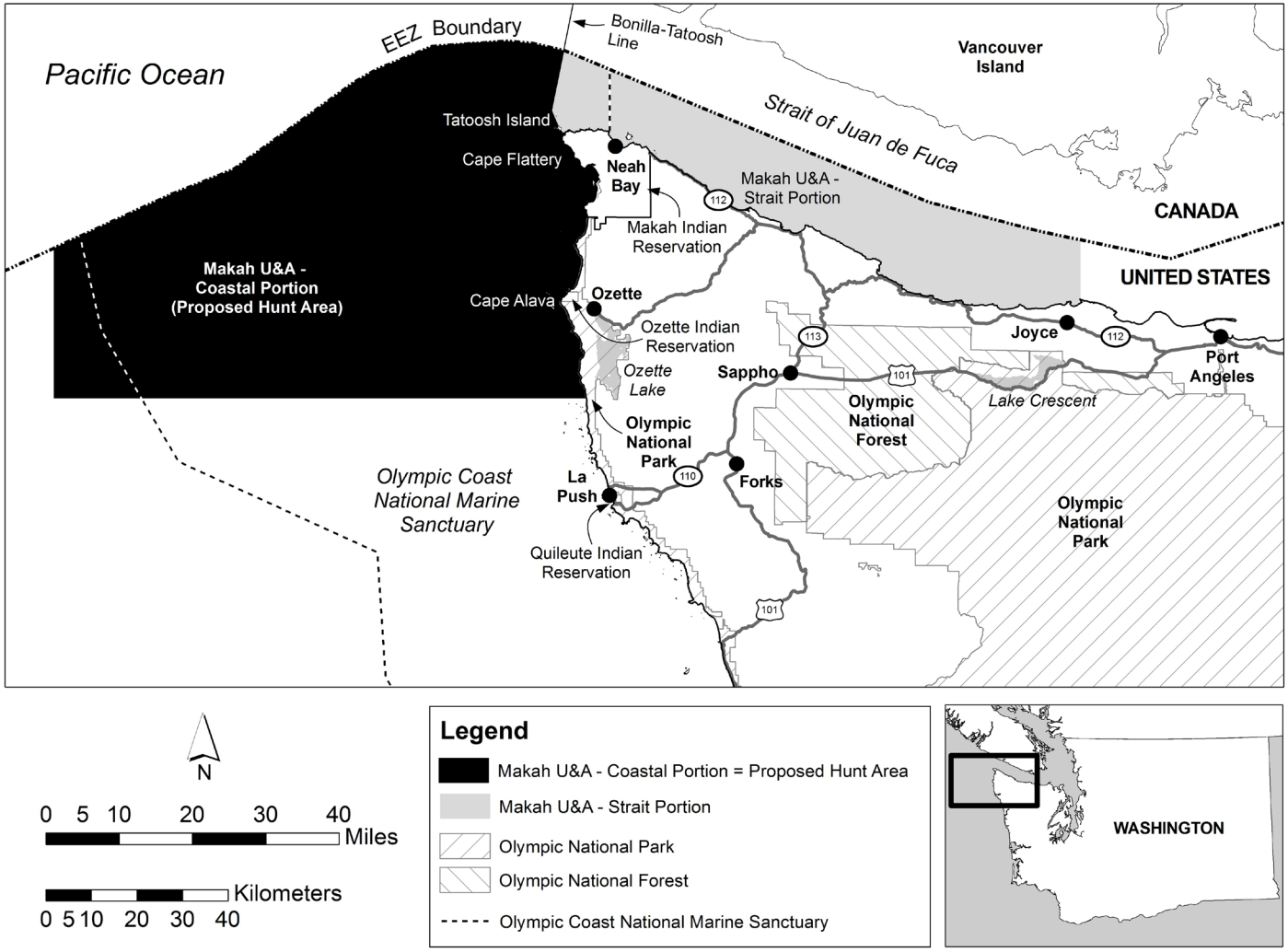


Figure 1-1. Action area.

1.1.3 Summary of Gray Whale Status

NMFS recognizes two stocks of gray whales in the north Pacific—the ENP stock and a western north Pacific (WNP) stock (Carretta et al. 2023; Weller et al. 2023). The ENP gray whale population migrates along the west coast of North America between Mexico and Alaska, and some whales are present year-round in the action area. The population sustained historical aboriginal hunting by natives in present-day Russia, Alaska, British Columbia, and Washington State for many centuries, but commercial whaling in the late 1800s and early 1900s decimated the population. Because of a suite of international and national protections (Subsection 3.4.3.1.3, Population Exploitation, Protection, and Status), the population recovered (Rugh et al. 2005). In 1994, ENP gray whales were delisted under the U.S. Endangered Species Act (ESA) (59 FR 31094, June 16, 1994). The current estimated population size is 14,526 animals (Eguchi et al. 2023). See Subsection 3.4, Gray Whales, for more information.

The distribution and migration patterns of gray whales in the WNP are less clear. The main feeding ground is in the Okhotsk Sea off the northeastern coast of Sakhalin Island, Russia, but some animals occur off southeastern Kamchatka and in other waters of the Okhotsk Sea (Subsection 3.4.3.2, Western North Pacific (WNP) Gray Whale). WNP whales were thought to all migrate south in autumn to wintering areas somewhere in the South China Sea, but recent information suggests that some animals feeding in the Okhotsk Sea migrate east, to coastal waters off the west coast of the United States and Baja Mexico during winter and may transit through the Makah U&A. WNP whales are listed as endangered under the ESA. In 2016, there were an estimated 290 animals (excluding calves) in the population with a 90% confidence interval of 271-311 animals (Cooke et al. 2018a). Subsection 3.4.3.2, Western North Pacific (WNP) Gray Whale, discusses the issues raised by the discovery of WNP migration to the west coast of the United States.

NMFS currently does not recognize the PCFG as a "population stock" as we interpret that term under the MMPA, but we have stated that the PCFG seems to be a distinct feeding aggregation and may warrant consideration as a stock in the future (Carretta et al. 2023). The International Whaling Commission (IWC) found it "plausible" that the PCFG may be a demographically distinct feeding group[4] (IWC 2011a) and has evaluated the United States' request for a quota for

[4] Although the IWC has not formally identified the PCFG as a stock, the IWC's Scientific Committee (IWC 2012a) noted that its implementation review of eastern North Pacific gray whales (with an emphasis on the PCFG) was "based on treating PCFG as a separate management stock" (which is not necessarily equivalent to a stock as defined under the MMPA).

the Makah Tribe against its impacts to PCFG whales (IWC 2013a; IWC 2018a) (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates). The current estimated population size of the PCFG is 212 animals (Harris et al. 2022). Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales, discusses the PCFG in greater detail.

1.1.4 Summary of Makah Tribe's Historic Whaling Tradition

The Makah's tradition of whale hunting dates back at least 1,500 years. Subsistence use of whale products from drift and stranded whales extends back another 750 years before that time, prior to development of hunting equipment and techniques (Wessen, G. as cited in Renker 2018). The gray whale was one of the major whale species the Makah hunted, likely because of its nearshore migration, slow swimming speed, and presence during the summer (Huelsbeck 1988). The fact that the Treaty of Neah Bay is the only treaty between the United States government and a Native American tribe that expressly protects the right to hunt whales suggests the historic importance of whaling to the Makah Tribe (*Anderson v. Evans* 2004). A combination of factors led to the suspension of Makah whaling in the 1920s (Subsection 3.10.3.4.2, Factors Responsible for Discontinuation of the Hunt).

On May 5, 1995, the Makah Tribe formally notified NMFS of its interest in re-establishing limited ceremonial and subsistence whale hunting (Makah Tribal Council 1995), approximately one year after NMFS removed the ENP gray whale from the list of endangered species under the ESA. Four years later, the Makah hunted and landed one gray whale. Judicial decisions have since prevented the Tribe from hunting gray whales until certain processes are completed. For more information on historic and contemporary Makah whaling, refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2013, and Subsection 3.10, Ceremonial and Subsistence Resources.

1.2 Legal Framework

The following section describes the legal framework that will guide our decisions related to this project, including environmental review under NEPA, the Treaty of Neah Bay and the federal trust responsibility, species protection and conservation under the MMPA, and governance of aboriginal subsistence whaling quotas under the WCA.

1.2.1 National Environmental Policy Act

Congress enacted NEPA to create and carry out a national policy designed to encourage harmony between humankind and the environment. While NEPA neither compels particular results nor imposes substantive environmental duties upon federal agencies (*Robertson v. Methow Valley*

Citizens Council 1989), it does require that they follow certain procedures when making decisions about any proposed major federal actions that may affect the environment. These procedures ensure that an agency has the best possible information before it to make an informed decision regarding the environmental effects[5] of any proposed action. They also ensure full disclosure of any associated environmental risks to the public. Regulations promulgated by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508) contain specific guidance for complying with NEPA.

This FEIS is being prepared under the 1978 CEQ NEPA regulations rather than the modified regulations promulgated by CEQ in 2020, with an effective date of September 14, 2020. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. This review began on May 21, 2012 (77 FR 29967), and the agency has decided to proceed under the 1978 regulations.

Under the 1978 CEQ regulations, federal agencies may prepare an environmental assessment (EA) to determine whether a proposed action may have a significant impact or effect on the quality of the human environment. Agencies must examine the context of the action and intensity of the effects to determine the significance of impacts. If information in an EA indicates that the environmental effects are not significant, the agency issues a finding of no significant impact (FONSI) to conclude the NEPA review. We issued FONSIs in two prior NEPA assessments of Makah whale hunting proposals. The history of those actions and ensuing court decisions is recounted in Subsection 1.4.3, Other Environmental Assessments and Court Decisions Informing this Action.

An EIS provides a detailed statement of the environmental impacts of the action, reasonable alternatives, and measures to mitigate adverse effects of the proposed actions. Although the MMPA and NEPA requirements overlap in some respects, the scope of NEPA goes beyond that of the MMPA by considering the impacts of the proposed major federal action on non-marine mammal resources, such as human health and cultural resources.

An EIS culminates in a Record of Decision (ROD). The ROD documents the alternative selected for implementation, may recommend further review, attaches any conditions that the agency may require, and summarizes the impacts expected to result from the alternative selected.

[5] The terms "effect" and "impact" are used interchangeably in this FEIS (consistent with Council on Environmental Quality regulations at 40 CFR 1508.8).

NMFS is the lead agency responsible for preparation of this FEIS. The Bureau of Indian Affairs is a cooperating agency as defined by CEQ.

1.2.2 Treaty of Neah Bay and the Federal Trust Responsibility

This Subsection provides a brief history of federal-tribal relations, a general legal description of the treaty rights of the Northwest tribes that evolved from that history, a more specific description of the Makah treaty right to hunt whales, the recent history of the Makah's efforts to use their treaty rights, and the current legal framework for implementation of those rights as defined in the Ninth Circuit Court's decision in *Anderson v. Evans* (2004).

Prior to 1871, to allow for the westward expansion of non-Indians, the United States government often entered into treaties with Indian tribes that typically provided for the surrender of large areas of land the Indians occupied. In exchange, the United States recognized permanent homelands (reservations) and sometimes explicitly or implicitly provided for off-reservation hunting, gathering, and fishing rights. Treaties with Indian tribes are the supreme law of the land and generally preempt state laws. Treaty language securing fishing and hunting rights is not a "grant of rights [from the federal government] to the Indians, but a grant of rights from them — a reservation of those not granted" (*United States v. Winans* 1905). In other words, the tribes retain rights not specifically surrendered to the United States (commonly referred to as reserved rights).

The scope of reserved Indian hunting, fishing, and gathering rights that have been recognized by the courts is sometimes very broad and depends on the language of the treaty or the known culture of the tribe at treaty time. Courts have developed rules for interpreting Indian treaties that recognize the communication difficulties between the tribes and treaty negotiators, the imbalance of power between the tribes and the United States, and the fact that the tribes are unlikely to have understood the legal ramifications of the exact wording of their treaties (Cohen 2005). Accordingly, courts liberally construe treaties, resolve ambiguities in the tribe's favor, and "interpret Indian treaties to give effect to the terms as the Indians themselves would have understood them" (*Minnesota v. Mille Lacs Band of Chippewa* 1999).

Twenty Indian tribes located in western Washington State have treaty-protected and adjudicated fishing rights in the Pacific Ocean, Strait of Juan de Fuca, and Puget Sound. The United States government and the Makah Tribe entered into the Treaty of Neah Bay on January 31, 1855, and the Senate consented to its ratification on March 8, 1859 (United States Statutes at Large, Volume 12, Page 939). In addition to reserving the right of taking fish at all usual and accustomed grounds and stations, Article IV of the treaty secured the rights of whaling or sealing. The Treaty

of Neah Bay is the only treaty between the United States and an Indian tribe that expressly provides for the right to hunt whales.[6]

1.2.2.1 The Stevens Treaties

"To extinguish the last group of conflicting claims to lands lying west of the Cascade mountains and north of the Columbia River, in what is now the State of Washington, the United States entered into a series of treaties with Indian Tribes in 1854 and 1855" (*Washington v. Washington State Commercial Passenger Fishing Vessel Association* 1979). These treaties are called the Stevens Treaties after Isaac Stevens, the Governor of Washington Territory, who was the United States negotiator. The Stevens Treaties settled the land claims and secured the hunting and fishing rights for numerous tribes, including the Makah Tribe. The promise that the Indian tribes would be guaranteed continued access to a variety of natural resources essential to their livelihood and way of life for future generations was essential for securing Indian consent to the treaties with the United States (*United States v. Washington* 1974). The scope of reserved Indian hunting, fishing, trapping, and gathering rights that courts have recognized depends on the language of the treaty and the circumstances surrounding the treaty negotiations.

1.2.2.2 Scope of the Fishing Right under the Stevens Treaties

The fishing clauses of the Stevens Treaties have been at the center of litigation for more than 100 years, including state attempts to limit the exercise of treaty fishing rights. *United States v. Washington* (1974), commonly referred to as the "Boldt" decision, defined the scope of these treaty rights to fish. The court held that state regulation of treaty fishing was authorized only if reasonable and necessary for conservation. In affirming this decision the Supreme Court also interpreted the Stevens Treaties to secure 50 percent of the harvestable surplus of fish passing through their "usual and accustomed grounds and stations" (*United States v. Washington* 1974) to the tribes, unless their moderate living needs could be met by a lesser amount (*Washington v. Washington State Commercial Passenger Fishing Vessel Association* 1979). The Treaty of Neah Bay was one of the Stevens Treaties reviewed in the *United States v. Washington* (1974) litigation. Although the court's focus in that proceeding was to address the appropriate exercise of the Tribe's fishing rights, in reviewing the treaty, the court noted the following:

[6] Article 4 of the 1855 Treaty with the Makah (see Appendix A) states: "The right of taking fish and whaling and sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States, and of erecting temporary houses for the purpose of curing, together with the privilege of hunting and gathering roots and berries on open and unclaimed lands: Provided, however, That they shall not take shell-fish from any beds staked or cultivated by citizens."

> [t]he treaty commissioners were aware of the commercial nature and value of the Makah maritime economy and promised the Makah that the government would assist them in developing their maritime industry. Governor Stevens found the Makah not much concerned about their land . . . but greatly concerned about their marine hunting and fishing rights. Much of the official record of the treaty negotiations deals with this. Stevens found it necessary to reassure the Makah that the government did not intend to stop them from marine hunting and fishing but in fact would help them develop these pursuits (*United States v. Washington* 1974).

Additionally, the court noted the following:

> [i]n aboriginal times the Makah enjoyed a high standard of living as a result of their marine resources and extensive marine trade. . . . The Makah not only sustained a Northwest Coast culture, but also were wealthy and powerful as contrasted with most of their neighbors (*United States v. Washington* 1974).

The Court of Appeals for the Ninth Circuit similarly noted that the specific reservation of the right to whale in the Treaty of Neah Bay "suggests the historic importance of whaling to the Makah Tribe" (*Anderson v. Evans* 2004). The Makah U&A for fishing was defined in a later sub-proceeding under *United States v. Washington* (1985). The Tribe's usual and accustomed whaling and sealing grounds have not been adjudicated.

1.2.2.3 Limitations on the Exercise of Treaty Rights

Treaty rights are not unbounded. The United States Supreme Court has held that the United States Congress has full power over Indian lands and Indian tribes and can abrogate federal Indian treaties (*Lone Wolf v. Hitchcock* 1903) unilaterally, though doing so may implicate Fifth Amendment taking by the federal government and the need for federal compensation (*Menominee Indian Tribe v. United States* 1968; *Hynes v. Grimes Packing Company* 1949; *United States v. Shoshone Tribe of Indians* 1938). The courts will not lightly find that treaty rights have been abrogated (*Menominee Indian Tribe v. United States 1968*). Generally, states cannot regulate treaty hunting and fishing activities (*Menominee Tribe v. United States* 1968). However, the states of Washington and Oregon have some ability to limit the exercise of Indian treaty rights for conservation purposes where such regulation is necessary to sustain the species.

1.2.2.3.1 State Regulation

In the Pacific Northwest, a significant body of law has developed over the last 40 years in response to state attempts to impose regulations that effectively prevented tribal fishermen from taking fish at their usual and accustomed places. In the 1970s, the United States brought litigation on behalf of the Stevens Treaty tribes against the states of Washington and Oregon to establish the treaty right guarantees of access to the usual and accustomed tribal fishing places and to an equitable share of the harvestable fish. The courts held that states could not qualify the treaty

right. In a series of decisions responsive to growing concerns regarding the continued viability of the natural resources in question, however, the Supreme Court affirmed the states' police power to regulate tribal fisheries for conservation purposes where such regulation is necessary to sustain the species. The court stated the following:

> [t]he right to take fish at all usual and accustomed places may, of course not be qualified by the State . . . [b]ut the manner of fishing, the size of the take, the restriction of commercial fishing, and the like may be regulated by the State in the interest of conservation, provided the regulation meets appropriate standards and does not discriminate against Indians (*Puyallup Tribe v. Washington Department of Game* 1968).

In reviewing state conservation regulations, the courts use the conservation necessity principle to ensure that the regulation does not discriminate against the treaty tribe's reserved right to fish, is reasonable and necessary to preserve and maintain the resource, and the conservation required cannot be achieved by restriction of fishing by non-treaty fishermen or by other less restrictive means or methods (*United States v. Washington* 1974). As defined in these court decisions, conservation is a term of art and has been defined alternatively as "those measures which are reasonable and necessary to the perpetuation of a particular run or species of fish" (*United States v. Washington* 1974) and as "preserving a 'reasonable margin of safety' between an existing level of [salmon] stocks and the imminence of extinction…" (*United States v. Oregon* 1983). Although the courts have imposed limits on the nature of state regulation of treaty fishing, they have also held that "neither the treaty Indians nor the state on behalf of its citizens may permit the subject matter of these treaties to be destroyed" (*United States v. Washington* 1974).

1.2.2.3.2 Federal Regulation

Congress exercises plenary power in the field of Indian affairs. As part of this authority, the United States Supreme Court has consistently held that Congress, through the enactment of laws, has the authority to abrogate or modify the exercise of Indian treaty rights. This includes congressional power to abrogate or modify treaty rights through statutes that address conservation of natural resources. To find abrogation, however, the Supreme Court has required "clear evidence that Congress actually considered the conflict between the intended action on the one hand and Indian treaty rights on the other, and chose to resolve the conflict by abrogating the treaty" (*United States v. Dion* 1986).

In *Anderson v. Evans* (2004), the court found that the MMPA applies to the Makah Tribe and constrains its treaty right to harvest whales to ensure that "the conservation goals of the MMPA are effectuated." In holding that the MMPA applied to the Tribe, the court stated that "[w]e need not and do not decide whether the Tribe's whaling rights have been abrogated by the MMPA."

The court also noted that "[u]nlike other persons applying for a permit or waiver under the MMPA, the Tribe may urge a treaty right to be considered" during review of the Tribe's request (*Anderson v. Evans* 2004).

1.2.2.4 The Federal Trust Responsibility

The United States and Indian tribes have a unique relationship. From the formation of the United States to the present, federal law has recognized Indian tribes as independent political entities with authority over their members and territory (*Worcester v. Georgia* 1832). The United States Constitution provides Congress with the authority to regulate commerce "among the several states, and with the Indian Tribes" (United States Constitution, Article I, Section 8, clause 3). This power to regulate commerce with Indian tribes includes the exclusive authority to enter into treaties and agreements with Indian tribes regarding their rights to aboriginal lands. Central to such treaties and agreements in the Pacific Northwest is the reservation of Indian hunting, gathering, and fishing rights both on and off the reservation. These express and implied reservations preserve the inherent rights of the tribe that have not been limited or abrogated by treaty or federal legislation.

The federal government has a trust responsibility to protect the treaty hunting, fishing, and gathering rights of Indian tribes. As described by the Supreme Court, "under a humane and self-imposed policy which found expression in many acts of Congress and numerous decisions of this Court, [the United States] has charged itself with moral obligations of the highest responsibility and trust" (*Seminole Nation v. United States* 1942). This unique relationship provides the basis for legislation, treaties, and executive orders that grant unique rights or privileges to Native Americans (*Morton v. Mancari* 1974). The trust responsibility requires federal agencies to carry out their activities in a manner that is protective of these express rights *(Gros Ventre Tribe v. United States* 2006). The Ninth Circuit Court of Appeals has held, however, that "unless there is a specific duty that has been placed on the government with respect to Indians, [the government's general trust obligation] is discharged by [the government's] compliance with general regulations and statutes not specifically aimed at protecting Indian tribes" (*Gros Ventre Tribe v. United States* 2006, citing *Morongo Band of Mission Indians v. FAA* 1998; *United States v. Jicarilla Apache Nation* 2011)).

Executive Order 13175 (implemented by Department of Commerce Administrative Order 218-8) affirms the trust responsibility of the United States and directs agencies to "establish regular and meaningful consultation and collaboration with tribal officials," and respect tribal sovereignty when developing "Federal policies that have tribal implications." (see the Presidential

Memorandum from November 5, 2009 and January 26, 2021 reaffirming EO 13175). This policy is also reflected in the Department of Commerce "Tribal Consultation and Coordination Policy" (78 FR 33331, June 4, 2013). NMFS, as an agent of the federal government, has a trust responsibility to Indian tribes. For example, see Secretarial Order 3206 and NOAA's Policy on Government-to-Government Consultation with Federally Recognized Indian Tribes and Alaska Native Corporations (NOAA Administrative Order 218-8, June 15, 2014 and reviewed on December 19, 2018).

1.2.3 Marine Mammal Protection Act

1.2.3.1 Section 2 – Findings and Declaration of Policy

Congress enacted the MMPA to protect and conserve marine mammals and their habitats. Section 2 of the MMPA contains the general purposes and policies of the Act, including congressional findings (16 USC 1361). Congress was concerned that certain marine mammal species and population stocks were in danger of extinction or depletion, and it intended to establish protections to encourage development of those stocks to the greatest extent feasible, commensurate with sound policies of resource management. Therefore, Congress specified that the primary objective of marine resource management under the MMPA is to maintain the health and stability of the marine ecosystem. Section 2 indicates that stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element of the ecosystem, and they should not be permitted to diminish below their optimum sustainable population (OSP) level (Subsection 3.4.2.1, Marine Mammal Protection Act Management).

1.2.3.2 Section 101(a) – Take Moratorium

To achieve the general purposes and policies of Section 2 of the MMPA, Congress established a moratorium on the taking and importing of marine mammals in Section 101(a) (16 USC 1371(a)). Under the MMPA, 'take' means to "harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 USC 1362(13)). 'Harassment' is defined as follows:

> . . . any act of pursuit, torment, or annoyance which (1) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (2) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B Harassment] (16 USC 1362(18)(A)).

This moratorium is not absolute. Statutory exceptions allow marine mammals to be taken for scientific or educational purposes and to be taken incidentally in the course of commercial fishing. A statutory exemption allows take of marine mammals by Alaska Natives for subsistence

purposes or to create and sell authentic native articles of handicraft and clothing. The agency may also waive the take moratorium under Section 101(a)(3).

1.2.3.3 Section 101(a)(3)(A) – Waiver of the Take Moratorium

Section 101(a)(3)(A) authorizes and directs the Secretary of Commerce "from time to time" to "determine when, to what extent, if at all, and by what means, it is compatible" with the MMPA "to waive the Section 101(a) take moratorium" (16 USC 1371(a)(3)(A)). NMFS considers whether to waive the take moratorium on a case-by-case basis, either when a waiver appears appropriate or when a specific proposal is presented. NMFS waives the moratorium only with respect to a particular species or stock and then only to the extent provided in the waiver (Bean 1983). As described in Subsection 3.17.3.1, Waivers of the MMPA Take Moratorium, the waiver process involves a number of steps, is seldom requested, and has not been undertaken many times.

The following discussion responds to past public comments requesting that we summarize the MMPA procedures for waiving the take moratorium and issuing permits. The primary steps of the MMPA waiver process include:

1. Initial waiver determination and development of proposed implementing regulations.
2. Formal rulemaking on the record (including a hearing before a presiding official, such as an administrative law judge).
3. Final waiver determination (including final regulations).
4. Permit application and processing.

Preparation of this FEIS is one step in a full evaluation of the Makah's request to hunt gray whales and will aid future decisions related to the MMPA as well as under the WCA (discussed in Subsection 1.2.4, Whaling Convention Act).

1.2.3.3.1 Step 1 ─ Initial Waiver Determination

NMFS' West Coast Regional Administrator was the delegated authority in this case to make the initial waiver determination (NMFS 2005a). Section 101(a)(3)(A) of the MMPA contains provisions related to the waiver determination. Any waiver determination must fulfill the following criteria:

1. Be based on the best scientific evidence available.
2. Be made in consultation with the Marine Mammal Commission.

3. Have due regard to the distribution, abundance, breeding habits, and times and lines of migratory movements of the marine mammal stock in question for take.
4. Find that the taking is in accord with sound principles of resource protection and conservation as provided in the purposes and policies of the MMPA (which include maintaining marine mammals as a significant functioning element in the ecosystem of which they are a part, maintaining the health and stability of the marine ecosystem, and obtaining an optimum sustainable population keeping in mind the carrying capacity of the habitat).

Based on these Section 101(a)(3)(A) criteria, the Regional Administrator made an initial determination to waive the take moratorium and proposed regulations to govern any take under Section 103 (84 FR 13604, April 5, 2019). Section 103(a) specifies that regulations must be "necessary and appropriate to insure that such taking will not be to the disadvantage of those species and population stock and will be consistent with the purposes and policies [of section 2 of the MMPA]" (16 USC 1373(a)).

Section 103(b) requires the agency must give full consideration to all factors that may affect the extent to which the stock may be taken, including but not limited to:

- Existing and future levels of marine mammal species and population stocks
- Existing international treaty and agreement obligations of the United States
- The marine ecosystem and related environmental considerations
- The conservation, development, and utilization of fishery resources
- The economic and technological feasibility of implementation

Section 103(c) of the MMPA lists allowable restrictions that regulations may include for takes of marine mammals such as the number, age, size, and sex of animals taken, as well as the season, manner, location, and fishing techniques that may be used (for marine mammals caught in fishing gear incidental to fishing activities). Any regulations would be subject to periodic review and modification to carry out the purposes of the MMPA (16 USC 1373(e)).

1.2.3.3.2 Step 2 – Formal Rulemaking on the Record

A decision to waive the take moratorium must be made after opportunity for an agency hearing pursuant to the formal rulemaking process detailed in agency regulations at 50 CFR Part 228. Under these provisions, in early 2019 NMFS appointed an ALJ to preside over the hearing (presiding official) and published a Notice of Hearing in the Federal Register regarding the proposed waiver and proposed regulations (84 FR 13639, April 5, 2019).

The Notice stated the place and date for both a pre-hearing conference and the hearing itself, including details for how and when to submit direct (written) testimony on the proposed waiver and proposed regulations, and how and when to submit a notice of intent to participate in the pre-hearing conference and hearing. It also identified issues of fact that might be involved in the hearing and explained that NMFS's initial direct testimony in support of the proposed waiver and regulations was available on the ALJ's hearing website at: https://www.uscg.mil/Resources/Administrative-Law-Judges/Decisions/ALJ-Decisions-2016/NOAA-Formal-Rulemaking-Makah-Tribe/.

Along with the Notice of Hearing, we also published a proposed rule to govern hunts (84 FR 13639, April 5, 2019), which addressed, among other topics:

- A summary of the statements required by Section 103(d) of the MMPA, including the following:
  - Estimated existing levels of gray whales;
  - Expected impact of the proposed regulations on the OSP of any gray whale stock;
  - Description of the evidence before the Regional Administrator upon which the proposed regulations would be based;
  - Any studies made by or for the Regional Administrator or any recommendations made by or for the agency or the Marine Mammal Commission that relate to the establishment of the proposed regulations;
- Written advice received from the Marine Mammal Commission.

The hearing in front of ALJ George J. Jordan occurred from November 14-21, 2019. The hearing was a trial-type proceeding where the ALJ reviewed the proposed waiver and regulations in addition to written and oral testimony. Six parties—the Makah Tribe, NMFS, the Marine Mammal Commission, Sea Shepherd Legal, the Peninsula Citizens for the Protection of Whales, and the Animal Welfare Institute—presented evidence and expert testimony for the ALJ's consideration. The full hearing record and transcript were made available for public inspection at https://www.uscg.mil/Resources/Administrative-Law-Judges/Decisions/ALJ-Decisions-2016/NOAA-Formal-Rulemaking-Makah-Tribe/. Following the hearing, NMFS published a notice and request for public comments on the hearing record regarding the proposed waiver and proposed regulations (85 FR 5196, January 29, 2020). On September 23, 2021, the ALJ issued a recommended decision, which found that the best scientific evidence available supports a waiver of the MMPA's take moratorium to allow the Makah Tribe to engage in a limited hunt for ENP

gray whales and that the proposed regulations, with recommended modifications, are adequate to implement the waiver.

1.2.3.3.3 Step 3 ─ Final Waiver Determination

Once the NMFS Assistant Administrator received the presiding official's recommended decision, the agency published notice of availability in the Federal Register on September 29, 2021 (86 FR 53949), sent copies of the recommended decision to all parties, and provided a 20-day written comment period, which was extended by 25 days (86 FR 57639, October 18, 2021). At the close of the comment period and upon completion of environmental compliance with other statutes (see Subsection 1.2, Legal Framework) and of any necessary evaluations under the ESA, the NMFS Assistant Administrator will make a final decision on the proposed waiver and proposed regulations. The final decision may affirm, modify, or set aside (in whole or part) the recommended findings, conclusions, and decision of the presiding official. We will publish the final decision in the Federal Register. If the NMFS Assistant Administrator issues the waiver, we would promulgate final implementing regulations with the decision.

1.2.3.3.4 Step 4 ─ Permit Authorizing Take

Section 104 of the MMPA governs our issuance of permits authorizing the take of marine mammals. We must publish notice of each application for a permit in the Federal Register and invite the submission of written data or views from interested parties with respect to the taking proposed in the application within 30 days after the date of the notice (16 USC 1374(d)(2)). The applicant for the permit must demonstrate that the taking of any marine mammal under such permit will be consistent with the purposes and policies of the MMPA and the applicable regulations established under MMPA Section 103.

If an interested party requests a hearing in connection with the permit within 30 days of publication of the notice, we may afford an opportunity for a hearing within 60 days of the date of the published notice (16 USC 1374(d)(3)). Any applicant for a permit or any party opposed to a permit may obtain judicial review of the agency's terms and conditions included the permit, or of the agency's refusal to issue a permit (16 USC 1374(d)(4)). A permit issued under MMPA Section 104 (16 USC 1374(b)) must be consistent with applicable regulations and must specify the following:

- The number and kinds of animals authorized to be taken;
- The location and manner (which we must determine to be humane) in which they may be taken;

- The period during which the permit is valid;
- Other terms or conditions that we deem appropriate.

The MMPA defines 'humane' as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved" (16 USC 1362(4)).

1.2.3.4 Application of the MMPA to Makah Whaling

The Court of Appeals for the Ninth Circuit has twice reviewed NMFS proposals to authorize the Tribe to exercise the treaty right to hunt gray whales. In the most recent decision, the court held that the permit and waiver provisions of the MMPA must be satisfied before we can authorize a hunt (*Anderson v. Evans* 2004). Relying on the "principles embedded in the Treaty of Neah Bay, itself," the court framed the issue for decision as "whether restraint on the Tribe's whaling pursuant to treaty rights is necessary to effectuate the conservation purpose of the MMPA" (*Anderson v. Evans* 2004). The court defined the conservation purpose of the MMPA as "to ensure that marine mammals continue to be significant functioning element[s] in the ecosystem" and not "diminish below their optimum sustainable population" (*Anderson v. Evans* 2004).

Specifically, the court stated:

> . . . [t]o carry out these conservation objectives, the MMPA implements a sweeping moratorium in combination with a permitting process to ensure that the taking of marine mammals is specifically authorized and systematically reviewed. For example, the MMPA requires that the administering agency consider "distribution, abundance, breeding habits, and times and lines of migratory movements of such marine mammals" when deciding the appropriateness of waiving requirements under the MMPA, 16 USC Section 1371 (a)(3)(A). And, when certain permits are issued, the permit may be suspended if the taking results in "more than a negligible impact on the species or stock concerned" (16 USC Section 1371 (a)(5)(B)(ii)). One need only review Congress's carefully selected language to realize that Congress's concern was not merely with survival of marine mammals, though that is of inestimable importance, but more broadly with ensuring that these mammals maintain an "optimum sustainable population" and remain "significant functioning elements in the ecosystem." The MMPA's requirements for taking are specifically designed to promote such objectives. Without subjecting the tribe's whaling to review under the MMPA, there is no assurance that the takes by the tribe of gray whales, including both those killed and those harassed without success, will not threaten the role of gray whales as functioning elements of the marine ecosystem, and thus no assurance that the purpose of the MMPA will be effectuated (*Anderson v. Evans* 2004).

Additionally, the court stated:

> . . . [h]ere the purpose of the MMPA is not limited to species preservation. Whether the Tribe's whaling will damage the delicate balance of the gray whales in the marine ecosystem is a question that must be asked long before we reach the desperate point

> where we face a reactive scramble for species preservation (*Anderson v. Evans* 2004).

The court found these principles "embedded in the Treaty of Neah Bay" and Supreme Court precedents and stated:

> . . . [j]ust as treaty fisherman are not permitted to totally frustrate . . . the rights of non-Indian citizens of Washington to fish . . . the Makah cannot consistent with the plain terms of the treaty, hunt whales without regard to processes in place and designed to advance conservation values by preserving marine mammals or to engage in whale watching, scientific study, and other non-consumptive uses. (*Anderson v. Evans* 2004).

The court noted that in requiring compliance with the MMPA, "we do not purport to address what limitations on the scope of a permit, if any is issued, would be appropriate." Further, in recognition of the Tribe's unique status the court stated, "[u]nlike other persons applying for a permit or waiver under the MMPA, the Tribe may urge a treaty right to be considered in the NMFS's review of an application by the Tribe under the MMPA" (*Anderson v. Evans* 2004). The Makah Tribe has informed us that it believes that the Treaty of Neah Bay bars us from denying the Tribe's request for a waiver where tribal whaling can be accomplished in a manner consistent with the conservation purposes of the MMPA. According to the Tribe, this means that the whaling would not cause the ENP stock of gray whales to fall below its optimum sustainable population or to cease to be a significant functioning element of the marine ecosystem (Makah Tribe 2005a; Makah Tribe 2006a). Furthermore, the Tribe contends that we may not impose restrictions on the exercise of the Tribe's whaling right, beyond those the Tribe itself proposed in its MMPA waiver and permit request, unless we show such restriction to be necessary to achieve the MMPA's conservation purpose (Makah Tribe 2005a; Makah Tribe 2006a).

1.2.4 Whaling Convention Act

Congress enacted the WCA to implement the domestic obligations of the United States government under the International Convention for the Regulation of Whaling (ICRW). This FEIS analyzes NMFS' domestic authority and responsibilities under the WCA, but it does not analyze the position of the United States as a political body in the international arena. The FEIS does, however, describe international whaling governance under the ICRW to provide context for the WCA statutory and regulatory framework and particularly to address issues raised in past public comments.

1.2.4.1 International Whaling Governance under the ICRW

The ICRW is an international treaty signed on December 2, 1946, to "provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling

industry" (ICRW, Dec. 2, 1946, 161 United Nations Treaty Series 72). The United States was an original signatory to the ICRW in 1946. The ICRW established the IWC. Below we describe the functions and operating procedures of the IWC, the IWC's moratorium on commercial whaling, aboriginal subsistence whaling under the IWC, and the United States' preparation for the IWC.

1.2.4.1.1 Functions and Operating Procedures of the IWC

The IWC is an international organization whose membership consists of one commissioner from each contracting government. Under Article V.1 of the ICRW, the IWC's charge is to adopt regulations for the conservation and utilization of whale resources by periodically amending the Schedule, a document that is an integral part of the ICRW. IWC regulations adopted in the Schedule may do the following:

- Designate protected and unprotected species;
- Open and close seasons and waters;
- Implement limits on the size of whales taken, and on the time, method, and intensity of whaling;
- Specify gear, methods of measurement, catch returns and other statistical and biological records, and methods of inspection for the stocks of large cetaceans under IWC jurisdiction (i.e., baleen and sperm whales).

The IWC seeks to reach consensus on Schedule amendments. When consensus is not possible, a three-fourths majority of all who voted may amend the Schedule (each contracting government has one vote).

Article V.2(b) of the ICRW specifies that amendments to the Schedule must be based on scientific findings. The IWC established the Scientific Committee, consisting of approximately 200 of the world's leading whale biologists, to provide advice on the status of whale stocks. The Scientific Committee meets annually and may also call special meetings as needed to address particular subjects during the year.

Article V.3 of the ICRW governs the procedure for amending the Schedule, including application of IWC whaling regulations. In general, amendments to the Schedule are effective 90 days after the IWC notifies each contracting government of the amendment, unless a contracting government objects. If an objection occurs, the objector and other contracting governments have a certain period to present objections to the IWC. After that period expires, the amendment is effective with respect to all contracting governments that have not presented objections, but it is not effective for the objector(s) until the objection is withdrawn. A contracting government may use this procedure when it considers its national interests or sovereignty unduly affected.

1.2.4.1.2 IWC Commercial Whaling Moratorium

The IWC initially focused on regulation of the commercial whaling industry. In 1982, the IWC approved a moratorium on all commercial whaling in paragraph 10(e) of the Schedule, effectively expanding the 1937 ban on commercial harvest of gray whales and right whales to all large whale species. The commercial whaling moratorium is still in place for all non-objecting parties. Iceland lodged a reservation and Norway and the Russian Federation lodged objections to paragraph 10(e) that are currently effective, so the moratorium does not apply to those countries, though the Russian Federation does not exercise their objection. The United States was a party to the 1937 agreement that banned commercial whaling of gray whales. The United States was also instrumental in urging the IWC to adopt the 1982 moratorium on commercial whaling of all species (commercial whaling of all species in the United States has been prohibited nationally since 1971). The United States remains opposed to commercial whaling.

Paragraph 10(e) also states that the commercial whaling moratorium "will be kept under review, based upon the best scientific advice," and that "the [IWC] will undertake a comprehensive assessment of the effects of [the commercial whaling moratorium] on whale stocks and consider modification of this provision and the establishment of other catch limits" (IWC 2022a). The IWC has been developing a revised management scheme (a management plan for commercial whaling), but has made little progress on its adoption. There is active debate at the IWC about the sustainability of whale stocks, the appropriateness of maintaining the ban on all commercial whaling, and the type and level of supervision of commercial whaling should it resume.

1.2.4.1.3 IWC Aboriginal Subsistence Whaling

The IWC recognizes a distinction between whaling for commercial purposes and whaling by aborigines for ceremonial and subsistence purposes — aboriginal exceptions were incorporated into predecessor treaties to the ICRW and have been a part of the whaling regime under the ICRW since the time of the first Schedule (as used in this FEIS, the term 'aborigines' refers to indigenous people). The IWC governs aboriginal subsistence whaling (ASW) by setting catch limits for certain whale stocks in the Schedule after considering requests from contracting governments and/or after consulting with the Scientific Committee. Contracting governments request catch limits on behalf of aborigines in their respective nations, and previously were required to submit a proposal to the IWC based on cultural and nutritional needs documented in a needs statement. An expert workshop convened by the IWC in 2015 concluded that the cultural and nutritional needs of these communities had been well-documented and that it was no longer appropriate for the Commission to continue to require these "need statements" as a condition for

receiving a quota (IWC 2015). The IWC has now posted to its website descriptions of the aboriginal subsistence whaling hunts carried out by contracting governments that outline information on recent catches, hunting methods, relevant international and national regulations, and the cultural and nutritional significance of the hunt, as well as the most recent advice of the Scientific Committee on the status of the relevant stocks and the catch or strike limit requested (IWC 2015). General principles governing ASW are contained in paragraph 13(a) of the Schedule. Section 13(a)(4) prohibits "strik[ing], tak[ing] or kill[ing] calves or any whale accompanied by a calf," and 13(a)(5) requires that "all aboriginal whaling shall be conducted under national legislation that accords with [paragraph 13 of the Schedule]" (IWC 2022a).

The current catch limits were set in a 2018 Amendment to the Schedule (IWC 2018b) and cover 2019 through 2025 in a one-time 7-year quota (IWC 2022a). Starting in 2026, catch limits will be allocated in six-year blocks whereby catch limits will be reviewed in the year prior to their expiration at the biennial Commission meeting with scientific advice from the Scientific Committee. Paragraph 13(b)(2) of the current Schedule (IWC 2018a; 2022a) sets a landing limit of 980 ENP gray whales and a strike limit of 140 in any year of the quota period to "aborigines or a Contracting Government on behalf of aborigines . . . only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines." The 2018 Amendment also allows for unused strikes to be carried forward and added to the strike limit of subsequent years, provided that no more than 50% of the annual strike limit is added to any one year. Beginning in 2026, the catch limits set in 2018 will automatically carry forward for six more years provided that the Scientific Committee advises that these catch limits will not harm the stocks, the ASW country relying on the stocks does not request a change in its respective catch limits, and the IWC determines that the ASW countries have complied with the approved timeline of reporting requirements set for them and that the information provided represents a status quo continuation of the hunt.

The IWC set the ENP gray whale catch limit in response to a joint request from the United States, the Russian Federation, Denmark on behalf of Greenland, and St. Vincent and the Grenadines. The one-time 7-year (2019-2025) ENP gray whale catch limit is allocated through a bilateral agreement between the United States and the Russian Federation as five strikes per year for the Makah Tribe and 135 strikes per year for the Chukotka Natives (i.e. Fominykh and Wulff 2023).

Due to some controversy and negotiations about appropriate catch limits for Alaska Natives' bowhead hunts in 1977 and 1978, a meeting of experts on wildlife science, nutrition, and cultural anthropology convened in Seattle from February 5 to 9, 1979 (the experts in cultural

anthropology convened for this meeting were known as the Cultural Anthropology Panel). Their charge was to examine the Alaska Natives' bowhead harvest, provide data, and develop a report for an IWC Technical Committee examining the aboriginal subsistence whaling processes. The Cultural Anthropology Panel at that meeting developed a working definition of subsistence use (IWC 1979a), a term not defined in the ICRW or the Schedule (but adopted 25 years later by a consensus of the delegates to the 2004 annual meeting of the IWC; Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling):

- The personal consumption of whale products for food, fuel, shelter, clothing, tools, or transportation by participants in the whale harvest.
- The barter, trade, or sharing of whale products in their harvested form with relatives of the participants in the harvest, with others in the local community, or with persons in locations other than the local community with whom local residents share familial, social, cultural, or economic ties. A generalized currency is involved in this barter and trade, but the predominant portion of the products from each whale are ordinarily directly consumed or utilized in their harvested form within the local community.
- The making and selling of handicraft articles from whale products when the whale is harvested for the purposes defined in (1) and (2) above.

A working group convened in 1981 (the *Ad Hoc* Technical Working Group on Development of Management Principles and Guidelines for Subsistence Catches of Whales by Indigenous [Aboriginal] Peoples) agreed to the following working definition of aboriginal subsistence whaling and related concepts (IWC 1982):

- *Aboriginal subsistence whaling* means whaling for purposes of local aboriginal consumption carried out by or on behalf of aboriginal, indigenous, or native peoples who share strong community, familial, social, and cultural ties related to a continuing traditional dependence on whaling and the use of whales.
- *Local aboriginal consumption* means traditional uses of whale products by local aboriginal, indigenous, or native communities in meeting their nutritional, subsistence, and cultural requirements. The term includes trade in items which are by-products of subsistence catches.
- *Subsistence catches* are catches of whales by aboriginal subsistence whaling operations.

The IWC has not formally adopted the 1981 *Ad Hoc* Technical Working Group's definition of aboriginal subsistence whaling. The same 1981 *Ad Hoc* Technical Working Group also developed three broad objectives for the IWC to use when evaluating aboriginal subsistence whaling

proposals from contracting governments. The IWC did formally adopt these three principles in Resolution 1999-4:

- To ensure that the risks of extinction to individual stocks are not seriously increased by subsistence whaling.
- To enable aboriginal people to harvest whales in perpetuity at levels appropriate to their cultural and nutritional requirements, subject to the other objectives.
- To maintain the status of whale stocks at or above the level giving the highest net recruitment and to ensure that stocks below that level are moved towards it, so far as the environment permits.

In 2018, the IWC Scientific Committee finalized an Aboriginal Whaling Management Procedure (AWMP), which applies stock-specific strike limit algorithms (SLAs) to provide advice on ASW strike and catch limits (IWC 2018a). The AWMP relies on four main components, several of which have scientific subcomponents: (1) SLAs used to provide advice on the strike and catch limits; (2) operational rules, including carryover provisions, block quotas, and interim relief allocations; (3) guidelines for implementation reviews; and (4) guidelines for data and analysis (IWC 2018a). At its 2018 meeting, the Scientific Committee reviewed the hunt management plan proposed by the United States for the Makah Tribe and found that it met the Commission's conservation objectives for WNP and ENP (including PCFG) gray whales. The Committee also reviewed the proposed strike and landing limits as well as the strike carryover provision using the SLA developed for ENP gray whales and found that the proposed Amendment to the Schedule for gray whales met the Commission's conservation objectives (IWC 2018a). In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events (Punt et al. 2023, IWC 2023a).

The IWC does not have a formal definition of aboriginal use of whale products for 'local consumption and distribution.' We interpret the IWC's 2004 subsistence use definition and the current Schedule regarding local distribution as proposed by the Makah to mean that the Makah could share whale products from any hunt within the borders of the United States with the following:

- Relatives of participants in the harvest;
- Others in the local community (both non-relatives and relatives);
- Persons in locations other than the local community with whom local residents share familial, social, cultural, or economic ties.

1.2.4.1.4 United States' IWC Interagency Consultation

The United States, as a contracting government to the ICRW, recognizes the IWC as the global organization with the authority to manage whaling. The United States' negotiating positions at the IWC are advanced by the United States Commissioner to the IWC; the United States Commissioner is appointed by the President and serves at his or her pleasure. The United States Commissioner is not a federal agency. Negotiating positions advocated by the United States Commissioner on behalf of the United States are not final agency actions; these positions may change during the negotiations. The United States' negotiating positions advocated before the IWC, moreover, may or may not be adopted by the IWC, and any attempt to analyze effects on the human environment would be speculative. The United States Commissioner is not required to conduct an analysis under NEPA of United States negotiating positions, and this EIS does not undertake such an analysis.

The United States nevertheless conducts both a NMFS internal review and a public review of whaling issues before making any requests to revise catch limits in the Schedule. When the United States receives a request from a Native American tribe to whale for subsistence purposes, NMFS' Office of International Affairs, Trade, and Commerce, the United States Commissioner to the IWC, and the Department of State first review the request. The United States Commissioner may also consult with other federal agencies as appropriate. Before each IWC meeting, the United States Commissioner presents the draft United States position on whaling issues, including proposals to revise aboriginal subsistence whaling catch limits, to the public at the IWC Interagency Committee meeting. These interagency meetings take place before each full meeting of the IWC, in the Washington D.C. area, and they are open to the public with an interest in whaling, except for individuals representing foreign interests. Representatives of environmental and animal rights groups, Native American groups, sustainable use groups, and other concerned stakeholders typically attend. When relevant, Makah whaling issues have been discussed at public IWC Interagency meetings since May of 1995. The 2022 meeting occurred in Silver Spring, Maryland on September 27, 2022 (87 FR 57181, September 19, 2022). In each case, attendees have reviewed and commented on the draft United States position at the IWC related to requesting revisions of catch limits in the Schedule.

1.2.4.2 National Whaling Governance under the WCA

1.2.4.2.1 United States' Acceptance or Rejection of IWC Regulations

Congress enacted the WCA to implement the domestic obligations of the United States under the ICRW. Under Section 916b of the WCA, the Secretary of State (with concurrence by the

Secretary of Commerce) has the vested power to present or withdraw objections to regulations of the IWC on behalf of the United States as a contracting government.

1.2.4.2.2 National Prohibition of Commercial Whaling

Section 916c(a) of the WCA makes it "unlawful for any person subject to the jurisdiction of the United States . . . to engage in whaling in violation of the [ICRW] or of any regulation of the [IWC]." NMFS' regulations prohibit whaling, except for aboriginal subsistence whaling (50 CFR 230.2).

1.2.4.2.3 United States Aboriginal Subsistence Whaling

The Secretary of Commerce holds general powers, currently delegated to NMFS, to administer and enforce whaling laws and regulations in the United States, including adoption of necessary regulations to carry out that authority. As noted above, the regulations prohibit whaling, except for aboriginal subsistence whaling, which is defined as "whaling authorized by paragraph 13 of the [IWC] Schedule" (50 CFR 230.2). We publish in the Federal Register the aboriginal subsistence whaling quotas set in accordance with paragraph 13 of the Schedule, together with any relevant restrictions, and incorporate them into cooperative management agreements with tribes (50 CFR 230.6(a)).

We may not necessarily publish a quota, even where an IWC catch limit is set for a particular stock. For instance, we have not published a quota for ENP gray whales for the Makah since 2001, even though the IWC has set a catch limit. To authorize the proposed Makah whale hunting, we would have to publish an aboriginal subsistence whaling quota in the Federal Register annually for the Makah's use. We would also have to enter into a cooperative management agreement with the Makah Tribe.

Publication of a quota, as well as consideration of any cooperative management agreement with the Tribe, is contingent upon completion of this NEPA review and the MMPA formal rulemaking procedures described above. Any published quotas are allocated to each whaling village or tribal whaling captain by the appropriate Native American whaling organization (entities recognized by NMFS as representing and governing the relevant Native American whalers for the purposes of cooperative management of aboriginal subsistence whaling).

WCA regulations track the IWC provisions that prohibit whaling of any calf or whale accompanied by a calf (50 CFR 230.4(c)). They also prohibit any person from selling or offering for sale whale products from whales taken in aboriginal subsistence hunts, except that authentic articles of native handicrafts may be sold or offered for sale (50 CFR 230.4(f)). Regulations also

require that whaling not be conducted in a wasteful manner (50 CFR 230.4(k)), meaning a method of whaling that is not likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve the whale (50 CFR 230.2).

The WCA and its implementing regulations require licensing and reporting. No one may engage in aboriginal subsistence whaling except a whaling captain or a crewmember under the whaling captain's control. Whaling captains are identified by the relevant Native American whaling organization that must provide evidence or an affidavit that the whale catcher (i.e., vessel) is adequately supplied and equipped and has an adequate crew (WCA Section 916d(d)(1) and 50 CFR 230.4(d)). The license may be suspended if the whale captain fails to comply with WCA regulations (50 CFR 230.5(b)).

If any tribe salvages a stinker (a dead, unclaimed whale found upon a beach, stranded in shallow water, or floating at sea, 50 CFR 230.2), it must provide NMFS with an oral or written report describing the circumstances of the salvage within 12 hours of the event (50 CFR 230.7). No person may receive money for participation in aboriginal subsistence whaling (WCA Section 916d(d) as implemented through 50 CFR 230.4(e)). The whaling captain and Native American whaling organization are also responsible for reporting the number, dates, and locations of strikes, attempted strikes, or landings of whales, including certain data from landed whales, to NMFS (50 CFR 230.8).

1.2.4.3 Application of the WCA to Makah Whaling

The United States seeks IWC approval of an appropriate catch limit before authorizing any aboriginal subsistence whaling under the WCA (NMFS 2001a).

The Makah Tribe believes that the United States' obligation to the Makah Tribe takes precedence over United States obligations under the ICRW (Makah Tribe 2005a). Although the Makah Tribe does not believe that the Makah subsistence harvest requires IWC approval, the Tribe has worked cooperatively with the United States government to obtain that approval. At the IWC's annual meeting held in July 2018, the IWC approved an aboriginal subsistence whaling landing limit of 980 gray whales for 2019 through 2025, limited to a maximum of 140 strikes per year (IWC 2018b). The catch limit was based on the joint request of the United States and the Russian Federation. A bilateral agreement between the United States and the Russian Federation (i.e. Fominykh and Wulff 2023) allocates the catch limit between the Makah Tribe and Chukokta Natives, as described above. The United States currently holds the aboriginal subsistence whaling quota for the ENP gray whale stock on behalf of the Makah, but we have not published it in the Federal Register because of the pending regulatory processes described in this EIS.

1.2.5 Other Applicable Laws

Other laws that may apply to issuance of a waiver include the federal Coastal Zone Management Act (16 USC §1451 et seq.) (CZMA) and Endangered Species Act (16 USC §1531 et seq.) (ESA). The CZMA requires that any federal agency activity "within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs," (16 USC §1456). NMFS submitted a consistency determination for the ALJ's recommended decision to the Washington State Department of Ecology pursuant to Section 307 of the CZMA on April 18, 2023. The Department of Ecology reviewed our determination and concurred that the proposal is consistent with Washington Coastal Zone Management Plan on June 2, 2023. Potential effects of the alternatives on coastal zone uses and natural resources are discussed in Chapter 4.

The ESA requires that all federal agencies ensure that their proposed actions are not likely to jeopardize any ESA-listed species or destroy or adversely modify designated critical habitat. Section 3.5, Other Wildlife, identifies the ESA-listed species present in the action area, while Section 4.5 discusses effects to ESA-listed species under each alternative. NMFS's Office of Protected Resources (OPR) consulted with the United States Fish and Wildlife Service (USFWS) under Section 7 of the ESA on the impacts of the ALJ's recommended decision to bull trout (*Salvelinus confluentus)* and marbled murrelets (*Brachyramphus marmoratus*). In a Letter of Concurrence (LOC) dated March 25, 2023, the USFWS concluded that all of the reasonably foreseeable exposures and effects of the recommended decision to bull trout and marbled murrelets, as well as their habitats, are insignificant and/or discountable (USFWS 2023a). NMFS OPR also consulted with the NMFS WCR under Section 7 of the ESA on the impacts of the recommended decision to listed fish, sea turtles, and marine mammals, including WNP gray whales. In an LOC dated November 8, 2023, NMFS WCR concluded that the proposed action is not likely to adversely affect the listed species under NMFS jurisdiction in the action area. NMFS WCR also concluded that the proposed action is not likely to adversely affect designated critical habitat for the Mexico DPS and Central America DPS humpback whales, Southern Resident killer whales, Pacific DPS leatherback sea turtles, and southern DPS green sturgeon. Finally, NMFS WCR concluded that the action would not adversely affect any essential fish habitat (EFH) in the action area, therefore consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) is not required (NMFS 2023a). These LOCs from the USFWS and NMFS WCR can be found at https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/makah-tribal-whale-hunt.

1.3 Purpose and Need for Action

1.3.1 Purpose for Action

NMFS' purpose is to implement the laws and treaties that apply to the Tribe's request, including the Treaty of Neah Bay, the MMPA, and the WCA. The Makah Tribe's purpose is to resume its traditional hunting of gray whales under its treaty right, as described in detail in Subsection 2.3.2, Alternative 2 (Tribe's Proposed Action).

1.3.2 Need for Action

. NMFS' need for this action is to implement its federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay. In meeting this need, NMFS must also comply with the requirements of the MMPA and the WCA. Under the MMPA, we must protect and conserve the gray whale population; under the WCA, we must regulate whaling in accordance with the ICRW and IWC regulations. The Makah Tribe's need for the action is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions.

1.3.3 Decisions to Be Made

We are conducting this environmental review under NEPA as a step in the evaluation of the Makah's proposal to hunt gray whales. This FEIS evaluates the effects of the Tribe's proposed action and six alternative actions (including the No-action Alternative and the Preferred Alternative) on the human environment (both social and biological), as well as suitable mitigation measures. By examining the direct, indirect, and cumulative impacts of the proposed action and a full range of alternatives, relative to the No-action Alternative, the FEIS will provide information necessary for the NMFS decision maker to make an informed decision on the Tribe's proposed action.

1.4 Background and Context

1.4.1 Summary of Aboriginal Subsistence Whaling Catch Limits

1.4.1.1 Worldwide Catch Limits

Before 1976, the IWC provided an exemption for aboriginal subsistence whaling. Since 1976 (and 1979 for gray whales), the relevant provisions of the IWC Schedule addressing aboriginal subsistence whaling are in paragraph 13. Paragraph 13(a)(5), in particular, provides that "all aboriginal whaling shall be conducted under national legislation that accords with this

paragraph." The IWC has regulated aboriginal subsistence whaling through catch limits set under paragraph 13(b) of the Schedule. These limits include the following stocks:

- Bering-Chukchi-Beaufort Seas (BCB) stock of bowhead whales (the stock of interest to Alaska Natives and Chukotka Natives under management control of the United States and the Russian Federation, respectively);
- ENP gray whale stock (the stock of interest to the Makah Tribe and Chukotka Natives under management control of the United States and the Russian Federation, respectively);
- West Greenland and Central Stocks of minke whales, West Greenland stock of fin whales, a West Greenland bowhead feeding aggregation, and a West Greenland humpback feeding aggregation (stocks of interest to the Greenlanders under control of Denmark);
- North Atlantic humpback whales (stocks of interest to the Bequians, under control of St. Vincent and the Grenadines).

Canada's First Nation members have also harvested bowhead whales, but they are not currently operating under IWC catch limits set in the Schedule, because Canada is not a party to the ICRW. Maa-Nulth First Nations on Vancouver Island made an agreement with the Canadian government in December 2006 to forgo their traditional right to hunt gray whales for at least 25 years, in exchange for land, a share of mineral and timber resources on that land, and a cash settlement (CBC News 2006; Indian and Northern Affairs 2006).

Subsection 3.17.3.2.3, Aboriginal Subsistence Whaling, provides more detail about aboriginal subsistence whaling, including the contracting governments' reported number of whales harvested.

1.4.1.2 United States Catch Limits

The United States has requested that the IWC revise catch limits in the Schedule on behalf of two native groups: the Alaska Natives and the Makah Tribe. These are the only two native groups in the United States that have asked the government to request revisions to catch limits in the Schedule from the IWC on their behalf. Alaska Natives are exempt from the MMPA take moratorium under Section 101(b).

1.4.1.2.1 Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Natives

Relevant information about the United States' requests for bowhead whale catch limits on behalf of the Alaska Natives is presented here because the history gives context to the current IWC process described above in Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling.

Like Makah hunting of gray whales, Alaska Natives have hunted bowhead whales as an important species for subsistence and for social and cultural purposes for at least 2,000 years (Stoker and Krupnik 1993). Hunting bowhead whales in Alaska remains a communal activity that supplies meat and maktak (whale skin and layer of blubber that is used for food) for the entire community, as well as for feasts and during annual celebrations. Formalized patterns of hunting, sharing, and consumption characterize the modern bowhead hunt. The bowhead hunt is the principal activity through which younger generations learn traditional skills for survival in the Arctic. It also provides ongoing reinforcement of the traditional social structure. In addition to being a major source of food, the bowhead subsistence hunt is a large part of the cultural tradition of these communities and helps define their modern cultural identity (Braund and Associates 1997).

Since 1976, the United States, on behalf of the Alaska Eskimos, has requested that the IWC revise the bowhead catch limits in the Schedule, and the IWC has set catch limits for the bowhead whale stock in the Schedule. The United States and the Russian Federation share a quota based on the IWC one-time 7-year catch limits (2019 through 2025) for the Western Arctic bowhead stock, approved at the annual meeting of the IWC in September of 2018. The catch limit is allocated between the United States and the Russian Federation through a bilateral agreement (i.e. Fominykh and Wulff 2023).

1.4.1.2.2 Overview of Requests for ENP Gray Whales on Behalf of the Makah

Prior to 1989, the IWC had set an annual aboriginal subsistence catch limit based on a request on behalf of Chukotka Natives. On May 5, 1995, approximately one year after the ENP gray whale was removed from the endangered species list, the Makah Tribal Council formally notified NMFS of its interest in re-establishing ceremonial and subsistence hunts for gray whales (Makah Tribal Council 1995). The Tribe anticipated harvesting only one or two whales initially, but included five as the maximum extent of the yearly harvest, if it determined that it could use additional whales effectively and allocate them to each of five ancestral villages (Makah Tribal Council 1995). The Makah agreed not to sell whale meat commercially, developed a comprehensive needs statement, and entered into a cooperative management agreement with NMFS to manage the whale hunt. At the 1995 annual meeting of the IWC, the United States did not request that the IWC revise the Schedule to set a catch limit for the ENP gray whale stock, but informed the IWC that it intended to submit a formal proposal on the Makah's behalf in the future (IWC 1996).

At the annual meeting of the IWC in 1996, the United States, on the Makah's behalf, requested that the IWC revise the Schedule to set a catch limit for the ENP gray whale stock of 20 ENP gray whales over 5 years (with no more than five in any one year) from 1997 through 2000. At the Aboriginal Subsistence Whaling Subcommittee meeting, many delegates supported the United States' request. Other delegates indicated they would vote against the proposal. One reason given for this opposition was that the United States did not ask the Russian Federation to share the existing 1995 to 1997 catch limit of 140 ENP gray whales per year, which was based on the cultural and nutritional needs of the Chukotka Natives (IWC 1997; 63 FR 16701, April 6, 1998). Instead, the United States adhered to a prior position that each contracting government requesting a revision to the Schedule for aboriginal subsistence whaling catch limits must submit its own proposal before the IWC (IWC 1997; 63 FR 16701, April 6, 1998). Opponents noted that granting the United States' request would increase the total ENP gray whale catch limit beyond what had already been set by the IWC in paragraph 13(b)(2) of the Schedule (IWC 1997). At the 1996 meeting, the Russian Federation had also requested a catch limit of five bowhead whales a year, but withdrew its request when a consensus could not be reached among delegates. The bowhead stock catch limit was already set for the United States and was not shared with Russia (IWC 1997).

Another reason for the opposition was that some delegates questioned whether the Makah had a "continuing traditional dependence" on whaling (IWC 1997), a component of the working definition for aboriginal subsistence whaling developed by the 1981 *Ad Hoc* Technical Working Group (Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Natives). The delegates noted that the Makah had not hunted gray whales since the 1920s (IWC 1997).

United States delegates and Makah representatives responded that the Makah Tribe had continued aspects of its whaling tradition through names, dance, songs, and other cultural traditions (IWC 1997; United States 1996). The United States also noted that nutritional need is a factor in considering and setting aboriginal subsistence whaling catch limits, but not a threshold requirement. United States delegates used the example of the IWC setting a catch limit for the bowhead stock for many years after considering the United States' requests on behalf of the Alaska Natives, even though the Nutrition Panel at the 1979 workshop for aboriginal subsistence whaling of bowhead concluded that nutritional needs of Alaska Natives could be met through local subsistence or western-type foods (IWC 1979b; United States 1996). Moreover, the Makah needs statement (Renker 1996) had demonstrated a continued subsistence reliance on traditional

marine foods available to the Makah, and a nutritional need based on poverty and economic conditions on the Makah Reservation (Renker 1996; United States 1996). The United States noted that federal agents in the last 5 decades had actively prevented Makahs from consuming and utilizing whales that drifted onto Makah beaches, by burying or burning the drift whales and by threatening Makah members, who tried to access the products, with jail and other federal sanctions (United States 1996). As late as the 1970s, federal agents were still entering Makah households and searching freezers for the presence of marine mammal products (United States 1996).

Attendees of the 1996 meeting were also aware of other conflict regarding the Makah's proposal to hunt; the United States House of Representatives Committee on Resources had unanimously passed a resolution expressing opposition to the Makah hunt (United States Congress 1996), and some members of the Makah Tribe testified against the United States proposal at the IWC meeting. The United States made a statement in appreciation of the support from some delegates, noted the reservations expressed by others, and after consultation with the Makah Tribe announced that it was withdrawing its request for an amendment to the Schedule for the gray whale catch limit. The United States asked the IWC to defer consideration until the next year, when the ENP gray whale catch limit was due to expire and the needs of the Chukotkan people were also determined (IWC 1997).

In preparation for the annual meeting of the IWC in 1997, the United States considered comments made at the 1996 meeting that the gray whale catch limit should be shared with the Russian Federation, making the combined requests 140 rather than 145 gray whales per year (63 FR 16701, April 6, 1998). The gray whale catch limit set in the Schedule for the Russian Federation (acting on behalf of the Chukotka Natives) was due to expire in 1997, so the Russian Federation would have to propose a Schedule amendment for a new catch limit from 1998 through 2002 (63 FR 16701, April 6, 1998). After extensive discussions with the Alaska Eskimo Whaling Commission and the Makah Tribe, as well as an internal policy review, the United States delegation consulted with the Russian Federation delegation on the appropriate formulation for a request (63 FR 16701, April 6, 1998). The Makah made efforts to augment their needs statement and request, including conducting research and training on the proposed method of hunting whales (such as conducting field tests of rifles with Dr. Ingling, a veterinarian with IWC experience). They also gathered more information about the nutritional value of subsistence foods in their diet.

At the Aboriginal Subsistence Whaling Subcommittee meeting on October 18, 1997, the United States raised several points in support of the proposal: (1) law (the Treaty of Neah Bay specifically reserves the right of the Makah to hunt whales), (2) culture (the Makah have a 1,500-year tradition of whaling that has been of central importance to their culture), (3) science and conservation (there would be no adverse conservation impacts to the stock), and (4) Makah progress on improving the needs statement and request since the last IWC meeting (United States 1996; IWC 1998). Related to this last point, Dr. Ingling presented results of field trials on the weapon, ammunition, and techniques to be used in the Makah hunt (Ingling 1997; IWC 1998). A representative of the Makah Tribal Council also spoke, emphasizing the central focus and importance of whaling to Makah culture (IWC 1998). Opponents again raised concerns about the interruption in the Makah whaling practice. Some delegates thought the Makah did not demonstrate nutritional and/or cultural need, based on the 1981 *Ad Hoc* Technical Working Group definitions of aboriginal subsistence whaling and consumption, while others stated that discontinuity of whaling practice should not be held against the Makah, because they were deprived of cultural and traditional rights (IWC 1998). Some delegates thought the Makah had established cultural need beyond a doubt (IWC 1998).

At the 1997 IWC plenary session, the United States and the Russian Federation presented joint requests for bowhead and ENP gray whale catch limits to accommodate the needs of two aboriginal groups hunting from a single stock (Alaska Natives and Chukotka Natives hunting bowheads and the Makah Tribe and Chukotka Natives hunting ENP gray whales). This was the first year in which two contracting governments simultaneously requested revisions to the Schedule for catch limits from the same stock. For the bowhead stock, delegates considered the joint request and adopted the catch limit of 280 bowhead whales for the 1998 through 2002 5-year period, with a maximum limit of 67 per year, by consensus on the afternoon of October 22, 1997 (IWC 1998). The bowhead catch limit was allocated between the Russian Federation and the United States by a bilateral agreement.

For the ENP gray whale stock, the joint request of 620 gray whales for the 1998 through 2002 5-year period, with a maximum limit of 140 gray whales per year, was debated in IWC plenary session on the afternoon of October 22, 1997 (63 FR 16701, April 6, 1998). Several delegates opposed the Makah Tribe's request, while others supported it (IWC 1997). Some delegates suggested making an amendment to the introductory portion of the proposal. The debate session then adjourned to allow for consultation among the delegates (63 FR 16701, April 6, 1998).

Specifically, two delegates proposed that the following words be added to paragraph 13(b)(2) of the Schedule: "whose traditional subsistence and cultural needs have been recognized by the International Whaling Commission" (IWC 1998). United States delegates responded that the words "by the International Whaling Commission" were not acceptable, because the IWC had no established mechanism for recognizing such needs, other than adoption of a catch limit in the Schedule (63 FR 16701, April 6, 1998). The United States delegates expressed their understanding that adoption of a catch limit in the Schedule constituted IWC approval, with no further action required. A clear majority of Commissioners then expressed their support for the United States' approach (63 FR 16701, April 6, 1998).

When the plenary session resumed, the Chair announced consensus. The joint request of the United States and the Russian Federation for an ENP gray whale catch limit was adopted on October 23, 1997, with the addition of the words "whose traditional aboriginal subsistence and cultural needs have been recognized" to the Schedule language (63 FR 16701, April 6, 1998; IWC 1998). The ENP gray whale catch limit was allocated between the Russian Federation and the United States by a bilateral agreement (120 gray whales per year for the Chukotka Natives, and an average of four gray whales per year, with a maximum of five, for the Makah).

At the annual meeting of the IWC in 2002, the IWC adopted by consensus a catch limit of 620 ENP gray whales for the 2003 through 2007 5-year period. The catch was limited to 140 takes per year, based on a second joint request of the United States and the Russian Federation (IWC Schedule 2002), which was similar to the first successful joint request in 1997. The United States and Russian Federation then allocated the ENP gray whale catch limit by bilateral agreement, to a maximum of 20 whales over the 5-year period and up to five whales annually for the Makah, and a maximum of 600 gray whales over the five-year period and up to 135 per year for the Chukotka Natives.

At the annual meeting of the IWC in 2003, the Russian Federation noted anomalies in the Schedule about the way that Chukotka Natives are treated compared with other aboriginal groups operating under aboriginal subsistence whaling auspices (IWC 2004a; IWC 2004b). They proposed changes to the Schedule, including changes to paragraph 13(b)(2). Paragraph 13(b)(2) read as follows:

> [t]he taking of gray whales from the Eastern stock in the North Pacific is permitted, but only by aborigines or a Contracting Government on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines whose traditional aboriginal subsistence and cultural needs have been recognized. . . .

The Russian Federation proposed to delete the words "whose traditional aboriginal subsistence and cultural needs have been recognized" (IWC 2004a; IWC 2004b). The Russian Federation's stated objective was to achieve consistency in the Schedule and to, therefore, eliminate discriminatory behavior against the native peoples of Chukotka, because they interpret such language restrictions as preventing the important practice of cultural exchange of goods among indigenous peoples (IWC 2004a; IWC 2004b). The IWC subsequently charged a small group, comprising the Russian Federation, Denmark, Australia, the United States, and the IWC Secretariat, to review paragraph 13 of the Schedule to determine how to achieve consistency across aboriginal subsistence whaling operations (IWC 2004a).

The small group submitted a report to the Aboriginal Subsistence Whaling Subcommittee at the annual meeting of the IWC in 2004 (IWC 2005a; IWC 2005b), together with proposed changes to the Schedule. The report had two key recommendations: (1) move the prohibition on take of calves and mother/calf pairs to the general principles governing all hunts in paragraph 13(a), and (2) delete the language, "the aborigines whose traditional aboriginal subsistence and cultural needs have been recognized" from paragraph 13(b)(2) of the Schedule (IWC 2005a; IWC 2005b). The latter recommendation was related to the Russian Federation's interpretation that the quoted provision violated the human rights of Chukotka Natives, because the restriction was not included in other subparagraphs governing aboriginal subsistence whale hunts and, therefore, improperly discriminated against the Chukotka Natives (IWC 2005a; IWC 2005b). The Russian Federation maintained that the Chukotka Natives have equal rights to other aboriginal communities to use whale products (IWC 2005a; IWC 2005b).

At the 2004 IWC plenary session, delegates adopted the report of the small group and the proposed Schedule amendments by consensus, with one revision (they retained a calf and mother/calf take prohibition specific to St. Vincent and the Grenadines). Since 2004, the Schedule has read as follows for the ENP gray whale stock catch limit:

> [T]he taking of gray whales from the Eastern stock in the North Pacific is permitted, but only by aborigines or a Contracting Government on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines (IWC Schedule 2005 and subsequent years, paragraph 13(b)(2)).

The IWC also adopted the 1979 Cultural Anthropology Panel's definition of subsistence use in 2004. See Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling, for more details about the text of the current Schedule, as well as for the text of the formally adopted definition on subsistence use.

On February 14, 2005, the Makah initiated their current proposal to hunt ENP gray whales and submitted a request for a waiver of the MMPA take moratorium to NMFS. NMFS had not published the 2003 through 2007 quota under the WCA because of the 2004 decision in *Anderson v. Evans*. In October 2005, the House of Representatives Committee on Resources passed a non-binding resolution (House of Representatives Congressional Resolution 267) by a vote of 21 to 6, expressing disapproval of the MMPA waiver process and stating that the United States should uphold the treaty rights of the Makah Tribe. The Committee's report (House Report 109-283) was placed on the House of Representatives' calendar without further action.

At the May 2007 IWC meeting, the United States and the Russian Federation again made a joint request for an ENP gray whale catch limit from the IWC for the 2008 through 2012 5-year period under similar terms as the last catch limit for 2003 through 2007. The catch limit was approved by consensus. At the July 2012 meeting, the IWC agreed to biennial meetings and set a 6-year catch limit to match the Commission meeting schedule. Commissioners at the 2012 meeting approved quotas for the hunts of Bering-Chukchi-Beaufort Seas bowhead whales (by the United States and Russian Federation), eastern North Pacific gray whales (by the Russian Federation and the United States), and western North Atlantic humpback whales (St. Vincent and the Grenadines). Given the proposed move to biennial meetings, the quota block was extended to 6 years by a vote of 48 to 10 (IWC 2012b). The ENP gray whale catch limit was set at 744 over the 6-year period, not to exceed 140 in any single year (IWC 2012c).

At the September 2018 IWC meeting, the United States, the Russian Federation, Denmark, and St. Vincent & the Grenadines made a joint request to renew all ASW catch limits for a one-time 7-year period lasting from 2019 through 2025. The U.S. and the Russian Federation once again submitted their requests for ENP gray whales and BCB bowhead whales jointly, increasing the catch limit to account for the additional 7th year in the quota block. The ENP gray whale quota request also increased the annual strike limit from the previous Schedule to account for "stinky" whales – a recent phenomenon in which some landed gray whales are found to have a strong chemical smell and are inedible – and to satisfy ASW subsistence need (IWC 2018c). The catch limit was approved by the three fourths majority vote required to amend the Schedule. At the 69th Commission meeting in 2024, catch limits will be renewed for a 6-year period in accordance with advice from the Scientific Committee.

1.4.2 Summary of Recent Makah Whaling ─ 1998 through 2022

In 1998, NMFS published in the Federal Register a yearly quota of up to five gray whales for the Makah (63 FR 16701, April 6, 1998), operating under the IWC's 1998 to 2002 5-year catch limit.

Although the Makah Tribal Council issued several whaling permits and tribal whalers conducted a number of practice exercises, they did not actually hunt whales that year. Protest activities and conflicts near and on the shores of Neah Bay during 1998 are described in Public Safety, Subsection 3.15.3.4, Behavior of People Associated with the Hunt. Protest vessels mobilized on November 11, 1998, but in response to a false report that the Tribe was hunting and had harvested a whale (United States Coast Guard 1998).

During the spring northward migration in 1999, NMFS again published in the Federal Register a yearly quota of up to five gray whales for the Makah (64 FR 28413, May 26, 1999). The Makah Tribal Council issued a 10-day whaling permit to a Makah whaling captain on May 10, 1999, based on the recommendation of the Makah Whaling Commission acting in accordance with the 1998 Gray Whale Management Plan. Whale hunting spanned 4 nonconsecutive days (May 10, 11, 15, and 17) and all hunts were conducted in the coastal portion of the Makah's U&A, south of Cape Flattery (i.e., outside the Strait of Juan de Fuca) to target whales migrating northward. Two vessels and crews were directly involved in the whale hunting activities, including the Makah whaling crew in their canoe, *The Hummingbird*, and a rifleman, backup harpooner, and diver on board the tribal chase boat. NMFS and Makah tribal fisheries observers were on board the NOAA observer boat *Research II*. In addition, media helicopters, one or two chartered media vessels, protest vessels, Coast Guard law enforcement, and shore-based supporters and opponents were present most of the time. A tribal commercial fishing boat, acting as a support vessel, was also nearby and available to assist the whalers.

On May 10, 1999, the first day of whale hunting, the Makah crew searched for gray whales within 3 miles (5 km) of shore near Father and Son Rock, Cape Alava, Spike Rock, Umatilla Reef, and Point of the Arches (Gosho 1999; United States Coast Guard 1999a). At least four whales were sighted throughout the day, with three of the four sightings occurring in 115 to 134 feet (35 to 41 meters) of water (Gosho 1999). The observers did not see calf-sized whales in the area (NMFS 1999). The Makah whaling crew threw one harpoon at a whale, but missed it (Gosho 1999; NMFS 1999; NMFS and Makah Tribal Council 2000). The hunt was disrupted by vessel-based protesters who maneuvered between the two Makah vessels and the whales. Protesters tried to scare off the whales, and they also fired flares and smoke flares at the Makah whaling party vessels (NMFS 1999; Sunde et al. 1999; United States Coast Guard 1999a).

Because most of the hunting occurred south of the Coast Guard's regulated navigation area (RNA), a 500-yard (457.2-meter) moving exclusionary zone (MEZ) around the Makah vessels was not in effect (NMFS 1999). Coast Guard officials detained two of the protesters, who they

subsequently cited for grossly negligent operation of a vessel, and the Clallam County sheriff then arrested the protesters for reckless endangerment (NMFS 1999; Sunde et al. 1999; United States Coast Guard 1999a). At least three media helicopters were present (United States Coast Guard 1999a). Hunting on May 11 (day two) continued in the same area, but the Makah whaling captain called it off in a few hours because of poor weather conditions (Gosho 1999; NMFS 1999). No whales were sighted or approached.

Whale hunting resumed on May 15, 1999, day three, near Father and Son Rock, Ozette Island, and the Bodeltehs (Gosho 1999), south of the RNA (NMFS 1999) and within 2 miles (3 km) of shore. Several gray whales were sighted in 87- to 95-foot-deep (26.5- to 29-meter-deep) water, but the Makah crew was unable to maneuver *The Hummingbird* close enough to throw harpoons and was again interrupted by protest vessels (Gosho 1999). Around 11:00 a.m., the whalers sighted a whale and threw a harpoon, which was assumed to contact the whale because the wooden harpoon holder was split, and the float disappeared underwater for a short time (Gosho 1999; NMFS 1999). The strike did not appear to penetrate or embed in the animal because the harpoon head was intact and clean, the throw was parallel to the animal (rather than perpendicular), and the float resurfaced (Gosho 1999; NMFS 1999).

Because the harpoon did not embed in the whale and did not appear to cause serious injury, it did not meet the definition of a strike under the 1998 Gray Whale Management Plan (Gosho 1999; NMFS 1999). Under that plan, a strike counted only if the harpoon embedded in the whale and if it might have resulted in death or serious injury. About an hour later, the Makah harpooner threw another harpoon and missed (Gosho 1999).

Protest vessels were active around the whalers much of the day. Two protest vessels came into contact with whales; one vessel ran over the top of a whale and temporarily stunned it, while another vessel hit the flukes of a diving whale beside the Makah canoe (NMFS 1999). The Coast Guard cited four vessels for grossly negligent operations and/or MMPA take infractions, and three of the vessels were taken into federal custody (NMFS 1999).

On May 17, 1999 (the fourth and final day of whale hunting), the Makah crew continued hunting southwest of Father and Son Rock, south of the RNA. No protest vessels attempted to disrupt the hunt, but three media helicopters covered events throughout the day (United States Coast Guard 1999b). At 6:55 a.m., the Makah crew sighted a whale and pursued it in the canoe; the whale surfaced on the right side of the canoe, and the crew harpooned it as it moved across the bow of the canoe, approximately 1.5 miles (2.4 km) from shore (Gosho 1999; NMFS 1999). The harpoon remained affixed to the whale, which pulled the harpoon line and floats underwater and towed the

canoe (Gosho 1999; NMFS 1999). The whaling crew in the canoe held the harpoon line while the chase boat approached the whale for the Makah rifleman to kill the animal with a .577 caliber rifle. The gunner fired the first and second shots at 6:58 a.m.; both shots missed (Gosho 1999). At 7:01 a.m., a third shot was fired, striking the whale behind the blowhole and slightly to the left, momentarily stunning the whale (Gosho 1999). A second harpoon was also thrown at the whale, striking it on the right side towards the rear (Gosho 1999). The fourth and final shot was fired at 7:03 a.m., striking the whale behind the blowhole slightly to the right, and leaving the whale motionless at the surface (Gosho 1999). Immediately after the final shot, a third harpoon was thrown, striking the whale on the right side (Gosho 1999). The total time to death, from the initial harpoon strike to the last shot that dispatched the whale, was 8 minutes.

The body of the whale sunk and was supported by the lines on the three attached harpoons (Gosho 1999). A Makah diver attached a heavier line around the tail stock of the whale for towing (Gosho 1999), and the whale was towed by a Makah support vessel to inside the breakwater at Neah Bay, where tribal members had gathered on the beach to celebrate the hunt. The whale was transferred from the support vessel to four canoes from various Washington Indian tribes, led by the crew of the Makah *Hummingbird* canoe, and towed from the deeper part of the breakwater into the shallow water at the edge of the beach. The whale was butchered following tribal ceremonies. Tribal members removed almost all edible portions of the meat and blubber from the whale by midnight. NMFS biologists collected samples from internal organs after tribal members removed the meat and took it home or to the community freezer (Gosho 1999; NMFS 1999). Tribal members flensed small portions of meat the next day to prepare the skeleton for a museum display (NMFS 1999; NMFS and Makah Tribal Council 2000). Tribal members consumed the meat and blubber during tribal ceremonies (Gosho 1999; NMFS and Makah Tribal Council 2000; NMFS 1999).

According to measurements taken by NMFS and tribal observers, the harvested whale was a non-lactating female that measured 30 feet, 5 inches (9.27 meters) long. Fluke width was 7 feet, 4 inches (2.2 m). The whale could not be weighed, but, based on gray whales taken by the Russian harvest of similar length and body condition, it was estimated to weigh approximately 5 to 7 metric tons. Age could not be determined either, but, based on similar lengths of whales taken in the Russian harvest, it was probably more than 2 years old. An examination of the skull during butchering revealed that the third shot struck the ridge of the skull, shattering it, and proceeded back into the muscle near the left flipper, where whalers found the bullet (the bullet was intact

with no deformation). The fourth shot struck the skull above the occipital condyle and entered the braincase; it likely caused instantaneous loss of consciousness and death (Gosho 1999).

During the fall/winter southward migration in 1999/2000, the Makah Tribal Council did not issue any whaling permits because weather conditions were unsuitable. Hunting began during the spring northward migration for 7 days between April 17, 2000 and May 29, 2000 (Gearin and Gosho 2000). The Makah tribal whalers actively hunted gray whales in the coastal portion of the Makah U&A south of Cape Flattery for 7 days, during which no whales were harvested, struck, or struck and lost (Gearin and Gosho 2000). Except for a few approaches near Makah Bay, most hunting occurred south of Point of Arches near Father and Son Rock. Makah whalers threw harpoons on three occasions, but the harpoons did not attach to a gray whale on any of these attempts. The first two throws appeared to be complete misses (Gearin and Gosho 2000). The third throw may have grazed the whale; however, the harpoon did not implant or detach (Gearin and Gosho 2000). Most of the whales in the area during the hunt were large, single individuals. The whales appeared to be actively migrating, because the average time between surface sightings (i.e., the average dive time) was about 8 minutes, which is 4 or 5 minutes longer than the average dive time for whales feeding or resting locally, and the whales were farther offshore (i.e., 80 to 100 feet (24.4 to 30.5 meters) deep rather than 30 to 60 feet (9.1 to 18.3 meters) deep) (Gearin and Gosho 2000).

All hunts occurred within the Coast Guard's RNA and MEZ, and all harpoon attempts were made within 2.5 miles (4 km) of shore (Gearin and Gosho 2000). During the first 2 days of hunting (April 17 and 20), protesters disrupted the hunts (Gearin and Gosho 2000). On April 20, Coast Guard personnel boarded two protest vessels and issued warnings (United States Coast Guard 2000). One of the vessels entered the 500-yard (457.2-meter) MEZ on three occasions subsequent to the Coast Guard advisory; the Coast Guard again intercepted and warned it (United States Coast Guard 2000). On at least one of these three entrances into the MEZ, the vessel entered the 500-yard (457.2-meter) MEZ at high speed and was intercepted within 50 yards (45.7 meters) of the Makah's canoe (Gearin and Gosho 2000). Two individuals on jet skis also entered the MEZ, making high speed charges at the Makah canoe (United States Coast Guard 2000). The Coast Guard intercepted both jet skiers. One jet skier ran into a Coast Guard vessel and sustained shoulder injuries; Coast Guard personnel retrieved the individual from the water, placed her under arrest, and transported her to Olympic Memorial Hospital (United States Coast Guard 2000). The Coast Guard also intercepted and arrested the second jet skier, and transferred him to the Clallam County sheriff's office (United States Coast Guard 2000). After a temporary delay, hunting

resumed for 5 nonconsecutive days in May (May 6, 7, 10, 12, and 29). One to three protester vessels were present during these times, but they did not enter the MEZ to disrupt whale hunting (Gearin and Gosho 2000). Media helicopters were present during most of the whale hunting and appeared to comply with the Sanctuary's 2,000-foot (609.6-meter) minimum allowable flight altitude.

Makah whalers had intended to continue whaling into June, but the Makah Tribal Council did not issue any permits after the June 9, 2000 ruling by the Court of Appeals for the Ninth Circuit in *Metcalf v. Daley* (2000). The Makah Tribal Council did not issue any whaling permits during the gray whale southward migration in fall/winter 2000.

The whale harvested in 1999 is the only whale that the Makah have harvested (that is, hunted and successfully landed) in contemporary times. Some Makah members have, however, participated in whale hunt research, education, and training with other indigenous groups. In August of 2005, for instance, two Makah members and a tribal whale biologist traveled to the eastern shores of the Russian Federation. The biologist was involved in an IWC scientific exchange to evaluate the type of data that Chukotka Natives collected in their hunts and to evaluate the logistics of studying the stinky whale phenomenon. The Makah members participated in a cultural exchange to observe the Chukotka gray whale hunts and to receive training in whale hunting techniques and whale butchering.

On September 8, 2007, five members of the Makah Indian Tribe hunted and killed a gray whale in the Strait of Juan de Fuca in a hunt that was not authorized by the Tribe or NMFS. This unauthorized hunt did not comply with numerous provisions and restrictions defined in the Tribe's request, and both the Tribe and NMFS made statements condemning the unlawful hunt (Hogarth 2007; Rosenberg 2007).

The five tribal members used two boats and had in their possession a .577 caliber rifle and a Weatherby .460 caliber rifle (*U.S.A. v. Gonzales et al*. 2007). One of the boats and all of the rifles belonged to the Tribe and were obtained by one of the members of the hunting party (*U.S.A. v. Gonzales et al.* 2007). Sometime on the morning of September 8, the hunters approached a gray whale approximately 40 feet (12.2 meters) long near Seal Rock and harpooned it with at least five harpoons (Mapes 2007). They then shot the whale at least 16 times (*U.S.A. v. Gonzales et al.* 2007). According to a report by the Tribe, none of the members of the hunting party had received tribally sanctioned training in use of the weapons to kill gray whales (Scordino 2007a). A tribal biologist who evaluated the whale's condition in the afternoon of September 8 counted four

visible harpoons and 16 bullet holes (Scordino 2007b). The whale died shortly after 7:00 p.m. on September 8 (Scordino 2007b).

On October 5, 2007, the five tribal members were indicted in federal court for unauthorized whaling, unauthorized take of a marine mammal, and conspiracy to engage in unlawful whaling (*U.S.A. v. Gonzales et al.* 2007). On November 16, 2007, the five were charged in tribal court for violating the Tribe's gray whale management plan, violating state and federal laws, and reckless endangerment (Casey 2007; *Makah Tribe v. Andrew Noel* 2007). On March 27, 2008, three of the tribal members entered guilty pleas to unlawful taking of a marine mammal in violation of the MMPA (*U.S.A. v. Gonzales* 2008; *U.S.A. v. Parker* 2008; *U.S.A. v. Secor* 2008). On April 7, 2008, after a Bench Trial on Stipulated Facts, the court found the remaining two tribal members guilty of conspiracy and unlawful taking of a marine mammal in violation of the MMPA (*U.S.A. v. Noel and Johnson* 2008). All five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct. On May 14, 2008, the five tribal members entered into 1-year deferred prosecution agreements in tribal court (*Makah Tribe v. Theron Parker* 2008). No violations were reported to the tribal court during the term of the agreements, and the charges were subsequently dismissed 1 year later.

1.4.3 Other Environmental Assessments and Court Decisions Informing this Action

In 1996, we entered into an agreement with the Makah Tribe to ensure a United States request before the IWC to amend the Schedule's catch limit for the ENP gray whale stock and jointly manage the gray whale hunts. Before we could publish any quota for the Makah Tribe, we had to amend the WCA regulations, which only provided for aboriginal subsistence whaling by the Alaska Eskimo Whaling Commission. We conducted a NEPA analysis on our proposed rule to amend the regulations, and on March 26, 1996 issued a finding that the proposed regulations would not have a significant impact on the environment.

In 1996, the United States' request on behalf of the Makah Tribe to the IWC to revise the Schedule's catch limit for ENP gray whales met with resistance, and the United States withdrew the request. In June 1997, in response to concerns raised by some conservation organizations, we initiated a NEPA process to analyze the environmental impacts of a decision to publish an aboriginal subsistence whaling quota under the WCA for the Makah's use of up to five ENP gray whales annually. The draft EA was released for comment in August 1997. A few months later, we entered into a second agreement with the Makah Tribe. It was similar to the first, except that the second agreement included time and area restrictions aimed at reducing the likelihood of taking a

PCFG whale. We and the Makah entered into the agreement on October 13, 1997, and we issued the final EA and a Finding of No Significant Impact (FONSI) 4 days later.

Conservation groups challenged our FONSI in court, and the Ninth Circuit set aside the EA and FONSI in *Metcalf v. Daley* (2000) because we did not produce them until after entering into the agreement with the Tribe. With the court's invalidation of the EA and FONSI, we terminated the second agreement with the Makah Tribe and began a second NEPA process. On July 12, 2001, we issued a second EA and FONSI regarding a similar Makah whaling proposal. Conservation groups challenged that EA and FONSI in court, and the Ninth Circuit ruled in *Anderson v. Evans* (2004) that we should have prepared an EIS rather than an EA.

On March 6, 2003, we initiated an EIS to assess the environmental impacts of publishing the 2003 to 2007 quota for the Makah's use under the WCA (68 FR 10703). Because of pending litigation, we gave notice 2 years later that we were terminating the EIS (70 FR 49911, August 25, 2005). On August 25, 2005, we published a Notice of Intent (NOI) to prepare an EIS (70 FR 49911) and on February 27, 2006 (71 FR 9781), we announced in the Federal Register that we would expand the scope of the EIS to include the WCA. On May 9, 2008, we published a DEIS evaluating the impacts on the human environment of the Tribe's proposed hunt and five alternatives.

Soon after releasing the 2008 DEIS, several substantive scientific issues arose that required an extended period of consideration for our NEPA analysis, including: (1) potential bias in population estimates for ENP gray whales (Laake et al. 2009); (2) genetic evidence of population substructure indicating that PCFG whales may warrant consideration as a separate management unit (Frasier et al. 2011; Lang et al. 2011a); and (3) whale tracking and sampling data indicating that at least some members of the endangered WNP stock of gray whales migrate across the Pacific and into areas (including the Makah U&A) once thought to be used exclusively by ENP gray whales (see Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements). This information was also under review at the IWC. Given these developments and the fact that it had been 7 years since the Tribe had submitted its initial request, on May 21, 2012, we announced we were terminating the 2008 DEIS and intended to prepare a new DEIS (77 FR 29967).

In making that announcement, we were mindful that we had received over 400 comments on the 2008 DEIS from state and federal entities, tribal governments, and both nonprofit organizations and interested individuals from the United States and around the world. The numerous comments we received covered topics ranging from specific biological, ecological, or legal issues to more general cultural, personal, or spiritual values. For example, a substantial number of the public

comments were concerned with potential hunting impacts on PCFG whales, while others raised questions about issues of precedence on the world stage or the cultural significance of the hunt to the Makah Tribe. Many commenters covered multiple topics in a single letter, and topics often were repeated in multiple comments (although in different combinations). In some cases topics were outside the scope of the DEIS.

In developing the 2015 DEIS, we carefully reviewed the comments on the 2008 DEIS and developed responses to those that provided new information or raised substantive issues. To capture that consideration, and aid reviewers of the 2015 DEIS, we prepared a NMFS memorandum (NMFS 2015a) that lists the comments received on the 2008 DEIS (and either summarizes the comment or repeats the comment verbatim) and includes the draft responses to a number of comments that we considered while developing the 2015 DEIS. The memorandum does not contain responses to each individual comment, given the large number of comments simply raising support or lack of support for a hunt, the significant overlap among the comments provided, and the fact that the 2008 DEIS was terminated. We have also reviewed the comments received on our May 21, 2012 *Federal Register* notice (77 FR 29967) and responded to those in a separate scoping report (NMFS 2015b; refer to Appendix F).

The 2015 DEIS was made available for public comment on March 13, 2015 (80 FR 13373, March 13, 2015) with a public comment period ending on June 11, 2015, which was later extended to July 31, 2015 (80 FR 30676, May 29, 2015). NMFS received over 57,000 comments by mail, fax, email, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Over 99% of those comments were submitted as form letters. The NMFS West Coast Region prepared two documents providing initial responses to the comments received—one responding to the 17 topics most frequently raised by commenters on the DEIS and one providing responses to all of the unique comments raised (excluding duplicated form-letter comments). These documents were also included in the ALJ hearing record and are available on the ALJ's hearing website at: https://www.uscg.mil/Resources/Administrative-Law-Judges/Decisions/ALJ-Decisions-2016/NOAA-Formal-Rulemaking-Makah-Tribe/.

After reviewing public comments on the 2015 DEIS and additional information relevant to the Tribe's request, NMFS developed a sixth action alternative that was not separately analyzed in the 2015 DEIS but is composed of elements from other alternatives that were analyzed. Based on this 'composite alternative,' NMFS published the proposed decision (84 FR 13604, April 5, 2019) to issue a waiver under the MMPA and proposed regulations governing the hunting of ENP gray whales by the Makah Tribe for a 10-year period.

Also, in May of 2019, NMFS declared an Unusual Mortality Event (UME) for ENP gray whales after a larger than normal number of whales were reported stranded during their migration between Arctic feeding grounds and Mexican breeding grounds (see information posted at https://www.fisheries.noaa.gov/national/marine-life-distress/2019-gray-whale-unusual-mortality-event-along-west-coast). While the 2015 DEIS discussed UMEs in general and a previous ENP gray whale UME, which was declared in 1999-2000, it pre-dated the ongoing 2019 UME.

NMFS determined that it would benefit both the public and agency decision-making to prepare a Supplemental Draft Environmental Impact Statement (SDEIS) to address (1) the composite alternative that comprised the proposed regulations, (2) the ongoing UME, and (3) the ALJ's Recommended Decision and corresponding hearing record and public comments. On February 27, 2020, NMFS announced in the *Federal Register* a notice of intent to prepare an SDEIS to supplement the 2015 DEIS (85 FR 11347). The SDEIS analyzed in aggregate the components of the previously analyzed elements that comprise Alternative 7 and provided the opportunity for public review and comment.

On July 5, 2022, NMFS published a *Federal Register* notice regarding availability of the SDEIS and a request for public comment during a 45-day comment period (87 FR 39804), which was extended twice for a total of 67 additional days (87 FR 50319, August 16, 2022, and 87 FR 64454, October 25, 2022). NMFS received 47 public comments by mail, email, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). We have prepared final responses to the frequent substantive public comments received on the 2015 DEIS as well as on the SDEIS and include them here in Appendix C. After careful review of all comments received on the DEIS and SDEIS as well as the ALJ's Recommended Decision and associated public comments, NMFS has selected Alternative 7 as the Preferred Alternative.

1.5 Public Involvement

1.5.1 Scoping Process

Prior to publishing the notice of withdrawal and intent to prepare a new EIS, we had conducted NMFS internal scoping in January and April 2012 to determine the most applicable approach to review under NEPA. We reviewed the resources and alternatives addressed in the 2008 DEIS and determined that most information was still applicable, some resources of the human environment could be eliminated from a new analysis (because updated information indicated that impacts were nonexistent or negligible), and at least one environmental resource (consideration of gray whales from the WNP) should be added to the new analyses. We also determined it was

appropriate to terminate the 2008 DEIS and begin developing a new EIS that would include additional public scoping. We determined that doing so would be the best means to provide updated, high quality information to the public and to provide for related public involvement that would create a concise, current, and understandable record on the action and subsequent agency decision. With the announcement of our intention to prepare a new DEIS in the Federal Register (77 FR 29967, May 21, 2012), we opened a public scoping period and invited public comment.

Scoping is an open process that agencies must conduct under NEPA to determine the range and significance of the issues to be analyzed in depth in an EIS. As part of the scoping process, agencies invite the participation of affected federal, state, and local agencies, Indian tribes, the proponent of the action, and other interested persons, all of whom help to identify relevant issues to address in the EIS, while helping the agency eliminate insignificant issues from detailed study. Scoping can also help determine the level of analysis and types of data needed.

The public comment period for preparation of the new EIS was open from May 21 until August 10, 2012. We received 11 comment letters and addressed them in a separate scoping report (NMFS 2015b; refer to Appendix F). During internal NMFS and public scoping, we considered several sources of information to identify issues addressed in this FEIS, including but not limited to:

- The Makah Tribe's request;
- Public comment during scoping for the 2008 DEIS;
- The 2008 DEIS;
- Public comment on the 2008 DEIS;
- Public comment during scoping in 2012;
- Input from other federal agencies (including the Bureau of Indian Affairs as NMFS' cooperating agency);
- IWC documents and deliberations;
- The MMPA and its regulations;
- The WCA and its regulations;
- The Council on Environmental Quality's National Environmental Policy Act (NEPA) regulations (40 CFR 1500-1508);
- Other applicable statutes and regulations;
- Other environmental reviews under NEPA;
- Biological opinions under the ESA;
- NMFS' stock assessment reports and other MMPA-related documents;

- The Treaty of Neah Bay;
- The federal trust responsibility.

Following the publication of the 2015 DEIS, new circumstances and information presented at the 2019 ALJ hearing led NMFS to conduct a second internal scoping process in January 2020 to determine if supplementing the 2015 DEIS was appropriate. We concluded that the declaration of a UME for ENP gray whales warranted the development of an SDEIS. Public comments received on the 2015 DEIS and consultation with the Makah Tribe following its publication also led us to formulate a seventh, "composite" alternative using various elements of the five DEIS action alternatives. Although the formulation of this alternative itself did not warrant the development of the SDEIS, we determined during scoping that it may be beneficial to include the composite alternative in the SDEIS as well.

1.5.2 Concerns Identified During Scoping

The following concerns were identified during scoping. Detailed discussion of many of these concerns occurs throughout this document. Section 2, Alternatives, identifies and addresses concerns raised regarding alternatives analyzed and Appendix F summarizes our responses to comments raised during the 2012 scoping process.

1.5.2.1 Marine Habitat and Species

- Potential effects on marine habitat (such as kelp beds, surfgrass, intertidal area, or other habitat features).
- Potential effects of removing whales from the ecosystem.

1.5.2.2 Gray Whales

- Potential effects on the ENP gray whale population of removing individual whales in the action area by hunting.
- Threats to ENP gray whales throughout their range, including the UME declared in 2019
- Potential effects on PCFG whales.
- Potential effects on gray whale presence in the Makah U&A as a result of removing individual whales from the action area or from disturbing or frightening the whales in connection with hunting activities.
- Potential effects on individual gray whales from specific hunting methods.
- Potential effects on WNP whales that may be present in the action area during a hunt.

1.5.2.3 Other Wildlife Species

- Potential effects on wildlife of noise.
- Potential effects on wildlife of visual disturbance.
- Potential effects on wildlife from fuel/contaminant spills.
- Potential direct effects on wildlife from unintentionally striking animals with vessels or weapons.
- Potential indirect effects on marine wildlife resulting from changes in prey availability because of the removal or redistribution of gray whales.

1.5.2.4 Economics

- Potential economic effects on land-based, tourism-related businesses.
- Short-term effects of tourism increase or decrease related to whale hunts.
- Negative economic effect on the Tribe.
- Long-term effects of whale hunting on county-wide and state-wide tourism.
- Potential economic effects on water-dependent businesses.
- Effects on Pacific coast whale-watching industry.
- Effects on government spending.
- Effects on international shipping and local commercial and recreational fisheries.

1.5.2.5 Environmental Justice

- Potential disproportionate socioeconomic (employment and income) effects on minority and low-income populations.
- Potential disproportionate sociological effects on minority and low-income populations.

1.5.2.6 Social Environment

- Potential effects on attitudes and emotions, including spiritual beliefs.
- Potential effects on human relations.

1.5.2.7 Cultural Resources

- Potential effects on archaeological and historical sites or traditional cultural properties in the action area.

1.5.2.8 Ceremonial and Subsistence Resources

- Potential effects on Makah ceremonial and subsistence practices from resuming whaling.
- Potential effects on Makah ceremonial and subsistence practices from not being allowed to resume whaling.

1.5.2.9 Noise

- Disturbance to human visitors in the immediate vicinity of hunting activities.
- Disturbance to onshore communities or homes on the Makah Reservation.

1.5.2.10 Aesthetics

- Visual effects on on-scene observers of the hunt.
- Visual effects on off-site observers of the hunt through the media.

1.5.2.11 Transportation

- Potential for the hunt and related activities to interfere with normal marine vessel traffic.
- Potential for the hunt and related activities to interfere with normal aircraft traffic.
- Potential for the hunt and related activities to interfere with normal highway traffic.
- Potential for hunt and related traffic to cause accidents or disrupt essential emergency services transit.

1.5.2.12 Public Services

- Potential for hunt-related activities to result in injuries or other emergency incidents that exceed the capacities of tribal and other local public health facilities.
- Potential for hunt-related activities to affect and potentially overwhelm tribal, county, and Coast Guard law enforcement personnel and facilities.
- Potential for hunt-related activities to detract from enforcement needed in other areas.

1.5.2.13 Public Safety

- Potential effects on public and hunter safety related to possible methods of killing whales.
- Potential effects on public and hunter safety from wounded whales.
- Potential effects on public and hunter safety of prevailing weather and sea conditions.
- Potential effects on public and hunter safety related to protest activities and conflicts.

1.5.2.14 Human Health

- Potential positive health effects on tribal members and others consuming any whale products.
- Potential negative effects from ingesting potential contaminants contained in freshly harvested and drift whale products.

1.5.2.15 Concerns not Specifically Related to a Resource Area

- Precedential effect on the MMPA if take moratorium is waived (e.g., Would other tribes or organizations be able to obtain waivers more easily?).
- Precedential effect on whaling world-wide if a Makah hunt is authorized.
- Effect on the Makah and other tribes associated with upholding or denying treaty rights.
- International effect on the United States' position in international forums of denying an ethnic minority a subsistence right secured in a treaty.
- Effect on management of special areas (such as the Olympic Coast National Marine Sanctuary or designated wilderness areas or marine sanctuary).
- The Makah Tribe's eligibility for an aboriginal subsistence whaling quota.

1.5.3 Comments on the DEIS and SDEIS

As described above, NMFS published a Draft Environmental Impact Statement (DEIS) on March 13, 2015 and received public comments through July 31, 2015 via email, mail, fax, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). We also held two public meetings in April 2015 to receive comments in person. We received more than 57,000 comments over the course of the 140-day comment period. Over 99% of comments were submitted as form letters. NMFS West Coast Region provided draft responses to comments on the 2015 DEIS in November 2019 as part of the record for the hearing before the Administrative Law Judge which were incorporated into the FEIS. These responses were developed with the best available information at that time. We have included the 2019 responses to comments as Appendices E and F.

We published a Supplemental DEIS (SDEIS) on July 1, 2022 and received public comments until October 14, 2022. The public comment period was then briefly reopened from October 28 through November 3, 2022. We received 47 comments via email, mail, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Commenters on the DEIS and SDEIS included state and federal entities, nonprofit organizations, and interested individuals from

the United States and around the world. Appendix C summarizes the comments received on the SDEIS. After carefully reviewing the comments received on the DEIS and SDEIS, we have updated the analysis in the FEIS to include the most recent information available and updated our analysis where necessary. We have also included responses to frequent and substantive comments received on the DEIS and SDEIS in Appendix C.

1.6 Relationship to Other Treaties, Laws, Regulations, Policies, and Processes

Various authorities — both international and national (federal, state, and local) treaties, laws, regulations, policies, and processes — may apply to the whale hunting activities proposed by the Makah Tribe. While some of these authorities require specific agency action before any hunt, such as promulgation of regulations and issuance of permits, others require agency review and consultation. Table 1-2 lists those authorities that are most relevant to the Makah Tribe's proposed whale hunting.

Table 1-2. International, national, state, and tribal treaties, laws, regulations, policies, and processes that may be required for Makah whaling.

Authority	Delegated Oversight Body	Description of Authority, Necessary Action, or Review/Consultation
IWC Schedule, Paragraph 13 (Aboriginal Subsistence Whaling Catch Limits)	IWC and United States government	Sets catch limits by whale stock based on requests from contracting governments acting on behalf of aborigines (and informed by scientific advice). United States has submitted requests on behalf of the Makah, most recently in 2018, to renew catch limits from 2019 through 2025.The IWC approved this catch limit. In 2024, the catch limits will be renewed for a 6-year period in accordance with the Scientific Committee's advice.
Treaty of Neah Bay	United States government and NMFS	Establishes fishing, whaling, and sealing rights for the Makah. United States and NMFS must decide how best to meet their federal trust responsibilities when making decisions about the Makah tribe's request to whale
MMPA	NMFS	Prohibits the take of marine mammals, subject to a waiver of the moratorium and/or compliance with a statutory exemption. Consistent with the 9th Circuit decision in *Anderson v. Evans* (2004) and in response to the Makah tribe's request to whale, NMFS has proposed to waive the moratorium on take for the Makah's requested whale hunting, and proceeded through formal rulemaking (including an on-the record hearing). NMFS will make a final decision about whether to issue a waiver and issue final regulations. In addition, if NMFS issues a waiver and final regulations, a hunt may require incidental take authorization under the MMPA for any other marine mammals that could be incidentally taken.
WCA	NMFS	Implements United States obligations under the ICRW. NMFS must decide whether to enter into a cooperative agreement with the Makah Tribe for co-management of the gray whale hunts and whether to publish an aboriginal subsistence whaling quota for the Makah's use.
NEPA	Council on Environmental Quality / EPA and NMFS	Requires that an EIS be prepared for every major federal action with the potential to significantly affect the quality of the human environment. Consistent with the 9th Circuit decision in *Anderson v. Evans,* NMFS is preparing this EIS and will eventually issue a ROD. NMFS previously prepared a DEIS in 2015 and a SDEIS in 2022.
ESA	USFWS/NMFS	Requires federal agencies to consult with the FWS or NMFS (depending on species jurisdiction) to ensure that activities authorized, funded, or carried out by federal agencies are not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. NMFS has consulted internally and with FWS for the ESA-listed species and designated critical habitat in the action area.
Magnuson-Stevens Act	NMFS	Requires federal agencies to consult with NMFS with respect to any action authorized, funded, or undertaken (or proposed to be the same) when the action may adversely affect any essential fish habitat. NMFS has consulted internally on the effects of the proposed action to essential fish habitat in the action area.

Table 1-2. International, national, state, and tribal treaties, laws, regulations, policies, and processes that may be required for Makah whaling.

Authority	Delegated Oversight Body	Description of Authority, Necessary Action, or Review/Consultation
National Marine Sanctuary Act	NOAA National Ocean Service, National Marine Sanctuaries Program	Requires federal agencies to consult with NOAA when a proposed action internal or external to any sanctuary is likely to destroy, cause the loss of, or injure a sanctuary resource. NMFS has and will continue to consult with Sanctuary staff.
Coastal Zone Management Act	Washington Department of Ecology (Ecology)	Requires federal agencies to ensure that activities carried out in or outside the state's coastal zone are consistent with the enforceable policies of approved state management plans, to the maximum extent practicable. NMFS has consulted with Ecology.
Migratory Bird Treaty Act and Executive Order 13186 (Migratory Birds)	FWS	Prohibits intentional and unintentional take of migratory birds.
Executive Order 12898 (Environmental Justice)	EPA	Provides for fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This FEIS assesses the affected environment as it pertains to environmental justice, as well as the effects to environmental justice from the proposed action and its alternatives.
Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System)	Department of Interior	Establishes the mission of the National Wildlife Refuge System and guiding principles for the management and general public use of refuges. This FEIS assesses the affected environment as it pertains to the Washington Islands National Wildlife Refuges, as well as the effects to the Washington Islands National Wildlife Refuges from the proposed action and its alternatives.
Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) and NOAA Administrative Order 218-8 (Policy on Government-to-Government Consultation with Federally Recognized Indian Tribes and Alaska Native Corporations)	DOC/NOAA	Requires federal agencies to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.
National Historic Preservation Act	Washington State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officer (THPO)	Requires federal agencies to consider cultural resources as part of all licensing, permitting, and funding decisions when the proposed action may have an effect on properties included in or eligible for the National Register of Historic Places. NMFS has assessed the potential impacts on registered historic sites in the action area and concluded that consultation is not necessary.

Table 1-2. International, national, state, and tribal treaties, laws, regulations, policies, and processes that may be required for Makah whaling.

Authority	**Delegated Oversight Body**	**Description of Authority, Necessary Action, or Review/Consultation**
Clean Water Act	EPA; Washington Department of Ecology, and Makah Tribal Council	Establishes standards and regulations by which waters of the state must be managed. NMFS provided the 2015 draft EIS to Ecology for its review.
Makah Whaling Permit	Makah Tribal Council and Makah Whaling Commission	Reviews whaling crew qualifications, identifies whaling crew and vessel participation, and provides other hunt restrictions. The Makah Tribal Council would issue the permit(s) to a whaling captain(s) before any hunt, based on recommendations from the Makah Whaling Commission.

1.7 Organization of this EIS

This EIS is organized in the following categories and sections:

- Executive Summary
- Acronyms and Abbreviations
- Glossary
- Table of Contents
- Section 1, Purpose and Need
- Section 2, Alternatives
- Section 3, Affected Environment
- Section 4, Environmental Consequences
- Section 5, Cumulative Effects
- References
- Distribution List
- List of Preparers and Agencies Consulted
- Index
- Appendices

Section 2

Alternatives

Table of Contents

List of Tables

2.0 ALTERNATIVES

2.1 Introduction

This section describes and compares the alternatives under consideration, including the Makah Tribe's proposed action. Figure 1-1 in Chapter 1 provides a map of the Tribe's U&A and the area within the U&A where the Tribe proposes to hunt gray whales. Subsection 2.2 describes our process for formulating alternatives. Subsection 2.3 describes the alternatives analyzed in detail in this FEIS. Subsection 2.4 describes alternatives we considered but eliminated from detailed analysis.

2.2 Alternative Development Process

We received the Makah's request for a waiver of the MMPA take moratorium in February of 2005. After reviewing the request, we concluded it contained relevant and appropriate information to warrant proceeding with a full evaluation. We completed an internal NMFS and public scoping process, identified alternatives, and released a DEIS in May of 2008 (NMFS 2008a). Besides the No-action Alternative and an alternative that reflected the Tribe's proposal, we evaluated four other alternatives that included variations on the area and timing of a hunt, and the limits on ENP and PCFG whales. We also described eight alternatives that we considered but did not evaluate in detail. We received a number of comments on the 2008 DEIS, including comments on the alternatives and have summarized our consideration of them in a NMFS memorandum (NMFS 2015a).

Subsequent to publishing the 2008 DEIS, we received new information that led us to terminate that process and begin the current EIS process (Subsection 1.4.3, Other Environmental Assessments and Court Decisions Informing this Action). Subsection 1.5, Scoping and the Relevant Issues, describes the issues developed during the 2012 and 2020 scoping processes. From the 2012 scoping process, we developed four action alternatives to analyze alongside the Tribe's proposed action and the No-action alternative. Key differences between the action alternatives include varying hunt parameters such as harvest limits, hunting seasons, and formulas used to manage impacts on PCFG gray whales. Upon reviewing public comments on the 2015 DEIS, additional information relevant to the Tribe's request, information presented during the 2019 hearing, and the ALJ's Recommended Decision, we developed an additional action alternative entirely composed of elements from other alternatives already analyzed in the 2015 DEIS. This "composite" alternative served as the basis of the proposed rule published by NMFS

in 2019 (see Subsection 1.1, Introduction) and was analyzed in the 2022 supplemental DEIS for reasons described in Subsection 1.5.1, Scoping Process.

The Council on Environmental Quality's regulations require that an agency consider and assess the environmental consequences of a No-action Alternative, the proposed action alternative, and other reasonable alternatives. Reasonable alternatives, along with the proposed action and the No-action Alternative, must be rigorously explored and objectively evaluated in the EIS and presented in comparative form to define the issues and provide the decision-maker with a clear basis for choice among the options. An agency preparing an EIS must, therefore, make a threshold determination of reasonableness when selecting alternatives from those identified during internal and public scoping. Alternatives that meet the reasonableness threshold are analyzed in detail in the EIS, while alternatives that do not meet this threshold are eliminated from detailed study.

In developing the full range of action alternatives, we considered the principal components associated with a hunt (area, timing, and limits on striking and harvesting whales), as well as regulatory components of a hunt.

To assess the reasonableness of an alternative, we considered the potential of the alternative to meet the purpose and need of NMFS' proposed action. Subsection 1.3, Purpose and Need for Action, describes these as:

> Purpose for Action - NMFS' purpose is to implement the laws and treaties that apply to the Tribe's request, including the Treaty of Neah Bay, the MMPA, and the WCA. The Makah Tribe's purpose is to resume its traditional hunting of gray whales under its treaty right.
>
> Need for Action - NMFS' need for this action is to implement its federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay, and to comply with the requirements of the MMPA and the WCA. Under the MMPA, we must protect and conserve gray whale populations; under the WCA, we must regulate whaling in accordance with the ICRW and IWC regulations. The Makah Tribe's need for the action is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions.

We also considered factors such as consistency with applicable law, practicability and feasibility, and the extent to which an alternative would identify and illuminate potential impacts or key concerns identified during scoping (Subsection 1.5.2, Concerns Identified During Scoping).

Subsection 2.3, Alternatives Considered for Detailed Study, describes the alternatives studied in detail in this FEIS. Additional information about our assumptions and expectations regarding each alternative is discussed in Chapter 4, where we analyze the impacts of each alternative. Those alternatives we considered but eliminated from detailed study are described in Subsection 2.4, Alternatives Considered but Eliminated from Detailed Analysis.

2.3 Alternatives Considered for Detailed Study

This FEIS analyzes seven alternatives in detail—a No-action Alternative and six action alternatives, including a preferred alternative. The six action alternatives would allow the Makah Tribe to conduct limited ceremonial and subsistence hunting of ENP gray whales. One of the action alternatives (Alternative 2) reflects the Tribe's proposal. Alternative 3 (Offshore Hunt) differs from the Tribe's proposal in the area where hunting would be allowed and in the approach to managing impacts to the PCFG. Alternatives 4 (Summer/Fall Hunt) and 5 (Split-Season Hunt) have a different hunting season than the Tribe proposed, with the intention of avoiding impacts to WNP whales, and also have a different approach to managing impacts to the PCFG. Alternative 6 (Different Limits on Strikes and PCFG Mortality, and Limited Duration of Regulations and Permits) would have the same time and area as the Tribe's proposal, but a lower limit on strikes, a different approach to managing impacts to the PCFG, regulations that terminate in 10 years, and a limit of 3 years for permits. Alternative 7 (Composite- Preferred) combines various elements of the other five action alternatives to meet the goals of limiting the likelihood that tribal hunters would strike or otherwise harm a WNP gray whale and of ensuring that hunting does not reduce PCFG abundance below recent stable levels. Table 2-1 compares the key elements of the seven alternatives.

All action alternatives would include the following elements:

- MMPA waiver, regulations, and any necessary permits;
- WCA quota publication and execution of a cooperative agreement;
- Hunting of ENP gray whales only (no other marine mammal would be targeted);
- No hunting of a whale calf or whale accompanied by a calf;
- Restrictions on ENP gray whale product use and distribution;
- Public safety measures and enforcement;
- Training, certification, and permit process for tribal whalers and whaling captain;

- Makah Fisheries Management and NMFS hunt observers;
- Tribal enforcement of tribal whaling ordinance, NMFS enforcement of federal regulations;
- Monitoring of the hunt with adjustments for adaptive management;
- Ongoing gray whale management and monitoring at the national and international levels;
- Method of hunt.

2.3.1 Alternative 1 (No Action)

The No-action Alternative would result in no authorized hunting of gray whales by the Makah Tribe. We would not waive the MMPA take moratorium, promulgate regulations, issue permits, publish a quota for the Makah under the WCA, or enter into a cooperative management agreement with the Makah Tribe for gray whale hunts. The IWC catch limit of 980 whales for the 7-year period beginning in 2019 would not change if we were to adopt the No-action Alternative. Under the No-action Alternative, no part of the catch limit would be allocated to the Makah Tribe, so the entire catch limit would be available for harvest by the Chukotka Natives. Examining the No-action Alternative will provide the public and NMFS with information about the following:

- Cultural and social impacts on the Makah Tribe if tribal members are unable to exercise their treaty right to hunt whales in the Tribe's U&A.
- Conservation impacts on gray whales and the local marine ecosystem if no ENP gray whales are hunted in the action area.
- Social effects from no hunting, including economics, public safety, aesthetics, and public sentiment regarding whales.
- Tourism/whale-watching effects if no ENP gray whales are hunted in the action area.

Table 2-1. Primary Differences Among Alternatives.

Alternatives								
Whale Hunting Components		**1 No-action**	**2 Tribe's Proposed Action**	**3 Offshore Hunt**	**4 Summer/Fall Hunt**	**5 Split Season Hunt**	**6 Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits**	**7 Composite – Preferred**
Hunt timing		None	December 1 through May 31	Same as Alternative 2	June 1 through November 30	December 1 through December 21; May 10 through May 31	Same as Alternatives 2 and 3	Summer/fall hunts and hunting approaches will be authorized from July 1 through October 31, and winter/spring hunts and hunting approaches will be authorized from December 1 through May 31. Only one hunt season may be authorized in a calendar year, however the first month (December) of a winter/spring hunt would fall in the same calendar year as a summer/fall hunt.
Hunt area		None	U&A west of Bonilla-Tatoosh line; no whale may be struck within 200 yards (183 m) of Tatoosh Island or White Rock during the month of May	Same as Alternative 2, except at least 5 miles (8 km) from shore	Same as Alternative 2, except no whale may be struck within 200 yards (183 m) of Tatoosh Island or White Rock during any month	Same as Alternative 2	Same as Alternatives 2 and 5	U&A west of Bonilla-Tatoosh Line, with other site and time restrictions possible to protect Olympic Coast National Marine Sanctuary resources
Maximum limit for harvested, struck, and struck and lost whales	Annual	0	Up to 5 harvested, 7 struck, and 3 struck and lost	Up to 5 harvested, 6 struck, and 2 struck and lost	Up to 5 harvested, 7 struck, and 3 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 5 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 4 harvested (7 over 2 years); up to 4 struck (7 over 2 years); struck and lost limited by strike limit or PCFG limit (see below)	In winter/spring hunts, up to 3 harvested, struck, or struck and lost. In summer/fall hunts, only 1 harvested and 2 struck or struck and lost
	6-year	0	Up to 24 harvested, 42 struck, and 18 struck and lost	Up to 24 harvested, 36 struck, and 12 struck and lost	Up to 24 harvested, 42 struck, and 18 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 24 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 21 harvested, 21 struck; struck and lost limit dictated by PCFG limit (see below)	Up to 12 harvested, and 15 struck or struck and lost
	10-year	0	Up to 40 harvested, 70 struck, and 30 struck and lost	Up to 40 harvested, 60 struck, and 20 struck and lost	Up to 40 harvested, 70 struck, and 30 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 40 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 35 harvested, 35 struck; struck and lost limited by PCFG limit (see below)	Up to 20 harvested, and 25 struck, or struck and lost

ENP Population Abundance Threshold	N/A	N/A	N/A	N/A	N/A	N/A	The impacts of the Preferred Alternative are analyzed without an ENP population abundance threshold. However, three thresholds are considered as Sub-alternatives. Under the Sub-alternatives, hunting would cease if the abundance estimate (N) of the ENP gray whale stock dropped below: a) N=11,000, b) N=16,000, or c) N=18,000
Additional limits on harvest or mortality of PCFG whales. Estimated limits are based on current conditions and could change based on updated information. The descriptions in the table are summaries. Please refer to the narrative for full details, and Subsection 3.4.2.1.3, for background on the potential biological removal (PBR) approach.	N/A	Tribe's bycatch proposal (apply PBR-based formula, with Rmax of 4% and Recovery Factor same as for ENP (1.0) and Nmin of OR-SVI) results in about 3.0 whales/year; struck but not landed do not count as PCFG; no carry-over of unused limit	Total mortality limit set at PBR (as reported in NMFS' stock assessment report); additional female mortality limit set based on proportion of females in PCFG (results in about 2.7 males and 1.6 females); all struck but not landed count as PCFG whales in proportion to presence of PCFG whales; no carry-over of unused limit	Mortality limit set to achieve or maintain 80% of carrying capacity (PBR-based formula with recovery factor of 0.35), minus other human-caused mortality (results in 1 whale); approach only known ENP males; all strikes count as PCFG; no carry-over of unused limit unless it's between 0.5 and 1.0	Mortality limit set at 10% of PBR (results in about 1 whale/4 years); struck but not landed count as PCFG in proportion to presence of PCFG whales; carry-over of unused limit used to calculate hunt hiatus	Mortality limit set at PBR minus other human-caused mortality (results in about 2 whales/year); all struck but not landed count as PCFG in proportion to presence of PCFG whales; no carry-over of unused limit	Mortality limit set at 16 PCFG whales over 10 years, no more than 8 of which may be females. Hunting would be prohibited if the forecasted abundance of the PCFG falls below 192 whales, or the minimum abundance falls below 171 whales
Waiver and permit duration and additional regulations	N/A	Unlimited waiver period; permits for maximum of 5 years; no additional regulations	Same as Alternative 2	Same as Alternatives 2 and 3	Same as Alternatives 2, 3, and 4	Waiver period ends after 10 years; permits for maximum of 3 years	Waiver period ends after 10 years; initial permit for maximum of 3 years followed by permits up to 5 years

2.3.2 Alternative 2 (Tribe's Proposed Action)

This description of the Makah Tribe's proposed action is based on the Tribe's February 2005 MMPA waiver request. In its request the Tribe referred to a whale management plan adopted in 1998 and revised in 2001 to govern future proposed whale hunts. The Tribe's waiver request includes a proposal that NMFS issue regulations with provisions similar to those contained in the 2001 Gray Whale Management Plan. In addition, in 2013 the Tribal Council adopted an ordinance governing whaling by tribal members. This ordinance supersedes all prior management plans. The waiver request and the 2001 management plan are provided as Appendix A to this FEIS. The Tribe's 2013 whaling ordinance is provided as Appendix B. In its MMPA waiver request, the Tribe proposed to abide by the specific conditions described below.

In the following description of Alternative 2, several elements would be common to all of the action alternatives. We indicate these with the parenthetical phrase "Common among Action Alternatives."

2.3.2.1 Regulatory Actions Requested of NMFS (Common among Action Alternatives)

The Makah Tribe requested authorization to hunt ENP gray whales in the coastal portion of its U&A (that is, excluding the Strait of Juan de Fuca) (Figure 1-1). Whaling is a right expressly secured in the 1855 Treaty of Neah Bay. Pursuant to the court's decision in *Anderson v. Evans* (2004), to hunt whales, the Makah Tribe seeks domestic authorization from NMFS under two statutory authorities—the MMPA and the WCA.

Specifically, we would have to authorize any Makah whaling by (1) waiving the moratorium prohibiting take of marine mammals under subsection 101(a)(3)(A) of the MMPA with respect to ENP gray whales, (2) promulgating regulations to implement the waiver and govern the hunts in accordance with subsection 103 of the MMPA, (3) issuing any necessary permits to the Makah under subsection 104 of the MMPA and the hunt regulations, and (4) entering into a cooperative agreement for co-management of the hunt and publishing any relevant aboriginal subsistence whaling quotas under the provisions of the WCA (see Subsection 1.2.3, Marine Mammal Protection Act, and Subsection 1.2.4, Whaling Convention Act, for a discussion of those statutes).

2.3.2.2 Gray Whale Hunt Details

2.3.2.2.1 Species (Common among Action Alternatives)

The Makah Tribe requested a waiver of the take moratorium for ENP gray whales only. As noted in Subsection 1.1.3, Summary of Gray Whale Status, we currently do not recognize the PCFG as a separate stock but have stated that it "appears to be a distinct feeding aggregation and may one

day warrant consideration as a distinct stock" (Carretta et al. 2023). The Tribe's request included separate consideration for PCFG whales but did not request a waiver of the take moratorium for PCFG whales (as they were not designated as a separate population stock at the time of the request). Other marine mammals occur in the Makah U&A, including WNP gray whales, which could be present during January through May (Subsection 1.1.3, Summary of Gray Whale Status; Subsection 3.4.3.2, Western North Pacific Gray Whales). The Tribe has not requested a waiver of the take moratorium for WNP whales. No other species are included in the Tribe's waiver request; thus, the FEIS does not analyze their intentional take (though it does consider the potential that other species could be affected by a hunt for gray whales). These entities are defined as follows:

Western North Pacific (WNP) gray whales = Gray whales that feed during the summer and fall in the Okhotsk Sea (primarily off northeast Sakhalin Island, Russia), some of which also feed off southeastern Kamchatka in the Bering Sea. WNP gray whales are considered a population stock under the MMPA, and the stock is designated as depleted. WNP gray whales are recognized as a distinct population segment (DPS) under the ESA and are designated as endangered.

Eastern North Pacific (ENP) gray whales = Gray whales that feed during the summer and fall primarily in the Chukchi, Beaufort, and northwestern Bering Seas, but also as far south as California. ENP gray whales are considered a population stock under the MMPA. ENP gray whales were formerly listed as an endangered species under the ESA but subsequently recovered and were delisted in 1994 (59 FR 31094, June 16, 1994).

PCFG whales = Gray whales observed in at least 2 years between June 1 and November 30 in the PCFG area (along the U.S. and Canada coasts between 41°N and 52°N, excluding areas in Puget Sound) and entered into the Cascadia Research Collective's photo-identification catalog. For purposes of determining whether a harvested whale is a PCFG whale and therefore counts against a bycatch or mortality limit, the Tribe's proposal under Alternative 2 would include cataloged whales seen in at least 1 year, while the other action alternatives would include cataloged whales seen in 2 or more years. Alternative 7, the preferred alternative, would assume any whale struck, struck and lost, or approached during the summer hunt time period to be a PCFG whale. Under the MMPA, PCFG whales are considered part of the ENP gray whale population stock and have been described in the ENP gray whale SARs as a feeding aggregation.

2.3.2.2.2 Numbers of Whales Harvested (Annual and 6-year)

The Tribe proposes no more than five whales to be harvested in any calendar year and no more than 24 whales in any 6-year period, consistent with the catch limit set by the IWC. (The Tribe

originally requested a 5-year limit of 20 whales, consistent with the IWC limit at the time of the original request. The IWC now sets 6-year rather than 5-year catch limits (with the exception of the current one-time 7-year catch limit, see Subsections 1.2.4.1.3, IWC Aboriginal Subsistence Whaling and 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah); thus, this FEIS analyzes the 6-year limit.)

We use the term "harvest" in this FEIS to mean killing and landing a whale (Subsection 1.1.1, Summary of the Proposed Action). IWC regulations, which set 'catch limits' for ASW, count all "takes" as "catches" and define "take" as "to flag, buoy, or make fast to a whale catcher" (IWC 2022a). In contrast, the MMPA defines take as to "harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill" (16 USC 1362(13)). Many whale hunting activities that the Makah propose (i.e., pursuing, approaching, striking, and killing) are "takes" under the MMPA but not the IWC regulations (for example, pursuing and approaching a whale are not activities expressly noted in the IWC regulations).

The Tribe also proposes to limit the number of harvested whales further, if necessary to meet international treaty obligations of the United States under the ICRW, or to prevent the abundance of the ENP gray whale stock from falling below its OSP level (Subsection 3.4.2.1, Marine Mammal Protection Act Management, explains the OSP concept).

2.3.2.2.3 Limits on Harvesting PCFG Whales

The Makah Tribe's proposed action contains two conservation measures related to PCFG whales "to ensure that gray whales remain a functioning element of the ecosystem" (Makah Tribe 2005). The measures would (1) restrict the time and area of any hunt to reduce the likelihood that a PCFG whale would be killed (discussed in Subsection 2.3.2.2.8, Location of Hunt (Area Restrictions), and Subsection 2.3.2.2.9, Timing of Hunt (Seasonal Restrictions)) and (2) cease the hunt if a predetermined number of PCFG whales were landed and identified. The Tribe refers to this limit on PCFG whales as an "allowable bycatch limit." Here, we use the term "allowable bycatch limit" to refer to the Tribe's proposed limit on landed and identified PCFG whales. In contrast, other alternatives focus on all hunt-related mortality (whales that are struck and lost as well as whales that are landed) and use the term "PCFG mortality limit" to refer to limits on all hunt-related PCFG mortality, whether the whale is landed or not.

The Makah Tribe's waiver request states that the Makah Fisheries Management observers (Subsection 2.3.3.2.7, Other Environmental Protection Measures, Makah Fisheries Management Department and NMFS Observers and Monitoring) would photograph any whale landed and

provide the photographs to NMFS to compare with the PCFG photographic database.[7] This would allow NMFS and the Tribe to determine if any landed whale were a PCFG whale.

Under the Tribe's proposal, whales struck but not landed would not count against the allowable bycatch limit of PCFG whales. The Tribe proposes to stop hunting when a predetermined number of cataloged whales (sighted at least once in the PCFG range from June 1 through November 30) are landed. That number would be established using a formula based on the one NMFS uses to set the level of human-caused mortality that allows marine mammal population stocks to achieve or maintain their OSP level. That formula contains three parameters: (1) maximum net productivity rate, (2) minimum abundance, and (3) a recovery factor. The MMPA refers to the result of this formula as the "potential biological removal" or PBR level (see Subsection 3.4.2.1.3, Linking Marine Mammal Population Parameters to Removals). Where we have sufficient information, we report PBR levels for each recognized marine mammal stock in our periodic stock assessment reports. We have also developed guidelines for determining the values in this formula in setting PBR (NMFS 2005b; see updated version NMFS 2023b). Subsection 3.4.2.1, Marine Mammal Protection Act Management, describes the formula in greater detail and the agency guidelines for its use.

To establish an allowable bycatch limit, the Tribe proposes to use a 4 percent maximum net productivity rate (consistent with the IWC analysis of the Tribe's hunt; Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates, and Subsection 4.1.2.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested) and the same recovery factor (currently 1.0) that NMFS uses to calculate PBR for the ENP stock as a whole. Instead of using the entire PCFG to set the minimum abundance value in the formula, however, the Tribe also proposes to use a subset of the PCFG, which is only those PCFG whales sighted from Oregon to Southern Vancouver Island. Under current conditions, the Tribe's proposed method would result in an allowable bycatch limit of about 3.0 PCFG whales per year (Subsection 4.1.2, Alternative 2, describes the application and result of the Tribe's proposed method).

There are a number of variations on how the basic formula described above could be used to set a PCFG mortality limit, depending on the management goal. For example, in our most recent stock

[7] Cascadia Research Collective currently manages the only available photographic database for ENP gray whales, and also has expertise to determine matches (Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration, and Movements). Any regulations adopted in conjunction with a waiver of the take moratorium should require NMFS to determine that adequate photo-identification catalogs and processes are in place prior to issuing a hunt permit.

assessment report for gray whales, we calculate a PBR level for the PCFG using a more recent maximum productivity value of 6.2 percent, different values for minimum abundance (based on abundance in the PCFG range from northern California to northern British Columbia), and a recovery factor of 0.5, which results in an informational PBR of 3.5 whales per year (Carretta et al. 2023). The action alternatives in this FEIS explore the effect of using various values for the parameters in the formula to set a PCFG mortality limit.

The Tribe proposes to count only those whales that are landed and photographically identified as PCFG whales. This method does not account for all PCFG whales potentially killed in a tribal hunt, however, because PCFG whales may be struck and killed but not landed and identified. Alternatives 3 through 7 explore different methods of setting a PCFG mortality limit and accounting for whales that are struck but not landed.

Finally, the Tribe does not propose to account for other sources of human-caused mortality when setting the allowable bycatch limit for PCFG whales. In its comments on the 2008 DEIS, the Marine Mammal Commission questioned this approach. Alternatives 4 and 6 therefore explore the effects of setting a PCFG mortality limit in a Makah hunt that takes into account other sources of human-caused mortality.

2.3.2.2.4 Number of Whales Struck (Annual and 6-year)

The Makah Tribe would limit the number of ENP gray whales that may be struck to no more than seven whales in any calendar year and no more than 42 whales in any 6-year period. Consistent with the IWC Schedule, the Tribe defines "strike" in their request as "any blow or blows delivered to a whale by a harpoon, rifle, or other weapon which may result in death to a whale, including harpoon blows if the harpoon is embedded in the whale, and rifle shots that hit a whale."

The IWC Schedule defines "strike" as meaning "to penetrate with a weapon used for whaling." The WCA implementing regulations define "strike" as "hitting a whale with a harpoon, lance, or explosive device" (50 CFR 230.2). Subsection 916k of the WCA provides that regulations of the IWC are "effective with respect to all persons and vessels subject to the jurisdiction of the United States." For purposes of analyzing the Tribe's request, we therefore interpret the WCA definition of "strike" to be consistent with the IWC Schedule. The Tribe also proposes to limit the number of whales struck to further meet the ICRW obligations of the United States, or to prevent the ENP gray whale stock abundance from falling below its OSP level.

2.3.2.2.5 Number of Whales Struck and Lost (Annual and 6-year)

Whales that are known to be struck, but not flagged, buoyed, or secured to the vessel, are considered to be "struck and lost." The Tribe proposes to restrict the number of struck and lost whales to no more than three whales in any calendar year and no more than 18 whales in any 6-year period. These numbers are included in the numbers for annual and 6-year proposed strikes (i.e., three struck and lost whales per year is part of the seven-whale strike limit per year, and not additive). If the struck and lost quota is met or exceeded, the Tribe proposes to stop hunting to allow the opportunity to reevaluate techniques and address potential problems.

2.3.2.2.6 Whales Approached and Subjected to Unsuccessful Strike Attempts

Whales not harvested or struck may nevertheless be disturbed by Makah hunters. In its request, the Tribe referred to its experience in 1999 and 2000 to estimate there would be four unsuccessful harpoon attempts for each successful strike, and 20 whales approached for each successful strike. Based on our review of the available data from the 1999 and 2000 hunts, and in particular the reports of the 1999 (Gosho 1999) and 2000 (Gearin and Gosho 2000) hunts, we have developed different estimates for this analysis.

The Tribe's request states that, based on experience with whale hunts in 1999 and 2000, there would be 10 approaches for each whale struck. The Tribe estimated that with 10 approaches for each whale struck there would be 20 whales approached, because of the average pod size of two whales, as observed during the southbound counts at Granite Canyon.

To estimate the potential number of unsuccessful harpoon attempts for the action alternatives, we considered the Tribe's hunt experience from both 1999 and 2000. In 1999, tribal hunters made three unsuccessful harpoon attempts and one successful strike. Based on this information, the Tribe's request concluded there would be four unsuccessful harpoon attempts for each successful strike. However, the actual ratio experienced in the 1999 hunt was 3:1, not 4:1, because the fourth attempt was successful. The Tribe also hunted in 2000 and made three unsuccessful harpoon attempts and no successful strikes. Thus, the ratio of unsuccessful harpoon attempts to successful strikes from the combined 1999 and 2000 hunting seasons would be 6:1. This is the ratio we use to estimate the number of unsuccessful harpoon attempts.

2.3.2.2.7 Age and Reproductive Status (Common among Action Alternatives)

The Tribe proposes to prohibit the striking of a whale calf or any whale accompanied by a calf. Gray whale calves generally accompany adult female parents during migration and may be observed as pairs of traveling whales.

2.3.2.2.8 Location of Hunt (Area Restrictions)

The area where the Makah Tribe proposes to hunt is confined to its U&A west of the Bonilla-Tatoosh line, excluding the Strait of Juan de Fuca. WAC 220-16-490 defines the Bonilla-Tatoosh Line as a line projected from the most westerly point on Cape Flattery to the lighthouse on Tatoosh Island, then to the buoy adjacent to Duntz Rock, then to Bonilla Point on Vancouver Island. The Tribe's U&A, as adjudicated in *United States v. Washington* (1974 and 1985), also excludes grounds that the Makah historically hunted and fished, but that are now beyond the exclusive economic zone (EEZ), which is also the boundary between Canada and the United States. According to the Tribe's waiver request, restricting the hunt to the area of its U&A outside the Strait of Juan de Fuca, in conjunction with the proposed seasonal restrictions (Subsection 2.3.2.2.9, Timing of Hunt (Seasonal Restrictions)), is designed to minimize the potential for killing PCFG whales. Also, to address concerns about impacts to nesting seabirds, under the Tribe's proposal no whale may be struck within 200 yards (183 meters) of Tatoosh Island or White Rock during the month of May. Alternative 4 (Summer/Fall Hunt) would have the same 200-yard (183-meter) provision, but it would apply to all months. Alternative 3 (Offshore Hunt) would differ from all other action alternatives by constraining the hunt location to areas farther than 5 miles (8 km) offshore of the Tribe's U&A area outside the Strait of Juan de Fuca. Under Alternative 7 (Preferred) other sites could be subject to hunt restrictions via the hunt permitting process to protect Olympic Coast National Marine Sanctuary resources pursuant to consultation under the National Marine Sanctuary Act.

2.3.2.2.9 Timing of Hunt (Seasonal Restrictions)

The Makah's waiver request includes timing restrictions that would prohibit hunting from June 1 to November 30 in any calendar year. According to the Tribe's waiver request, this measure is "designed to avoid any intentional harvest of gray whales" that have been identified within the PCFG survey area by hunting outside of times that coincide with the summer feeding period.

2.3.2.2.10 Proposed Hunting Method

The Makah Tribe plans to use both traditional and modern methods for hunting whales to balance the preservation of traditional cultural methods with safety and the need for increased hunting efficiency. Traditional and modern methods are relative terms because, as discussed in Subsection 3.9, Cultural Resources, the Tribe has adopted technological innovations over time. The Tribe considers traditional methods to be those that would be maintained based on their contribution to the ceremonial value of whaling. The Tribe's request includes the use of modern equipment when needed for safety, increased technological effectiveness, and/or to meet MMPA permit requirements.

The proposed method includes hunting whales from one or two sea-going canoes that are at least 30 feet (9 meters) long and carved by the Makah. Each canoe would be operated by an eight-person whaling crew (all Makah tribal members) and would include a harpooner and paddlers. One or more chase boats would accompany the canoes and either the canoe or chase boat would carry the whaling captain. Each chase boat would be operated by a pilot, diver, rifleman, backup harpooner, and at least one other crew member serving as a safety officer. Each chase boat would be equipped with a navigation system capable of fixing the vessel's position on the water. If neither chase boat had an engine capable of safely towing an adult gray whale to shore, there would be an additional vessel with that capability.

All action alternatives involve the same hunting method as proposed by the Tribe, except Alternative 3, which would involve only motorized vessels and not a canoe.

Method of Striking and Killing

The harpooner would use stainless steel harpoons with a toggle point. Each harpoon would be secured to a rope with float(s) attached. The harpooner would use one or more harpoons to make the first strike on the gray whale. If a harpoon strikes and affixes the toggle point and floats to the whale with the harpoon line attached, the rifleman in the chase boat would shoot it at close range with a high-powered, .50-caliber rifle with the intent of killing the whale with a shot to its central nervous system. A diver would attempt to sew the dead whale's mouth shut to prevent the whale from sinking. Although the Tribe proposed a specific method of striking and killing whales, public comments and our review of available information led us to consider additional methods in the some of the other action alternatives, as described below.

Optional Methods of Striking and Killing (Common among Action Alternatives)

Although the Tribe proposed a specific method of striking and killing whales, public comments and our review of available information led us to consider additional methods, including in the analysis of potential weapons impacts under Alternative 2. For all action alternatives, we consider the use of a darting gun that fires an explosive projectile into the whale. The hand-thrown darting gun consists of a barrel (to hold an explosive projectile) that is attached to a wooden shaft equipped with a toggle-point harpoon. The harpoon is intended to penetrate the whale and attach a line and float to secure the whale and assist in its recovery (O'Hara et al. 1999; Øen 2000; IWC 2007a). The barrel contains a trigger rod that ignites a propellant or "pusher" charge. This pusher charge fires the explosive projectile into the whale's body. The explosive projectile has a time delay fuse. The explosive projectile may be either black powder or penthrite and is intended to kill when it explodes inside the whale, either through shrapnel or blast injury. The cervical and

cranial thoracic regions are the critical targets for the darting gun projectile (O'Hara et al. 1999). If the initial darting gun projectile (primary strike) fails to kill the whale, the whale would be killed with additional explosive grenades delivered using either a smooth-bore, eight-gauge shoulder gun or a darting gun.

It would be reasonable to use the darting gun as an optional method of striking and killing whales regardless of the action alternative. For this reason, although other options for striking and killing are not part of the Tribe's proposal, this EIS examines this optional method as an element common among all action alternatives, including the Tribe's proposed action (Alternative 2). Impacts on individual whales from each of the optional hunting methods are described in further detail in Subsection 3.4.3.5, Welfare of Individual Whales.

Securing and Towing the Whale

Following a successful kill, the whaling crew would secure the whale with a line to tow it to a beach (mostly likely on the Makah Reservation), where tribal members could participate in celebrations and butchering, and tribal and/or NMFS biologists would measure and photograph the whale and take samples of tissues. Most of the whale products from the beached whale would be removed within 24 hours, including tissue samples collected by biologists.

The Tribe proposes to conduct research and development to refine whaling vessels, equipment, and hunting methods in consultation with NMFS to improve the safety, effectiveness, and humaneness of the gray whale hunt.

2.3.2.2.11 Whale Product Use and Distribution (Common Among Action Alternatives)

Limited Commercial Use and Distribution

The Makah Tribe would not sell or offer for sale whale products to the extent prohibited in WCA regulations. These regulations prohibit any person from selling or offering for sale whale products taken from an aboriginal subsistence hunt, except for authentic articles of native handicraft (which includes clothing) (50 CFR 230.4(f)). MMPA Section 102(f) prohibits take of whales incidental to commercial whaling. Although subsection 101(b) of the MMPA allows Alaska Natives to sell edible whale products in native villages and towns in Alaska or for native consumption, the Makah does not seek to sell or offer for sale any edible whale products. Any sales or offers to sell would be limited to non-edible whale products used to create authentic articles of native handicraft and could only be sold within the United States.

The Makah Tribe's whaling ordinance would prohibit tribal members who participate in any whale hunt from receiving monetary compensation, also in accordance with WCA regulations (50 CFR 230.4(e)).

Non-Commercial Use and Distribution

The Makah, within the borders of the United States, would be able to share edible whale products from any hunt under certain limited circumstances.

2.3.2.2.12 Other Environmental Protection Measures

Seabirds

Tatoosh Island and White Rock (which are located within the coastal portion of the Makah's U&A) support large seabird breeding colonies (Subsection 3.5.3.2.2, Non-Listed Birds and Their Associated Habitats). The Tribe proposes to avoid striking whales within 200 yards (183 meters) of Tatoosh Island and White Rock during May to minimize disturbance to feeding and nesting seabirds. The Tribe's additional proposal to prohibit hunting from June 1 through November 30 to protect PCFG whales would also help protect seabird breeding colonies. Measures to reduce impacts to seabirds on Tatoosh Island and White Rock are common among action alternatives. This same provision is incorporated into alternatives 4 (which prohibits hunting in this area in all months) through 6. Alternative 3 restricts hunting to the area beyond 5 miles (8 km) from shore, well beyond Tatoosh Island and White Rock. Alternative 7 allows for site restrictions to be included in hunt permits to protect sanctuary resources, which could include these areas in addition to any others identified in consultation with the OCNMS.

Public Safety Measures and Enforcement (Common Among Action Alternatives)

The Tribe proposes to implement public safety measures at least as restrictive as those described in its 2001 Gray Whale Management Plan . Those measures include the public safety measures the Makah Tribe previously employed in the 1999 and 2000 hunts, as well as additional measures that the Tribe plans to use for future whale hunts. The measures (described in more detail in Subsection 3.15, Public Safety, and in the Tribe's Whaling Ordinance, Appendix B) proposed by the Tribe include the following:

- The Makah Tribe whalers would use modern methods to kill a whale quickly; this would reduce the potential for a wounded whale to injure hunters or people in other vessels.
- All whalers would participate in whaler safety training, and drug and alcohol testing (see Training and Certification Process for Tribal Whalers, below).

- The whaling captain would also participate in captain training and certification. The captain would be responsible for the safety of his crew.
- Riflemen and/or whalers in charge of firing explosive charges would participate in training for proficient and accurate shooting under simulated hunt conditions.
- The rifleman or whaler in charge of firing explosive charges on board the chase boat would not be able to discharge his weapon until authorized to fire by a safety officer designated by the whaling captain. If a rifle were used, the safety officer would not authorize the discharge of the rifle unless the barrel of the rifle were above and within 30 feet (9 meters) of the target area of the whale, and the rifleman's field of view were clear of all persons, vessels, buildings, vehicles, highways, and other objects or structures that if hit by a rifle shot could injure humans or property.
- The whaling captain would suspend the hunt if visibility were less than 500 yards (457 meters) in any direction.
- The whaling canoe would have additional support boats available to provide first aid to whalers and help secure and tow the whale.
- All whaling equipment would be inspected before whaling.
- The Coast Guard would enforce the provisions of its permanent regulated navigation area (RNA) and moving exclusionary zone (MEZ), which would minimize the chance of bystanders accidentally being harmed during a hunt.

The Tribe further proposes to comply with additional safety measures that may be indicated as a result of this NEPA review.

Training and Certification Process for Tribal Whalers (Common Among Action Alternatives)

The Tribe proposes that if a hunt were authorized, it would require all tribal members who engage in whaling to be under the control of a whaling captain holding a valid whaling permit (also referred to as a license) issued by the Makah Tribal Council (see Subsection 1.2.4.2, National Whaling Governance under the WCA, for an explanation of responsibilities held by Native American whaling organizations). Whaling permits issued by the Council would incorporate and require compliance with all NMFS requirements, as well as tribal regulations. The regulations would also provide a training and certification process for all members who participate in whaling, as required by NMFS' WCA implementing regulations. Whaling team members may also partake in spiritual preparations.

The Makah Tribal Council would not issue a permit to a whaling captain unless it determined that the whaling captain and each whaling team member had been certified by the Makah Whaling Commission or Makah Fisheries Management Department to perform his assigned role on the whaling crew.

Makah Fisheries Management Department and NMFS Observers and Monitoring (Common Among Action Alternatives)

The Makah Tribe's waiver request includes accommodations for both a Makah Fisheries Management Department observer and a NMFS observer to accompany the whaling team in the chase boat(s). The Tribe would provide the designated NMFS observer with at least 24-hour notice of whaling permit issuance to the whaling captain by the Makah Tribal Council, unless the NMFS observer was already present on the Makah Reservation. The Tribe's request also indicates that the NMFS observer could collect samples from landed whales. This would include stomach contents, ovaries (as applicable), ear plugs, baleen plates, and other tissue samples. The Makah Fisheries Management Department would photograph all landed whales, and the Department's observer would be responsible for recording the time, date, location, and physical characteristics of each whale struck and, for each whale harvested, the body length, fluke width, sex, any fetus found in a landed whale, and the time to death for all whales harvested. The Tribe would have to report all monitoring data to NMFS annually.

Enforcement (Common Among Action Alternatives)

Tribal regulations would include provisions requiring tribal enforcement of the regulations and permit terms and conditions NMFS adopted, if hunting were authorized. These regulations would include criminal sanctions, such as fines and imprisonment, up to the limits imposed by the Indian Civil Rights Act. Violators may also be barred from exercising treaty fishing, hunting, and/or whaling rights for a minimum of 3 years.

Makah Department of Natural Resources Enforcement has been designated as the tribal law enforcement agency responsible for administering the requirements of whaling regulations and permits. A whaling captain would be liable for any violations committed by a member of the whaling team under his control.

In the event of violations of NMFS' regulations governing any authorized hunt, federal enforcement would also be possible. Potential offenses could include violation of the WCA and MMPA and any implementing regulations.

2.3.3 Alternative 3 (Offshore Hunt)

Alternative 3 would allow only two struck and lost whales (in contrast to Alternative 2, which would allow three stuck and lost) but would have the same conditions as Alternative 2 regarding numbers of ENP whales struck and harvested; seasonal restrictions; and regulatory conditions. Alternative 3 would also have the same hunt area as Alternative 2, except that it would require the use of a .577 caliber rifle and would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore. (Makah hunters and chase boats may nevertheless have to follow any struck whale trailing harpoon lines to dispatch it, regardless of distance to shore.) To allow full consideration of different hunt methods, Alternative 3 also assumes an all-motorized hunt, with no use of a canoe.

Under Alternative 3, the Tribe would hunt from two or more motorized vessels, one operated by a pilot and the primary harpooner, and the other operated by a pilot, rifleman, harpooner, and at least one other crew member serving as a safety officer. One of the vessels would be at least 24 feet (7.3 meters) long and powered by an engine capable of safely towing an adult gray whale to shore. Each motorized vessel would be equipped with a navigation system capable of fixing the vessel's position on the water.

Alternative 3 would also differ from Alternative 2 in its approach to managing impacts to the PCFG. It would set an annual total mortality limit for PCFG whales equal to PBR, with an additional annual mortality limit for female PCFG whales equal to one-half PBR, using the PBR as applied to PCFG whales in NMFS' most recent stock assessment report (currently Carretta et al. 2023)[8]. Under present circumstances, this calculation would result in an annual mortality limit of approximately 3.5 PCFG whales total, with an additional limit of approximately 1.75 female PCFG whales. (Subsection 4.1.3, Alternative 3, describes in more detail how the limit would be calculated.) Also, Alternatives 3 differs from Alternative 2 in that the PCFG mortality limit would be based on cataloged whales seen in 2 or more years. This is consistent with the latest PCFG definition by the IWC Scientific Committee (which is based on sightings in 2 or more years).

The offshore hunt area under Alternative 3 is intended to address several issues raised in public comments on the 2008 DEIS and during the 2012 scoping process, including: the potential for bullets from a rifle to injure persons on shore; the potential for a hunt close to shore to affect aesthetic, cultural, and other social and economic resources; the potential for hunt activities to disturb wildlife on the rocks and islands of the Washington Islands National Wildlife Refuge; and the potential for an

[8] It is possible that future stock assessment reports could discontinue reporting values for PCFG whales. In that case, NMFS would base these calculations on an alternative source(s) for the best available scientific information regarding PCFG whales.

offshore hunt to be less likely to kill a PCFG whale (because PCFG whales may concentrate closer to shore and migrating whales may be farther offshore). The .577 caliber rifle would be expected to have a shorter range than the .50 caliber rifle (Subsection 3.4.3.5.4 Method of Killing and Time to Death, Rifle as the Killing Weapon), so it is reasonable to include that rifle as a component of Alternative 3 that is intended to mitigate risks on shore from gunshots.

Alternative 3 also responds to concerns that we should consider different mortality limits for males and females. A lower limit on female whales would limit impacts on reproduction within the PCFG and would also limit impacts on the recruitment of new PCFG members, because some PCFG whales are known to recruit to the group by accompanying their mothers to the area as calves (Subsection 3.4.3.4.1, PCFG Population Structure, PCFG Genetics and Recruitment).

2.3.4 Alternative 4 (Summer/Fall Hunt)

Alternative 4 would have the same conditions as Alternative 2 except the hunting season would be from June 1 through November 30, to avoid killing a WNP whale (because such whales would be feeding in the WNP at this time and not present in the Makah U&A). This alternative responds to concerns that a tribal hunt should be managed to avoid WNP whales. Because hunting would be allowed during the period that defines membership in the PCFG, Alternative 4 would also include restrictions specifically intended to manage impacts to the PCFG:

1. Hunters could only approach a whale identified as an ENP male by a trained onboard observer. Avoiding female whales in a tribal hunt would limit impacts on reproduction within the PCFG. It would also limit impacts on the recruitment of new PCFG members, because many PCFG whales are known to recruit to the group by accompanying their mothers to the area as calves (Subsection 3.4.3.4.1, PCFG Population Structure, PCFG Genetics and Recruitment).
2. An annual PCFG mortality limit would be set using the PBR formula in NMFS' most recent stock assessment report (currently Carretta et al. 2023), but using a recovery factor of 0.35, minus the estimated amount of mortality from other human causes, also as reported in NMFS' most recent stock assessment report.[9] Under present circumstances, this calculation would result in an annual mortality limit of approximately 0.76 PCFG whales (Subsection 4.1.4, Alternative 4, describes in more detail how the limit would be calculated). When the PCFG mortality limit is less than one but greater than 0.5 during 2 consecutive years, the values would be aggregated to allow for the mortality of one PCFG whale during the second

[9] *See* note 8, *supra*.

year. Therefore, under current conditions, one PCFG whale could be killed every two years. As described under Alternative 2, and in more detail in Subsection 3.4.2.1, Marine Mammal Protection Act Management, NMFS' stock assessment reports include an estimate of the level of human-caused mortality that will allow marine mammal stocks to achieve and remain above the lower level of their OSP. Other management goals are possible, however, such as achieving a population abundance that is closer to the stock's carrying capacity (Wade 1998). Applying the analysis in Wade (1998), a recovery factor of 0.35 would allow the PCFG to equilibrate at 80 percent of its carrying capacity over a 200-year period. By adopting this approach to setting a PCFG mortality limit, Alternative 4 responds to concerns that we consider an alternative management goal other than the PBR goal, which would allow exploitation of a stock at a level that just maintains it at the lower end of its OSP range. This alternative also responds to concerns raised by the Marine Mammal Commission that our NEPA analysis should consider accounting for other sources of human-caused mortality in setting a PCFG limit for a tribal hunt.

3. Unused portions of the PCFG mortality limit would not carry over to a subsequent year, except that when the allowable mortality level is less than 1 but greater than 0.5, it would be aggregated over 2 years, allowing for the mortality of one PCFG whale over 2 years. The purpose of not allowing mortality limits to carry over is to prevent mortality of multiple PCFG whales in a single year (unless the calculated mortality limit allowed for more than one whale to be killed)[10]. The purpose of allowing a carry-over when the mortality limit is greater than 0.5 but less than 1 is to afford the Tribe an opportunity to hunt at least every other year but with a harvest limit that is sensitive to declines in PCFG abundance or if PCFG whales are killed in unexpected numbers by other sources of human-caused mortality (the current level of human-caused mortality averages about 1.1 whales per year) (Carretta et al. 2023).
4. No hunting would be permitted when the PCFG mortality limit for a single year is less than 0.5. The purpose of this provision is to prohibit a hunt if the PCFG declines to half its current abundance or if PCFG whales are killed in unexpected numbers by other sources of human-caused mortality.
5. Any whale struck would be presumed to be a PCFG whale, even if it were landed and did not match a known PCFG whale. Although some portion of whales sighted in the west coast feeding areas during this period never return and are not considered PCFG whales, the majority of whales present during this period are PCFG whales. Also, it is likely that not all

[10] For example, the mortality limit could reach two whales in a single year if the PCFG minimum population estimate increased to 240 whales and all other variables remained constant (see Table 4-7).

PCFG whales have been identified; thus, there may be unidentified PCFG whales present in the Makah U&A during this period.

2.3.5 Alternative 5 (Split-season Hunt)

Alternative 5 would have the same conditions as Alternative 2, except (1) there would be two hunting seasons of 3 weeks each: one from December 1 through December 21 and one from May 10 through May 31; and (2) an annual PCFG mortality limit would be set at 10 percent of PBR as calculated for the PCFG in NMFS' most recent stock assessment report (currently Carretta et al. 2023).[11] Under present circumstances, this calculation would result in a PCFG mortality limit of approximately 0.35 whales per year, or one whale every 3 years (Subsection 4.1.5, Alternative 5, describes in more detail how the limit would be calculated). Any whale struck but not landed would be counted as a PCFG whale in proportion to the observed presence of PCFG whales in the Makah U&A during that season. Also, Alternative 5 differs Alternative 2 in that the PCFG mortality limit would be based on cataloged whales seen in 2 or more years. This is consistent with the latest PCFG definition by the IWC Scientific Committee (which is based on sightings in 2 or more years).

The choice of seasons is intended to avoid killing a WNP whale and to minimize the chance of killing a PCFG whale. There are no observations of WNP gray whales in the Makah Tribe's U&A, but we can infer the timing of their likely presence there from observations in other areas (including photo identification and satellite tag transmissions) and their migration habits and patterns.

The selection of the seasons under this alternative would be based on dates WNP whales are observed in other locations and their theoretical travel routes and travel times to or from those locations (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration and Movements). Unlike Alternative 4, Alternative 5 also avoids the season that defines the PCFG. This alternative responds to concerns that a tribal hunt should be managed to avoid WNP whales while still minimizing the chance of taking a PCFG whale.

Setting a limit at 10 percent of PBR is consistent with NMFS' implementation of other sections of the MMPA governing marine mammal mortality. For example, Section 118 sets a goal for the incidental mortality of marine mammals in commercial fisheries at "insignificant levels approaching a zero mortality and serious injury rate." We have interpreted this goal as being met when commercial fisheries result in a mortality rate of marine mammals that is 10 percent or less

[11] *See* note 8, *supra*.

of PBR (69 FR 43338, July 20, 2004). Section 101(a)(5)(A) of the MMPA allows us to authorize the lethal take of "small numbers" of marine mammals if the take is not intentional, is incidental to a specified activity, and will have a "negligible impact" on the marine mammal stock. The same requirements apply to incidental but not intentional lethal take in commercial fisheries of marine mammals listed as threatened or endangered under the ESA (Section 101(a)(5)(E)). We interpret negligible impact to mean:

> An impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103).

In practice, we consider an incidental take that does not exceed 10 percent of PBR to have a negligible impact (64 FR 28800, May 27, 1999).

2.3.6 Alternative 6 (Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits)

Alternative 6 would have the same conditions as Alternative 2, except that strikes would be limited to seven over 2 years; an annual PCFG mortality limit would be set using the PBR formula as applied to the PCFG in NMFS' most recent stock assessment report (Carretta et al. 2023), minus other sources of human-caused mortality (similar to Alternative 4)[12]; and all whales struck but not landed would count against the PCFG limit based on their proportional presence during the season they were struck and lost (similar to Alternative 5). The PCFG mortality limit would also be based on cataloged whales seen in 2 or more years. This is consistent with the latest PCFG definition by the IWC Scientific Committee (which is based on sightings in 2 or more years).

In addition, the waiver of the MMPA take moratorium would expire 10 years after adoption, and regulations governing the hunt would limit the term of any hunt permit to not more than 3 years.

By reducing the total number of strikes allowed compared to Alternative 2, Alternative 6 could reduce by as much as half the likelihood of a WNP whale being killed or harassed. Also, the limited duration of the MMPA waiver for take of ENP gray whales under Alternative 6 would serve two purposes. First, as described in Subsection 3.4.3.4.1, PCFG Population Structure, the status of the PCFG as a separate population stock under the MMPA remains unresolved. By adopting regulations with a set termination date, we would assure that the most up-to-date information regarding the status of the PCFG as a population stock would be considered after not

[12] *See* note 8, *supra*.

more than 10 years. We selected 10 years because it allows a reasonable amount of time for NMFS to develop additional information about stock structure.

Finally, Alternative 6 would, by regulation, limit the term of any permit issued to the Makah Tribe to 3 years. The MMPA allows permits to be issued for up to 5 years and the Makah Tribe's request anticipates 5-year permits. Limiting the permit term to 3 years provides an opportunity for more frequent NMFS review than if permits were issued for 5 years. Some commenters on the 2008 DEIS recommended we include a permit period less than 5 years for this reason.

2.3.7 Alternative 7 (Composite Alternative— Preferred)

Alternative 7 combines various elements from Alternative 2 through 6. While the proposed hunt method, target species, age and reproductive status restrictions, and other environmental protection measures (Subsection 2.3.2.2.12) outlined in Alternative 2 are the same under Alternative 7, many other aspects of the Preferred Alternative differ from the Tribe's initial request based on subsequent consideration, public comment, the hearing record, and the recommendation of the ALJ.

Under this alternative, the waiver of the MMPA take moratorium would be valid for 10 years and subject to numerous provisions contained in NMFS' proposed regulations to govern a Makah Tribe gray whale hunt (84 FR 13604, April 5, 2019). Limiting the waiver period provides an opportunity for adaptive management and to ensure that ceremonial and subsistence hunting by the Tribe does not result in unanticipated adverse effects. An initial hunt permit may last no more than 3 years, with subsequent permits lasting no more than 5 years. Two management goals shaped many of the provisions in the proposed regulations and Alternative 7: (1) limiting the likelihood that tribal hunters would strike or otherwise harm a WNP gray whale and (2) ensuring that the hunting does not reduce PCFG abundance below recent stable levels.

2.3.7.1.1 Number of Whales Struck and Harvested (Annual and 10-Year)

Alternative 7 imposes strike limits and landing limits for each hunt season. No more than 25 ENP gray whales may be killed over the 10-year waiver period, and no more than 20 may be harvested (i.e. killed and landed). During winter/spring hunts, a maximum of three whales may be struck regardless of whether or not they are landed. During summer/fall hunts, a maximum of two whales may be struck but only if the first whale is lost (i.e., struck but not landed). "Strike" or "struck" is defined in NMFS' proposed regulations as to cause a harpoon, darting gun, or other device, or a projectile from a rifle or other weapon, to penetrate a gray whale's skin or an instance in which a gray whale's skin is penetrated by such a weapon or projectile during hunting. Once a

whale has been struck, any subsequent strikes on that same whale will not count against the limit. In other words, multiple strikes on the same whale count as a single struck whale.

WNP whales are not expected to be encountered during a summer/fall hunt because current evidence indicates they would have returned to summer feeding grounds in the WNP (Weller et al. 2012; Mate et al. 2015). In contrast, during a winter/spring hunt there is a very small risk of striking a WNP whale that has migrated to the ENP wintering grounds (Moore et al. 2023). Therefore, under Alternative 7, in order to receive a permit for a winter/spring hunt, the Tribe must also obtain an Incidental Take Authorization (ITA) under the MMPA for WNP whales. Furthermore, under Alternative 7, the Tribe could only strike one whale in a 24-hour period during a winter/spring hunt as a precaution against striking multiple WNP gray whales that might be traveling together in a group (Weller et al. 2012). In the unlikely event the Tribe struck a WNP whale, all hunting would cease unless and until NMFS determined that measures were taken to ensure that no additional WNP gray whales would be struck during the remainder of the waiver period.

2.3.7.1.2 Limits on Harvesting PCFG Whales

In contrast to the PBR-based approach used in Alternatives 2 through 6 to limit PCFG mortality, Alternative 7 relies on static strike limits and low-abundance thresholds to manage impacts on PCFG whales. Specifically, no more than 16 PCFG whales may be struck over the 10-year waiver period, and no more than eight of these whales can be females. To determine if a landed whale belonged to the PCFG, observers would photograph the whale and provide those photographs to NMFS and the Cascadia Research Collective to compare with the PCFG photo catalog. The PCFG mortality limit during winter/spring hunt years would be based on cataloged whales seen in 2 or more years. This is consistent with the latest PCFG definition by the IWC Scientific Committee (which is based on sightings in 2 or more years). During summer/fall hunts, all struck whales—whether struck and landed or struck and lost—will count as a member of the PCFG, unless identified as a WNP gray whale.[13] During winter/spring hunts, struck whales that cannot be identified will be counted in proportion to the estimated percentage of PCFG whales in the hunt area during the month of the strike, based on the best available scientific information. Also, hunting would be prohibited if the current or the forecasted abundance of the PCFG fell below 192 whales, or if its minimum abundance fell below 171 whales. Hunting could resume once the

[13] Although WNP whales are not expected to be present in the Makah U&A during this season, we would check for matches via the available WNP catalogs.

most recent or forecasted abundance, and minimum abundance, increased above their respective thresholds.

2.3.7.1.3 Whale Approached and Subjected to Unsuccessful Strike Attempts

Recognizing that actions by tribal hunters, short of killing a gray whale, may affect whales and may constitute a take under the MMPA, the Preferred Alternative would limit the number of approaches and unsuccessful strike attempts, including those associated with hunt training. Under Alternative 7, the Tribe would be required to obtain an ITA for WNP gray whales in order to make training approaches from November 1 through June 30 due to the likelihood that a WNP whale may be encountered during these months over the 10-year waiver period (Weller et al. 2012; Mate et al. 2015; Moore et al. 2023). Alternative 7 would authorize no more than 353 ENP gray whales to be approached (including both hunting and training approaches) each calendar year, of which no more than 142 could be PCFG whales. Any hunting approach on a gray whale that has already been struck would not count against these limits. As with strikes (Subsection 2.1.3 above), approaches in winter/spring hunts would take into account the proportion of PCFG whales expected to be encountered, while in summer/fall hunts, all whales approached would count as PCFG whales. Training approaches during June through November in any year would count as PCFG whales. Consistent with permit conditions imposed by NMFS for research vessels pursuing large cetaceans, an "approach" is defined as causing a hunting or training vessel to be within 100 yards of a gray whale.

Alternative 7 would also limit the number of whales subjected to unsuccessful strike attempts to 18 during winter/spring hunt years, and 12 during summer/fall hunt years. Each training harpoon throw will count against the unsuccessful strike attempt limit in effect during the calendar year that the throw is made. Training harpoon throws could occur in any month in winter/spring hunt years. In contrast, training harpoon throws would be restricted to the hunting season in summer/fall hunt years (July through October, when WNP whales are not expected in the hunt area) to reduce the risk of encountering WNP whales over the waiver period. Similar to the limit on approaches, the purpose of these provisions is to limit the risk of nonlethal impacts, particularly to WNP and PCFG whales.

2.3.7.1.4 Location of Hunt (Area Restrictions)

Consistent with Alternative 2, the hunt area would be limited to the portion of the Makah Tribe's U&A west of the Bonilla-Tatoosh Line and would also incorporate additional site restrictions via the hunt permitting process to protect OCNMS resources. Alternative 7 combines the timing of the hunt seasons of Alternatives 2 and 4 by incorporating an alternating hunt season scheme

wherein winter/spring hunts would occur during the migration season (December 1 through May 31) to reduce the risk to PCFG whales, and summer/fall hunts would occur during the feeding season (July 1 through November 30) to reduce risk to the WNP stock. Only one hunt season would be authorized each year; however, the winter/spring hunts may start in the same calendar year as a summer/fall hunt. This results in a 1-month gap (November) between the end of a summer/fall hunt and the start of a winter/spring hunt, and a 13-month gap between the end of a winter/spring hunt and the start of the next summer/fall hunt, and so on.

2.3.7.1.5 ENP Low Abundance Threshold

Although NMFS' proposed regulations did not include an ENP population low abundance threshold, the ALJ recommended, in light of the current UME, that the hunt regulations include an abundance threshold for the ENP gray whale stock below which the hunt would not be permitted. NMFS received three suggestions for thresholds in the 45-day public comment period following the publication of the Recommended Decision. If NMFS includes a low abundance threshold for the ENP stock in the final rule and the abundance estimate for the ENP stock were to drop below the selected threshold, hunting could resume once the abundance estimate increased above the threshold again.

In this EIS, the impacts of the hunt under Alternative 7 are analyzed both without a low abundance threshold (Preferred) and with the addition of each of the three thresholds proposed in the public comment period, which are analyzed as sub-alternatives:

7(a) 11,000 whales

7(b) 16,000 whales

7(c) 18,000 whales.

The rationale for the three proposed thresholds are as follows. Threshold 7(a) (11,000 whales) represents the lowest estimate in the time series of ENP gray whale abundance estimates produced by NMFS beginning in 1967. Since this low was observed in 1971, the population grew to a high of approximately 27,000 animals in 2016 (Durban et al. 2017). This growth occurred despite the concurrent subsistence harvest of ENP gray whales by Chukotka Natives in Russia and at least one major UME in 1999-2000. Threshold 7(b) (16,000 whales) represents an approximation of the lower bound of OSP based on the estimate of carrying capacity calculated by Punt and Wade (2012). Finally, threshold 7(c) (18,000 whales) represents the lower bound of OSP if carrying capacity were to be calculated using the upper 95% confidence interval of the most recent, pre-UME abundance estimate (approximately 30,000 animals).

2.3.7.1.6 Whale Product Use and Distribution

Under Alternative 7, provisions are made for the use and distribution of both edible and nonedible products. Enrolled members of the Makah Indian Tribe would be permitted to possess, consume, and transport edible whale products such as meat and blubber within and outside the Tribe's reservation borders. They would also be permitted to share and barter these products with other tribal members. Tribal members would be permitted to share these products with non-members within the reservation boundaries or at the tribal member's residence, should they reside outside the reservation. Tribal members could also share edible products with non-members at tribal or intertribal gatherings sanctioned by the Makah Tribal Council in quantities under two pounds per person attending the gathering.

Members of the Makah Tribe would also be permitted to possess, transport, share, and barter nonedible whale products, such as bone and baleen, with other tribal members both within and outside the reservation borders. Handicrafts made from these nonedible products could also be shared, offered for sale, and bartered with both members and non-members, with a permanent, distinct marking approved by the Makah Tribal Council and a certificate of authenticity if such products are to be taken outside the reservation boundaries.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

During the scoping process for this EIS, we reviewed several alternatives but eliminated them from further detailed analysis. These alternatives and the reasons for their elimination from detailed analysis are explained below.

2.4.1 Non-lethal Hunt

A non-lethal hunt alternative was requested by some members of the public during the scoping process as well as on the 2015 DEIS. The commenters did not fully describe the details of this alternative, but it would likely include the Tribe engaging in some ceremonies and training preparatory to a hunt, a pursuit of whales on the water, and a mock attack on a whale, but would not culminate in a whale being killed or transported to shore.

The Federal treaties and statutes that NMFS is responsible for implementing are important in informing and identifying reasonable alternatives. Under the WCA and implementing regulations, whaling (which is synonymous with hunting in the aboriginal subsistence use context) clearly contemplates killing and attempts to kill whales (16 USC 916(j) and 50 CFR 230.2). Likewise, the definition of take under IWC and the MMPA contemplates lethal takes (16 U.S.C. 1362(13); 50 CFR 216.3). The right of fishing and of whaling or sealing was secured by the Makah through

the 1855 Treaty of Neah Bay, which was written when fishing and whaling or sealing conveyed the opportunity to take animals lethally from each of these categories. The Tribe's waiver request seeks authorization to kill whales under those existing legal authorities and its interpretation of the scope of its treaty. A non-lethal hunt would therefore not meet the purpose and need for the proposed action.

In addition, the non-lethal hunt alternative would have similar effects on the human environment as the No-action Alternative; therefore, its detailed analysis would not provide additional information to inform agency decision-making or the public's consideration. The conservation impacts on gray whales and the local ecosystem would be the same as the No-action Alternative because no gray whales would be removed by the Tribe from the population or from the ecosystem. The impact to the Makah Tribe would be the same as the No-action Alternative because the Tribe would not be allowed to hunt whales according to their historical and contemporary cultural understanding or within their understanding of the scope of their treaty right (in this respect, a non-lethal ceremonial hunt would also not meet the Makah Tribe's purpose and need). The other social and economic impacts would be the same as the No-action Alternative because a non-lethal hunt would not have significantly different public safety, aesthetic, sentimental, or economic impacts than if no hunting occurred. In addition, with a non-lethal hunt, gray whales would still be subjected to approaches and being struck with non-lethal weapons. To the extent such disturbance might cause whales to change their distribution, that effect is analyzed under the proposed action.

2.4.2 Subsistence Use of Drift Whales

Several commenters suggested that the Makah use drift whales (also known as stinker whales), rather than live whales, for subsistence purposes. Drift whales are whales that die naturally or as a result of some human activity other than a directed hunt (for example, entanglement in fishing gear). The large body size of the gray whale and its thick layer of blubber trap heat inside the whale after it dies, leading to rapid internal decomposition that makes most stranded whales unsuitable for human consumption.[14] This alternative would be essentially the same as the No-action Alternative.

[14] Since 1978, a total of 12 entangled gray whales have been reported within the Makah U&A (NMFS 1995; Scordino and Mate 2011; NMFS 2013a; Carretta et al. 2014; Carretta et al. 2020). Of these, there is only record of the Makah Tribe making use of one such whale (in 1995). Effective with passage of the 1994 Amendments to the MMPA, members of the Northwest treaty Indian tribes advised NMFS of their intent to exercise their treaty rights to marine mammals (i.e., as was done with the 1995 whale carcass used by Makah tribal members) (NMFS 1995). However, the Tribe's usual response is to assist an entangled animal, and tribal biologists have participated in several recent disentanglement efforts, including help with two humpback whales in 2008 and 2010 (Cascadia Research Collective 2008, 2010a) and the successful

The conservation impacts on gray whales and the local ecosystem would be the same as those under the No-action Alternative because no gray whales would be removed from the population or from the ecosystem as a result of a hunt. The social and cultural impacts on the Makah would be the same as those under the No-action Alternative because they would not be allowed to hunt whales according to their historical and contemporary cultural understanding and within their concept of the scope of their treaty right. In this respect, a decision allowing only subsistence use of drift whales is inconsistent with NMFS's federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay and would not meet the Tribe's purpose to resume its traditional hunting of gray whales under its treaty right. While this alternative would differ from the No-action Alternative because it would provide the Makah with an occasional and unpredictable supply of whale products, the agency could provide for the Tribe's use of drift whales without invoking the MMPA waiver provision (NOAA and Makah Indian Tribe 1989). The other social and economic impacts would be the same as those under the No-action Alternative, because the subsistence use of drift whales would not have significantly different public safety, sentimental, or economic impacts than a no-hunt alternative. The use of drift whales might have an impact on aesthetics, but some of that impact (the sight of a dead whale being butchered on the beach) would be the same as in any of the action alternatives. In addition, for the reasons described under the non-lethal hunt alternative (Subsection 2.4.1, Non-lethal Hunt), this alternative would not meet the purpose of and need for the proposed action.

2.4.3 Set a Mortality Limit for PCFG Whales Relying on other MMPA Provisions or Management Goals

Several commenters on the 2008 DEIS and 2015 DEIS stated that PBR was not appropriate for setting limits on harvest of PCFG whales, as proposed by the Tribe. We therefore considered other examples for setting mortality limits for marine mammals. One is incorporated into Alternative 4 (set a mortality level that would allow the PCFG to maintain 80 percent of carrying capacity), another into Alternative 5 (set a mortality limit at 10 percent of PBR), and a third into Alternative 7 (set static mortality limits and low abundance thresholds based on recent stable

disentanglement of gray whales in 2009 and 2013 (NMFS 2013a). Similarly, NMFS stranding records show that of the animals that have stranded and died in the Makah U&A since 1994, only one had body parts (blubber and muscle, quantity unknown) that were used by the Tribe (Renker 2012), and all whales were in a moderate to advanced state of decomposition at the time the carcass was examined (K. Wilkinson, NMFS, pers. comm., February 18, 2014). In 2018, a dead humpback whale found in the Strait of Juan de Fuca was utilized by the Tribe after being examined by the tribal marine mammal biologist and a biologist with the Cascadia Research Collective, both of whom confirmed ship strike as the cause of death (Mapes 2018).

population levels). We also examined other provisions of the MMPA that allow us to authorize killing marine mammals.

Waiver of the take moratorium under Section 101(a)(3) of the MMPA is the only means of authorizing intentional killing of marine mammals except for subsection 109 (which allows us to return authority over marine mammals to the states, who may then authorize killing) and Section 120 (which allows us to authorize states to kill seals and sea lions that are harming at-risk salmonid stocks). In addition, Section 101(b) exempts Alaska Natives from the take moratorium but allows us to regulate such hunting for a depleted stock.[15] Other provisions of the MMPA allow us to authorize lethal and non-lethal take of marine mammals incidental to other activities. As described in Subsection 1.1.3, Summary of Gray Whale Status, we do not presently recognize the PCFG to be a separate marine mammal stock, but have found that it "may warrant consideration as a distinct stock in the future" and have established an informational PBR for it (Carretta et al. 2023). During internal scoping, we therefore considered whether any of these other provisions of the MMPA provide alternative methods of setting a mortality limit on PCFG whales that should be analyzed.

2.4.3.1 Section 109 Return of Authority to States

In adopting the MMPA, Congress expressly superseded state authority to manage marine mammals, but provided a mechanism in Section 109(b) for returning that authority. Once a state has authority to manage marine mammals, it may authorize their killing if (1) the state has determined that the marine mammal stock is at OSP; (2) the state has determined the number of animals that may be taken without causing it to go below its OSP; and (3) the state does not permit the taking of a number greater than such number, including takes for subsistence purposes by Alaska residents (sections 109(b)(1)(C)(i)). We decided not to analyze in detail an alternative that would have a management scheme for PCFG whales similar to that of subsection 109(b) because Alternatives 3 through 7 already employ such a management scheme (that is, set a harvest level that will not cause the PCFG to fall below the lower bound of OSP). Including this alternative would therefore not provide additional information for the decision-maker.

2.4.3.2 Section 120 Authorization to Kill Seals and Sea Lions

In 2004, the states of Oregon, Washington, and Idaho requested authorization to kill California sea lions at Bonneville Dam on the Columbia River under Section 120 of the MMPA. That provision allows us to authorize states to kill seals and sea lions that are having a significant

[15] Section 101(f) authorizes intentional killing in self-defense or defense of others and does not involve an authorization from NMFS.

negative impact on the decline or recovery of at-risk salmonids. The states proposed to limit the number of sea lions that could be removed each year to 1 percent of PBR and we adopted that limit in the authorization. In our EA, we concluded that killing a number of California sea lions up to 1 percent of PBR per year would not have a significant effect on the California sea lion population as a whole (NMFS 2008b).

We decided not to analyze in detail an alternative that would set a mortality limit for PCFG whales of 1 percent of PBR because such an alternative would not be substantially different from the No-action Alternative and so would provide no additional information for the decision-maker. Under current conditions, a mortality rate for PCFG whales of 1 percent of PBR would allow for the mortality of 0.035 PCFG whales per year or one whale every 29 years. In the event the Tribe killed a PCFG whale in a hunt, there would be no hunt for almost 3 decades, which we consider equivalent to the No-action Alternative. In addition, a tribal hunt would be so infrequent under this alternative that it would not meet the purpose of and need for the proposed action.

2.4.3.3 Regulation of Alaska Native Hunting of Depleted Beluga Whales

In 2008 we adopted regulations under MMPA Section 101(b) governing Alaska Native hunting of Cook Inlet beluga whales after we had designated the stock as depleted (73 FR 60976, October 15, 2008). The regulations do not allow harvest when the 5-year average population abundance is less than 350 whales and set a harvest limit at abundance levels above that based on the principle of a 95 percent certainty that the harvest would not delay the stock's time to recovery by more than 25 percent. We decided not to analyze in detail an alternative that would set a mortality rate limit for PCFG whales following the beluga whale model because there is no evidence that the PCFG is declining, as is the case for belugas. We therefore considered the model as not applicable. Subsection 3.4.3.4.3, PCFG Abundance and Trends, describes in detail the current status of the PCFG, which increased prior to 2002 and has since been relatively stable (Harris et al. 2022). In addition, according to the analysis in Wade (1998), using a recovery factor of 0.35 in the PBR equation would not delay the time to recovery by more than 25 percent for a cetacean population with characteristics similar to the PCFG. Alternative 4 already incorporates a harvest limit based on a recovery factor of 0.35; therefore, including this alternative would not provide additional information to the decision-maker.

2.4.4 Hunt Other Marine Mammal Species Traditionally Hunted by the Tribe

This alternative, which was suggested by some members of the public, would substitute a gray whale hunt with a hunt for a different whale species or another marine mammal. Because the United States has not requested on behalf of the Makah that the IWC set ASW catch limits for

another large cetacean, and because the IWC has not considered such a request, the WCA precludes NMFS from publishing a quota for other whale species for the use of the Makah Tribe. In addition, some whales, such as the humpback whale and some marine mammal species (such as the western stock of Steller sea lions), are listed under the ESA.

Also, if non-ESA listed marine mammal species, such as pinnipeds or small cetaceans (e.g., dolphins and porpoises), were entirely or partially substituted for a gray whale, the total biomass harvested and the method used would likely differ (i.e., more individuals caught using different catch methods). As explained in Subsection 3.9, Cultural Resources, whaling and sealing do not hold equivalent historical or contemporary ceremonial and subsistence harvest values for the Makah Tribe. These differences would include the type of food obtained (blubber, meat, and whale bone), associated spiritual ceremonies, hunting activities (methods, timing, and area), and subsistence uses. In this respect, requiring substitution of other marine mammal species in lieu of gray whales is inconsistent with NMFS's federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay and would not meet the Tribe's purpose to resume its traditional hunting of gray whales under its treaty right. A hunt focused on non-ESA listed pinnipeds and small cetaceans would be a different type of action, is too speculative to allow for a NEPA analysis, and would not meet the purpose of and need for the proposed action.

2.4.5 Change the Hunt Location

We considered other alternatives for either increasing or decreasing the Makah gray whale hunting area. Hunt location options that were considered but eliminated from further study are described in the following sections.

2.4.5.1 Hunt Outside the OCNMS but within the Offshore Migratory Path in the U&A

This option would allow the Makah to hunt whales in a small portion of the Tribe's U&A seaward of the outer Olympic Coast National Marine Sanctuary (OCNMS) boundary (Figure 1-1). The area off the coast of Washington that is outside the Strait of Juan de Fuca and the OCNMS but is within the Makah U&A is too small to provide for a successful hunt, is outside the Coast Guard RNA, and is beyond the 27-mile (43-km) offshore area where most whales have been sighted migrating past Washington (see Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration and Movements, for more information). For these reasons, this alternative would not meet the purpose of and need for the proposed action.

Although the purpose of this proposed alternative would be to safeguard the natural resource values that led to designation of the OCNMS as a national marine sanctuary, OCNMS regulations

allow for a Makah tribal hunt if otherwise legally permitted (15 CFR 922.152(a)(6)). OCNMS regulations allow for taking marine mammals pursuant to any treaty with an Indian tribe, as long as the taking is consistent with the MMPA, ESA, and Migratory Bird Treaty Act (16 USC 1431 *et seq*.). Alternative 3 (Offshore Hunt) allows for consideration of Sanctuary resources in greater detail, therefore consideration of this proposed alternative would not provide additional information or meet the purpose and need of the proposed action.

2.4.5.2 Hunt in Russia with Chukotka Natives

Members of the Makah Tribe currently have the option of hunting with the Chukotka Natives. Only those Makah Tribe members who participate in the hunt in Russia would have the opportunity to share in the ceremonial and subsistence value of the hunt because, by international law (Convention on the International Trade of Endangered Species), no whale products may be transferred out of the country of origin. Under the MMPA, in addition to international law, importing a marine mammal product without receiving authorization under the waiver process would be illegal.

This option would not allow the Makah Tribe to conduct a ceremonial hunt in its U&A using traditional Makah practices, nor would most of the tribal members be able to participate in celebrations that occurred when a whale was landed in Russia. Further, this option would not meet the Tribe's stated purpose and need to exercise its cultural values or treaty right. This option would require no action on the part of NMFS; therefore, it is similar to the No-action Alternative. Analysis of this alternative would not provide the agency or the public with information useful in informing our decision, because this alternative would require no decision on NMFS' part.

2.4.6 Employ Different Hunting Methods

During the scoping process, NMFS identified the following methods of striking and killing whales, based on the Tribe's request, internal NMFS scoping, public comments, and an examination of aboriginal subsistence hunting world-wide: (1) a toggle point harpoon to strike the whale and a .50 caliber rifle to kill the whale (as proposed by the Tribe); (2) a toggle point harpoon to strike the whale and a .577 caliber rifle to kill the whale; (3) a darting gun with explosive projectile as the striking and/or killing weapon; (4) a shoulder gun with explosive projectile as the killing weapon; (5) traditional methods only (harpoons to strike whales and lances to kill whales); and (6) a smaller caliber rifle as the killing weapon. The following subsections explain our rationale for not analyzing options 5 and 6 in detail. The other options are analyzed in detail as an element of the various action alternatives.

In reviewing public comment on the 2008 DEIS, we identified another alternative hunting method not considered in the scoping process or draft EIS. That alternative is the use of an all-motorized hunt. We included this element under Alternative 3 to allow consideration of whether use of an all-motorized hunt might expand hunting potential to other times of year and areas farther offshore, might improve the welfare of individual whales by decreasing time to death or the proportion of whales struck and lost, and/or might improve hunter or public safety.

2.4.6.1 Hunt Using Only Traditional Methods

This potential alternative, suggested in public comment on the 2008 DEIS and the 2015 DEIS, is best characterized as requiring the Makah to hunt using only pre-contact hunting methods. This would mean, for example, using mussel-tipped harpoons instead of toggle-point or steel-tipped harpoons, prohibiting the use of rifles to kill whales, and prohibiting the use of chase boats with outboard motors to follow the hunt and to tow whales. More information about pre-contact Makah hunting techniques can be found in Subsection 3.10.3.4, Makah Historic Whaling.

This alternative was eliminated from detailed consideration for a variety of reasons. The information presented in this FEIS related to the method of the hunt must support and inform NMFS' decisions about waiving the MMPA moratorium or issuing a permit. The agency may only issue a permit to take a marine mammal upon a determination that the manner of taking is humane (16 USC 1374(b)(2)(B)), which the MMPA defines as "the least possible degree of pain and suffering practicable" (16 USC 1362(4)). A whale may take several hours or days to die using only pre-contact methods. Modern technologies, such as those analyzed in detail in this EIS, result in quicker times to death than a hunt using only pre-contact methods, meaning pre-contact methods would not meet the MMPA's humaneness standard.

WCA regulations also require that hunting not be conducted in a wasteful manner, which "means a method of whaling that is not likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve the whale" (50 CFR 230.2). The use of powered vessels and backup hunters (e.g., harpooners and the rifleman) to chase and tow whales represents reasonable efforts to retrieve any struck whale and is more likely to meet WCA regulatory requirements than hunting using only traditional vessels.

Safety of hunters and the public must also be considered. A wounded whale experiencing a lengthy death could pose a greater risk to the whaling crew and public. This situation can be avoided by using some modern tools.

This alternative also does not meet the proposed action's purpose and need. Also, requiring the Makah to hunt with pre-contact weapons, boats, and other tools is not justified because technologies, including using steel-tipped harpoons and accepting tows from steam-powered commercial tow boats, were used in traditional hunts as they became available.

2.4.6.2 Kill Whales with Smaller Caliber Rifles

Many of the aboriginal subsistence whale hunts conducted world-wide on large whales employ rifles to kill whales; some of these rifles are smaller than the .50 caliber rifle under the Proposed Action and the .577 caliber rifle used in the Makah's 1999 hunt. Three separate reports (Ingling 1999; Beattie 2001; Graves et al. 2004) have now examined humane killing and public safety aspects of the proposed Makah whale hunts, and all three authors concluded that a.50 caliber rifle (or greater) is the appropriate caliber of weapon to use.

Specifically, Ingling (1999) concluded that for large game, larger bullets are more effective in producing penetration deep enough to reach a vital organ or disabling site in the animal and thus require more power (i.e., heavier guns). In addition, rifles that are at least .50 caliber provide a better margin of error in targeting compared to smaller caliber rifles. Graves et al. (2004) added that "small caliber rifles simply will not do the job" of quickly killing large thick-boned whales; they concluded that the .50 caliber weapon was the best choice. Russian government reports on the number of small-caliber rifle rounds fired per whale in the Chukotka Native gray whale hunt support this conclusion (Subsection 3.4.3.5.4, Method of Killing and Time to Death). It is also supported by the recommendations from a recent IWC workshop report that identified several chemical and physical techniques for euthanasia of stranded whales, including high-caliber ballistics and explosives for baleen and sperm whales (IWC 2014a). The Ingling and Graves reports are discussed in further detail in later sections of this FEIS (Subsection 3.15, Public Safety). As described in Subsection 2.4.6.1, Hunt Using Only Traditional Methods, the MMPA prescribes that taking a marine mammal must involve "the least possible degree of pain and suffering practicable" (16 USC 1362(4)). Smaller caliber rifles would not result in the least possible degree of pain and suffering practicable.

2.4.7 Alternative Compensation to the Makah Tribe

Compensation to the Makah Tribe for not whaling could be monetary, including financial support for a different venture (such as ecotourism associated with whale watching). Other types of compensation might be a loan for a casino resort, new facilities for health care improvements, other options for improving the quality of life on the reservation, or renegotiating the treaty and returning ceded lands. Any of these actions would, however, result in environmental conditions

similar to those described under the No-action Alternative. No whale hunting would occur, and the other financial incentives (such as loans for casinos, resorts, improved health care, or ecotourism opportunities) would be provided to the Tribe with its agreement to forego future whaling. The No-action Alternative could occur at any time and would not be restricted to a specific future event. The Tribe was offered financial compensation by a private party in lieu of whaling during the fall of 1998. The Tribe, at that time, would not consider this offer (Anderson 2008a; Anderson 2008b; Tizon et al. 2008), and the tribe has maintained that position. This alternative was eliminated from further consideration because any of these activities would be speculative, with uncertain negotiations between the Tribe and other government and nongovernmental entities. In addition, this alternative would not meet NMFS's federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay or the Tribe's purpose to resume its traditional hunting of gray whales under its treaty right. Finally, impacts would be similar to the No-action Alternative; thus, a detailed examination of this alternative would not develop relevant information for the decision-maker.

2.4.8 Alternatives Not Carried Forward from the 2008 DEIS

The 2008 DEIS contained alternatives not carried forward here. One alternative would have required the Tribe to hunt outside 200 yards (183 meters) of any rocks or islands, to protect nesting seabirds and hauled-out marine mammals. We did not include that alternative here because Alternative 3, Offshore Hunt, would authorize hunting only outside 5 miles (8 km) from shore, which is beyond any rocks or islands.

The 2008 DEIS also contained alternatives that would have authorized the Tribe to hunt in the Strait of Juan de Fuca and to hunt year-round. We do not include those alternatives here. Alternative 4, Summer/Fall Hunt, analyzes the impacts of hunting during the summer season, rendering a year-round option unnecessary. The Tribe did not request and no commenters recommended a Makah gray whale hunt in the Strait of Juan de Fuca.

One alternative included in the 2008 DEIS would have set lower limits than those proposed by the Tribe on the total numbers of whales struck, struck and lost, and harvested. Analysis completed for the 2012 IWC Scientific Committee meeting shows that establishing a set annual limit of one or two PCFG whales did not meet the IWC's conservation objectives (IWC 2012d). Since that time, the Scientific Committee has convened five range-wide workshops on the status of North Pacific gray whales (IWC 2019a) and has analyzed a new proposed management plan that is now presented as Alternative 7. After modeling the available data (i.e., biology, ecology, abundance and trends, removals including direct hunting, ship strikes, and bycatches), the

Scientific Committee concluded that this proposed hunt management plan meets the IWC conservation objectives for ENP gray whales, as well as for PCFG and WNP gray whales (IWC 2023a, Punt et al. 2023; see Subsection 1.2.4.1, International Whaling Governance under the International Convention for the Regulation of Whaling).

Section 3

Affected Environment

Table of Contents

LIST OF TABLES

LIST OF FIGURES

3.0 AFFECTED ENVIRONMENT

This section describes the affected environment (environmental conditions in the action area) to provide background information for the assessment of the environmental effects of the alternatives discussed in Section 4 (Environmental Consequences) and Section 5 (Cumulative Impacts). The affected environment subsections describe the pertinent aspects of resources and the current conditions within the action area that will be used to evaluate the anticipated environmental effects of the alternatives described in Section 2 (Alternatives). The first subsection describes geographically based management in the action area (including federally and internationally designated areas, and tribal management of reservations and usual and accustomed (U&A) fishing grounds) to provide context for the description of the other sections. The remaining subsections present the physical environment first, followed by the biological environment, then the social environment, of the action area.

The resources considered for environmental review in Sections 3 through 5 of this FEIS are those that we have identified as having the potential to be affected by the action alternatives. To determine which resources to analyze, we first compiled a complete list of physical, biological, and social resources during internal agency project scoping. We then reduced the list to those that might have any potential to be affected by the action alternatives and published notices of intent in the Federal Register requesting public comments on various components of the EIS, including resources to be analyzed. After considering public comments, some resources were identified as not having the potential to be affected by the action alternatives, and are, therefore, not analyzed in this FEIS. These resources include utilities, air quality, geology and soils, hazardous waste, energy, housing, light and glare, and National Historic Preservation Act cultural properties.

3.1 Geographically Based Management in the Action Area

The action area is confined primarily to the marine waters, islands, and land areas near the Makah Tribe's U&A in the Pacific Ocean and Strait of Juan de Fuca that may be directly or indirectly affected by the proposed whale hunt (Figure 1-1) (Subsection 1.1.2, Makah Tribe's Proposed Hunt Location). The action area encompasses several federally designated and managed areas, including the Olympic Coast National Marine Sanctuary (OCNMS or Sanctuary), the Washington Islands National Wildlife Refuges, the United States Coast Guard (Coast Guard) regulated navigation area (RNA), Olympic National Park, and internationally designated areas, including a United Nations World Heritage Site and the Olympic Biosphere Reserve. The action area also includes the Makah and Ozette Reservations. These designated and managed areas have

objectives and policies that are directly or indirectly related to the action alternatives, as described below.

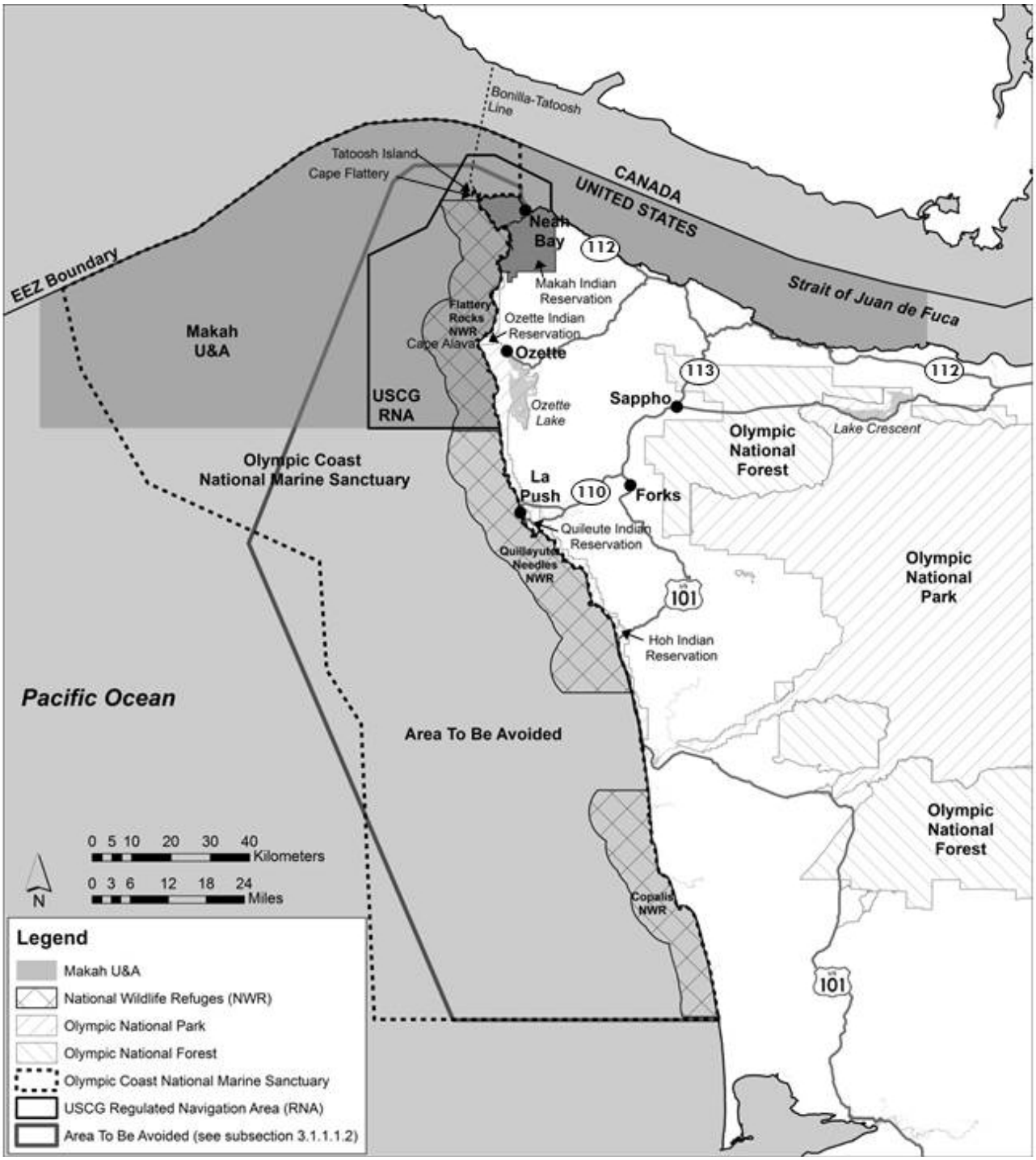


Figure 3-1. Designated and Managed Areas.

3.1.1 Designated Areas

3.1.1.1 Olympic Coast National Marine Sanctuary

3.1.1.1.1 Introduction

Olympic Coast National Marine Sanctuary (OCNMS or sanctuary) is one of 15 national marine sanctuaries in United States waters, located off the northwest coast of Washington state and encompassing a 3,188-square mile area of coastal and ocean waters and submerged lands along the Olympic Peninsula and the western portion of the Strait of Juan de Fuca. Figure 3-1, Designated and Managed Areas, identifies the portion of OCNMS located in the action area.

3.1.1.1.2 Designation and Regulatory Overview

The Secretary of Commerce designated OCNMS in 1994 as an area of special national significance under the authority of the National Marine Sanctuaries Act (16 USC 1431 *et seq.*) because of its unique and nationally significant collection of flora and fauna, and adjacency to Olympic National Park. In the OCNMS Designation Document (published in 59 FR 24586, May 11, 1994) and 1993 Final EIS and Management Plan (NOAA 1993), NOAA noted that the sanctuary is a highly productive, nearly pristine ocean and coastal environment that is important to the continued survival of several ecologically and commercially important species of fish, seabirds, and marine mammals. In the OCNMS Designation Document and the Final EIS and Management Plan, NOAA enumerated biological and historical resources that give the sanctuary particular value (NOAA 1993), including high biological productivity, diversity of habitats, a wide variety of marine mammals and birds living in or migrating through the area, and the presence of endangered and threatened species and essential habitats.

In particular, NOAA noted that the unusually large and diverse range of habitats present in the sanctuary includes the following:

- Offshore islands and rocks (most are within the Flattery Rocks, Quillayute Needles, and Copalis national wildlife refuges);
- Large and diverse kelp beds;
- Intertidal pools;
- Erosional features (such as rocky headlands, seastacks, and arches),
- Interspersed exposed beaches and protected bays;
- Submarine canyons and ridges;
- The continental shelf (including a broad shallow plateau extending from the mouth of the Juan de Fuca canyon);
- Continental slope environments.

The numerous sea stacks and rocky outcrops along the sanctuary shoreline, coupled with a large tidal range and wave splash zone, support some of the most diverse and complex intertidal zones in the United States (59 FR 24586, May 11, 1994). NOAA also identified several historical resources that give the sanctuary particular value, including Indian village sites, ancient canoe runs (intertidal pathways cleared of boulders and cobble), petroglyphs, Indian artifacts, and numerous shipwrecks (NOAA 1993; 59 FR 24586, 24604, May 11, 1994). Extensive archeological work oriented toward late prehistoric culture had been completed by the Makah Tribe and archaeologists along the Washington coastline at the time of designation, including a major archeological dig conducted at Ozette, near Cape Alava that uncovered an ancient village thought to be 2,000 years old and considered to be one of the most significant excavations in North America (NOAA 1993). NOAA also found that an important feature of the sanctuary is its proximity to four Native American tribes, Hoh Tribe, Makah Tribe, Quileute Tribe, and Quinault Indian Nation, and the sanctuary is within their U&As. Tribal members use their U&As for subsistence and commercial harvesting, religious ceremonies, exercise of treaty-reserved rights, research, and numerous other uses. The presence of Indian tribes along the coast adds unique governance dynamics as well as special cultural and historical significance to the sanctuary (NOAA 1993).

NOAA's National Ocean Service, Office of National Marine Sanctuaries, administers OCNMS, which is managed by sanctuary staff in Port Angeles, Washington. The mission statement of OCNMS is to "protect the Olympic Coast's natural and cultural resources through responsible stewardship, to conduct and apply research to preserve the area's ecological integrity and maritime heritage, and to promote understanding through public outreach and education." These multiple-use management objectives are achieved through both cooperative management and regulation. NOAA finds that one of the major benefits of establishing OCNMS is the integration of important nearshore and oceanic marine resource zones and corresponding human activities, including federal, state, and tribal management of those activities, under one coordinated management regime (NOAA 1993). To this end, sanctuary staff coordinates management with the Washington State Departments of Ecology (Ecology), Natural Resources, Fish and Wildlife, and Agriculture; the United States and Canadian coast guards; the United States Fish and Wildlife Service (USFWS); the National Park Service; the four Coastal Treaty Tribes (Hoh Tribe, Makah Tribe, Quileute Tribe, and Quinault Indian Nation); local businesses, towns, counties, and timber and fishing representatives; and research and education institutions. The Olympic Coast National Marine Sanctuary Advisory Council was established in 1999 to provide advice on the management and protection of the sanctuary. A community-based body, the Advisory Council,

through its members, serves as a liaison to the community regarding sanctuary issues and represents community interests, concerns, and management needs to the sanctuary. The council comprises representatives of tribal governments, state and local governments, other federal agencies, maritime industry, fishing, education, tourism, conservation organizations, and the community at large. The Sanctuary Advisory Council operates under a charter and serves strictly in a voluntary, advice-giving role. OCNMS staff also reviews ocean management in the sanctuary with the four Coastal Treaty Tribes, including the Hoh Tribe, Makah Tribe, Quileute Tribe, and Quinault Indian Nation, and the state of Washington, through the Intergovernmental Policy Council (NOAA 2007). The Intergovernmental Policy Council was created by a memorandum of agreement signed in 2006 and updated in 2012, 2017, and most recently amended in 2022 (NOAA 2007; NOAA 2012; NOAA 2018).

Regulations governing OCNMS are located at 15 CFR Part 922, Subpart O. The regulations describe sanctuary boundaries, prohibit certain kinds of activities, and set up a permitting system to allow some activities that are otherwise prohibited. Activities generally prohibited in OCNMS include offshore oil, gas, and mineral exploration, development, or production; pollution discharge; seabed disturbance; and possessing, moving, removing, or injuring any historical resource. Prohibited activities that are particularly relevant to the action alternatives include flight level restrictions and marine mammal take restrictions. Flying motorized aircraft at less than 2,000 feet both above the sanctuary and within one nautical mile of the shoreline or National Wildlife Refuge islands is prohibited under 15 CFR 922.152(7), unless the sanctuary staff issues a permit (with certain exceptions such as valid law enforcement, emergency response, and specified tribal activities). This prohibition is consistent with the 2,000-foot flight advisory over the adjacent Olympic National Park and national wildlife refuges and is designed to limit the potential effects of noise, particularly as it might affect hauled-out seals and sea lions, sea otters, and nesting birds along the shoreline and offshore rocks and islands of the sanctuary (NOAA 1993; 77 FR 3919, January 26, 2012).

Regulations also prohibit taking any marine mammal, sea turtle, or seabird in or above the sanctuary, except as authorized by the MMPA, the ESA, and the Migratory Bird Treaty Act, or pursuant to any treaty with an Indian tribe to which the United States is a party (15 CFR 922.152(6)). If the taking is conducted pursuant to an Indian treaty, the taking is to be exercised in accordance with the MMPA, ESA, and the Migratory Bird Treaty Act, to the extent that they apply (15 CFR 922.152(6)). For applicability of these federal laws to the Makah Tribe's treaty

right of taking fish and of whaling or sealing at usual and accustomed grounds and stations, refer to Section 1, Purpose and Need, and Section 2, Alternatives, of this FEIS.

3.1.1.1.3 Current Issues

Management Plan. The 2011 OCNMS Management Plan contains goals and objectives for collaborative partnerships, resource management, research, and education programs (NOAA 2011). The management plan contains 20 action plans, organized under five goals: (1) achieve effective collaborative and coordinated management; (2) conduct collaborative research, assessments, and monitoring to inform ecosystem-based management; (3) improve ocean literacy; (4) conserve natural resources in the sanctuary; and (5) understand the sanctuary's cultural, historical, and socioeconomic significance. The Makah Tribe is a key partner in many of the activities within the 20 action plans. NOAA initated a review of the management plan in January 2023 to evaluate progress toward implementing the goals of the sanctuary and revise the plan as necessary to fulfill the purposes and policies of the NMSA (88 FR 6236, January 1, 2023). The review is expected to take one to two years before any revisions are implemented.

Area to be Avoided (ATBA). In 1995, sanctuary staff worked with the Coast Guard and the International Maritime Organization to establish an area to be avoided for the primary purpose of preventing a catastrophic oil spill. The Area to be Avoided (ATBA) is a voluntary ship traffic management program that applies to all ships and barges carrying cargoes of oil or hazardous materials, as well as all ships of a certain size that are solely in transit. Effective December 1, 2012, the applicable vessel size for ATBA compliance was lowered from 1,600 to 400 gross tons. Operators of such vessels are advised to maintain a 25-mile buffer from the coastline in the southern portion of the area to be avoided, narrowing to approximately eight nautical miles west of Cape Flattery and one nautical mile (1.15 miles) north of Neah Bay. This area to be avoided corresponds largely with the nearshore portion of the Makah Tribe's U&A (Figure 3-1). The restrictions do not apply to vessels that are engaged in an otherwise permitted activity that occurs predominantly within the sanctuary, such as fishing or research. Of 6,554 vessel transits through the sanctuary in 2021, all but 678 remained outside of the ATBA, equating to an estimated compliance rate of 89.7 percent (OCNMS 2022). Since 2017, average voluntary compliance with the ATBA has been 94 percent. More information on vessel traffic can be found in Subsection 3.13.3.2, Marine Vessel Traffic. See also Subsection 3.2.3.3, Spill Prevention.

Sanctuary Cooperation with the Makah Tribe. The Makah Tribe is a key partner in OCNMS coordinated management, research, resource protection, public relations, education, and outreach. OCNMS has a trust responsibility and government-to-government relationship with the Hoh

Tribe, Makah Tribe, Quileute Tribe, and Quinault Indian Nation. As such, OCNMS consults with the Coastal Treaty Tribes on sanctuary policies or decisions that could affect them. The sanctuary also works with the Makah Tribe on a variety of other programs and projects. The Makah Cultural and Research Center has fostered a strong relationship with the sanctuary through development and implementation of a cooperative interpretive program centered on the Makah Reservation. Since 2000, the sanctuary has provided annual funding to the Makah Cultural and Research Center to hire Makah interpreters and guides at Cape Flattery. Each year, Makah interpreters engage with thousands of visitors who learn about Makah culture, collaborative management of the sanctuary, and natural history within the area. In 2022, more than 24,000 visitors visited Cape Flattery during the 17-week summer program. Sanctuary staff also supported the creation of the Makah Office of Marine Affairs to provide technical assistance in developing and planning pollution prevention strategies and to represent the Tribe's interest in guarding treaty-protected resources from oil spills (NOAA 2006). For more information on spill prevention, see Subsection 3.2.3.3, Spill Prevention. Since 2007, the Makah Tribe has also been a member of the Sanctuary's Intergovernmental Policy Council and holds a seat on the Sanctuary Advisory Council.

3.1.1.2 Washington Islands National Wildlife Refuges

More than 870 islands, rocks, and reefs above the mean high water line and extending for more than 100 miles (161 km) along the coast of Washington State are included in three national wildlife refuges: Quillayute Needles, Flattery Rocks, and Copalis (collectively called the Washington Islands National Wildlife Refuges). The islands range from less than 1 acre (0.4 ha) to about 36 acres (15 ha), and most drop abruptly into the sea. The islands' offshore location provides protection from human disturbance and land predators while providing close proximity to abundant ocean food sources. The islands provide refuge for more than 20 species of birds as they nest and raise their young; the total population of seabirds, waterfowl, and shorebirds may exceed 1 million birds (Subsection 3.5.3.2, Existing Conditions, Other Marine Wildlife). In addition, sea lions, seals, sea otters, porpoises, and whales are commonly found on and/or around the islands (Subsection 3.5.3.1, Existing Conditions, Marine Mammals). All three refuges were originally established as migratory bird sanctuaries through Executive Orders 703, 704, and 705 issued by President Theodore Roosevelt in 1907, and later redesignated as refuges in 1940 (Presidential Proclamation, July 30, 1940) and wilderness areas in 1970 (under the Wilderness Act of 1964, 16 USC 1131 *et seq.*), except for Destruction Island, which was excluded because of the presence of an operational Coast Guard lighthouse on the island. Only the Flattery Rocks National Wildlife Refuge is within the Makah Tribe's U&A and the OCNMS; it extends along

the Pacific Coast from the western edge of Cape Flattery south to near the southern boundary of the Makah U&A.

The refuges are maintained as a sanctuary for nesting seabirds and marine mammals and are managed by the USFWS. The USFWS coordinates with NOAA's Olympic Coast National Marine Sanctuary staff to prohibit motorized aircraft flying less than 2,000 feet above certain portions of the refuges. The USFWS also manages the refuges cooperatively with the National Park Service through a memorandum of understanding because the refuges are within the exterior boundaries of Olympic National Park (National Park Service and USFWS 1993). The objective of the Washington Islands National Wildlife Refuges is to enhance protection and interpretation of the wildlife, and natural and scenic resources of the refuges by taking the following measures:

- Minimizing human impacts
- Maintaining the wilderness character of the area
- Helping the public understand and appreciate the value of the refuges
- Conducting research to understand the refuge resources

The USFWS has also issued advisories and permits regulating public access to the islands and closed public access to the islands and surrounding waters within 200 yards (183m) to avoid the flushing of nesting seabirds by boat and other vessel traffic (USFWS 2023). All of the islands in the action area are less than 3 miles from shore.

The USFWS prepared a Washington Islands National Wildlife Refuges Comprehensive Conservation Plan/Environmental Assessment (EA) (USFWS 2007) to guide its management of the Flattery Rocks National Wildlife Refuges, as well as the Quillayute Needles and Copalis National Wildlife Refuges. Management activities include monitoring the refuge wildlife and protecting and maintaining the natural functioning ecosystem. The plan directs the USFWS to coordinate with other agencies and tribes to ensure continuation of the long-term health and viability of native seabird and marine wildlife populations, with a focus on pinnipeds. The Washington Islands National Wildlife Refuges Comprehensive Conservation Plan/EA includes the Treaty of Neah Bay as a law or executive order potentially applicable to its Comprehensive Conservation Plan/EA (USFWS 2007) (specifically, the Tribe's fishing, whaling, and sealing rights within its U&A, as well as hunting and gathering rights on open and unclaimed lands). The Washington Islands National Wildlife Refuge System adheres to laws, regulations, and policies applicable to all National Refuge Systems (50 CFR Subchapter C, Parts 25 to 32). Goals, objectives, and strategies applicable to the Washington Islands National Wildlife Refuge Comprehensive Conservation Plan/EA are listed below:

- Protect migratory birds and other native wildlife and their associated habitats, with special emphasis on seabirds.
- Protect and support the recovery of federally threatened and endangered species and Washington State special status species and their associated habitats.
- Promote and manage the Washington Islands Wilderness Area to maintain its wilderness character and values.
- Promote effective coordination and cooperation with others for conservation of refuge resources, with special emphasis on government agencies and tribes with adjoining ownership and/or jurisdiction.
- Continue to enhance long-term monitoring and sustained applied research.
- Increase public interpretation and awareness programs to enhance appreciation, understanding, and enjoyment of refuge resources.

3.1.1.3 Coast Guard Regulated Navigation Area

The United States Coast Guard has established an RNA (Figure 3-1) in the Strait of Juan de Fuca and adjacent coastal waters of northwest Washington (33 CFR 165.1310) under its Ports and Waterways Safety Act authority (33 USC 1221 *et seq.*), allowing the Coast Guard to regulate vessel activities near any Makah whale hunt and reduce the danger of loss of life and property from any hunt. When finalizing the RNA after the 1999 hunt, the Coast Guard specifically found that "the uncertain reactions of a pursued or wounded whale and the inherent dangers in firing a hunting rifle from a pitching and rolling small boat are likely to be present in all future hunts, and present a significant danger to life and property if persons or vessels are not excluded from the immediate vicinity of a hunt" (64 FR 61212, November 10, 1999).

The RNA rests entirely within the Makah U&A (Figure 3-1). The RNA boundaries enclose waters off Neah Bay and the Strait of Juan de Fuca in the north, wrap around Cape Flattery and Tatoosh Island, and then parallel the shore at a 10-nautical-mile (11.5-mile/18.5-km) distance until the southern boundary is formed by connecting to the shore at the southern extent of the U&A. The Coast Guard extended the southern boundary of the RNA to match the southern boundary of the U&A when the final rule was promulgated in 1999 (64 FR 61212, November 10, 1999). When the interim rule (63 FR 52609, October. 1, 1998) was in force during the 1999 Makah whale hunt, most of the Makah whale hunting and associated protesting activities occurred farther south than the borders of the RNA (though the whale hunting activities and the protesting incidents still occurred within the Makah U&A) (Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2013).

Within the RNA during any Makah whale hunt, a Moving Exclusionary Zone (MEZ) for "the column of water from the surface to the seabed within a radius of 500 yards (457 m) centered on the Makah whale hunt vessel" is activated when one Makah whale hunt vessel displays an international numeral pennant five (5) between sunrise and sunset when surface visibility exceeds 1 nautical mile (33 CFR 165.1310(b)). No person or vessel may enter the MEZ when it is activated, except for the authorized Makah whale hunt vessel and an media pool vessel preauthorized by the Coast Guard. An additional vessel(s) or person(s) can be authorized by the Coast Guard (33 CFR 165.1310(c)), such as an observer vessel. An authorized media pool vessel must maneuver to avoid positioning itself between whales and hunt vessels, out of the line of fire, at a prudent distance and location relative to the whale hunt operations, and in a manner that avoids hindering the hunt or path of the whale in any way (33 CFR 165.1310(f)(3)). The media pool vessel operates at its own risk, but must adhere to safety and law enforcement instructions from Coast Guard personnel (33 CFR 1310(f)). The regulation does not affect normal transit or navigation in the RNA. For more information about the operation of the RNA and the MEZ during Makah whale hunting from 1998 to 2000, refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007; Subsection 3.15.2.1, Vessel Safety Regulations and Authorities; and Subsection 3.15.3.4, Behavior of People Associated with the Hunt.

3.1.1.4 Olympic National Park

The Olympic National Park comprises 922,651 acres located primarily in the center of the Olympic Peninsula and includes lands along the upper northern coast of Washington State (Figure 3-1). President Theodore Roosevelt originally created the Olympic National Monument in 1909; Congress later redesignated and authorized the monument as a National Park in 1938 (Chapter 812, 52 Stat. 1241). In 1988, Congress designated about 95 percent of the park (876,669 acres) as wilderness through the Washington Park Wilderness Act (16 USC 90 note, PL 100-668). It is now one of the largest wilderness areas in the contiguous United States. Combined with the OCNMS, the two designations protect almost 5,000 square miles (12,950 sq. km) of intertidal, island, and ocean habitats. The National Park Service is the federal agency that manages the park to preserve and protect, unimpaired, the park's diverse natural and cultural resources and provide for the enjoyment, education, and inspiration of present and future generations. More than 650 archeological sites documenting 10,000 years of human occupation are protected within the Olympic National Park lands (National Park Service 2008). Ten Olympic Peninsula tribes retain their ongoing connection to traditional lands within the park, including the Makah Tribe, Hoh Tribe, Jamestown S'Klallam Tribe, Quileute Tribe, Quinault Nation, Skokomish Tribe, Squaxin Tribe, Suquamish Tribe, Elwha Klallam Tribe, and Port Gamble

S'Klallam Tribe. The park also protects cultural resources that reveal and document the 200-year history of discovery, exploration, homesteading, and community development in the region (National Park Service 2008).

The National Park Service prepared a general management plan/EIS for the park that describes a vision for its future (National Park Service 2008). The plan is intended to guide park decision-making for 15 to 20 years. Management emphasis for the National Park Service's preferred alternative is protecting resources and improving visitor experiences. This goal would be accomplished by accommodating diverse visitor use, providing sustainable access on existing roads, improving mass transit opportunities, and concentrating improved educational and recreational opportunities on the developed park edges.

3.1.1.5 World Heritage Site

The Olympic National Park was designated as a United Nations Educational, Scientific, and Cultural Organization World Heritage Site in 1981, and it is one of 20 World Heritage Sites in the United States (UNESCO 1981). The World Heritage Site list was established under the terms of the Convention Concerning the Protection of World Culture and Natural Heritage that was adopted in 1972 at the 17th General Conference of the United Nations Educational, Scientific, and Cultural Organization. World Heritage Site objectives are to encourage the identification, protection, and preservation of cultural and natural heritage sites that are considered to be of outstanding value to humanity. These sites are listed in order to protect them for future generations to appreciate and enjoy.

3.1.1.6 Olympic Biosphere Reserve

The Olympic Peninsula, including the Olympic National Park, was designated as a biosphere reserve in 1976 (UNESCO 1976). Biosphere reserves are areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with sustainable use. The reserves are internationally recognized, nominated by national governments, and remain under sovereign jurisdiction of the states where they are located. Each biosphere reserve is intended to fulfill three basic functions:

- Conservation function that contributes to the conservation of landscapes, ecosystems, species, and genetic variation;
- Development function that fosters economical and human development that is socio-culturally and ecologically sustainable;

- Logistic function that provides support for research, monitoring, education, and information exchange related to local, national, and global issues of conservation and environment.

The objective of this designation is to set aside areas with representative ecosystems to achieve the fullest possible biogeographical cover over the world and ensure systematic conservation of biodiversity.

The Olympic Biosphere Reserve is one of 28 designated biosphere reserves in the United States. This reserve is considered one of the best examples of intact and protected temperate rainforests in the Pacific Northwest. Other outstanding characteristics include rivers supporting some of the best habitat for anadromous fish species, the longest undeveloped wilderness coast in the United States, and rich native and endemic animal and plant species (UNESCO 1981).

3.1.1.7 Other Designated Areas

NMFS and the Pacific Fishery Management Council (PFMC) have identified essential fish habitat within the action area under Magnuson-Stevens Act authority. More information about the establishment and identification of essential fish habitat and habitat areas of particular concern is presented in Section 3.3, Marine Habitat and Species. We have also identified ESA critical habitat for certain threatened and endangered species occurring within the action area. More information on critical habitat of fish species occurring within the action area is in Section 3.3, Marine Habitat and Species. More information on critical habitat for other marine wildlife, including for Southern Resident killer whales (71 FR 69057, Nov. 29, 2006), is in Subsection 3.5.3.1.1, ESA-Listed Marine Mammal Species, and Subsection 3.5.3.2.1, ESA-Listed Species (Other Marine Wildlife).

3.1.2 Makah Management of Reservation and U&A Areas

The Makah Reservation is located on the northwestern-most tip of the Olympic Peninsula (Figure 3-1) and encompasses 44 square miles (114 sq. km) of land (30,142 acres) bounded by the Pacific Ocean to the west and the Strait of Juan de Fuca to the north. The approximately 1-square-mile (2.6 sq. km) Ozette Reservation, 10 miles (16 km) south of Neah Bay, is also part of the Makah Reservation, with the Olympic National Park managing the contiguous shoreline between the two areas of the reservation.

The relationship between the United States and the Makah Tribe was formalized upon ratification of the Treaty of Neah Bay in 1855. Following the 1975 Indian Self-Determination and Education Assistance Act (PL 93-638), the Tribe entered into self-determination contracts with the Bureau

of Indian Affairs (BIA). Later, the Tribe entered into tribal self-governance compacts in accordance with the Tribal Self-Governance Act of 1994 (PL 103-413). The tribal self-governance compact incorporates virtually all BIA programs on the reservation. The Tribe has also entered into a self-governance compact with the Department of Health and Human Services (under the Tribal Self-Governance Amendments of 2000, PL 106-260), addressing the delivery of health services to tribal members. In addition, following a series of court decisions establishing the right of the Makah and other Washington state treaty tribes to half the harvestable surplus of salmon (*United States v. Washington* 1974) and shellfish (*United States v. Washington* 1994 (Rafeedie decision)), the federal government formally recognized that the four Washington coastal tribes (Makah, Quileute, Quinault, and Hoh) have treaty rights to groundfish in their respective U&As (PFMC and NMFS 2006). In accord with these decisions and recognition, the Makah Tribe participates in a variety of fisheries management forums such as the North of Falcon process, the Pacific Fisheries Management Council, the Pacific Salmon Treaty, the International Pacific Halibut Commission, and Pacific Whiting Treaty Joint Management Committee.

The Makah Tribe is governed by an elected tribal council. The Constitution and Bylaws of the Makah Indian Tribe, adopted in 1936, describe the organization and authority of the Makah Tribal Council. The council consists of five members elected for staggered 3-year terms. The Makah Tribal Council selects officers from its membership, including, but not limited to chairman, vice-chairman, and treasurer. Currently, the secretary is appointed from outside the Makah Tribal Council. The secretary is a tribal employee fulfilling the requirements of the office on behalf of the Makah Tribal Council. Any enrolled tribal member who is 21 years of age or older and has lived on the reservation for 1 year immediately preceding an election is eligible to vote, and any legal voter is eligible to be elected to serve on the Council.

As stated in the Constitution and Bylaws of the Makah Indian Tribe, the powers of the Tribal Council include the power to perform the following actions:

> To promulgate and enforce ordinances, which shall be subject to review by the Secretary of the Interior, governing the conduct of members of the Makah Indian Tribe, and providing for the maintenance of law and order, and the administration of justice by establishing a reservation Indian court and defining its duties, powers, and limitations . . . . To safeguard and promote the peace, safety, morals and general welfare of the Makah Indian Tribe by regulating the conduct of trade and the use and disposition of property upon the reservation . . . . To adopt resolutions regulating the procedure of the council itself and other tribal agencies and tribal officials of the reservation (Article IV, Sections 1(i), (j), and (n)).

The constitution and bylaws may be amended by a majority vote of the qualified tribal voters. A referendum on any proposed or enacted ordinance or resolution of the Tribal Council may be called if at least one-third of the qualified tribal voters petition for one. The majority vote of such a referendum is conclusive and binding on the Makah Tribal Council.

Laws and regulations are enforced under the provisions of the Makah Law and Order Code. The Makah Law and Order Code establishes a tribal court, defines its jurisdiction, provides for tribal police, details the selection and procedures for judges and juries, and includes a criminal code and procedures for criminal and civil actions. If NMFS authorizes a gray whale hunt, the Tribe proposes to adopt laws and regulations to enforce NMFS' regulations governing the hunt.

3.1.2.1 Makah Tribal Departments, Agencies, and Commissions

The Makah Tribal Council oversees the operations and management of approximately 14 governmental departments and 6 tribally chartered organizations including the Makah Whaling Commission (Makah Tribe 2022a). The departments, chartered organizations, and the Makah Whaling Commission are as follows:

Makah Social Services comprises five programs: Domestic Violence Program, Low Income Home Energy Assistance Program, Family Services Program, Senior Citizens Program, and United States Department of Agriculture Food Distribution Program.

Makah Education and Training provides services to tribal/community members for higher and vocational education and the Workforce Investment Act program, i.e., funding, work placements, employment and training, and clothing vouchers.

Makah Realty protects and promotes the trust assets (realty and physical property) of the Makah Tribe and the tribal membership.

Office of the General Manager oversees and provides leadership for all departments for the Makah Tribe. The Office of the General Manager also oversees the operations of the Tribe for essential and basic health, legal concerns, transportation, and community beautification.

Makah Tribal Court provides a forum for resolving disputes that is consistent with applicable governing laws and in keeping with the traditional and cultural values of the Makah Tribe. The Makah Tribal Court provides judicial services within the jurisdiction of the Makah Tribe involving criminal actions, civil actions and juvenile matters to include: criminal offenses, adult probation, civil disputes, child dependency cases, juvenile offenders and Makah Healing Court (adult drug court). The Makah Tribal Court Administration also

provides oversight to the Makah Victim Services program and facilitates the Makah Domestic Violence Task Force and Protocol.

Makah Housing Authority builds, rehabilitates, and weatherizes homes; acquires land for neighborhood revitalization development; and develops local capacity to provide these services.

Makah Human Resources promotes an effective and efficient work environment for the employees of the Makah Tribe.

Makah Community Gym promotes wellness in the community through planned events, youth programs, and making exercise facilities available to all. The Boys & Girls Club of the Makah Tribe is managed by the Community Gym Manager.

Makah Early Childhood Education runs the Head Start/ Early Head Start program to prepare preschool-aged kids and younger for school, and runs childcare services that are used by many members of the Neah Bay community.

Sophie Trettevick Indian Health Center provides primary medical care and dental services. The clinic is open Monday through Friday, from 8:00 a.m. to 5:00 p.m., with emergency service available via 911, 24 hours a day, 7 days a week. Emergency medical situations are addressed by providing stabilization and transport to the nearest appropriate facility. Airlift Northwest (Seattle) can be called in, based on emergency medical technician and/or provider determination. If Airlift Northwest is not available, the Coast Guard may provide transport. The Coast Guard responds to open-water-related emergencies. Although the health clinic provides day-to-day care service to tribal members, it will treat anyone with life- or limb-threatening injuries. Such injured non-Indians are treated to stabilize their injuries and then transported to an appropriate facility. The facility has a memorandum of agreement with Clallam Bay Fire District 5 to provide mutual assistance in emergency situations.

Makah Forestry establishes and develops policies to guide management of the forested lands of the Makah Indian Reservation and serves as a basis for decision-making by Makah Natural Resources Departments and the Makah Tribal Council.

Makah Public Safety departments include the Police Department, Corrections, Communications, Adult Probation, Natural Resources Enforcement, Emergency Medical Services, Fire Department, Animal Control, and Emergency Management. Police officers are responsible for tribal law and ordinance enforcement and public safety. Natural resources enforcement officers are responsible for enforcing hunting, fishing, and forest products

permits/regulations. They are trained law enforcement officers who can supplement the Police Department officers, as needed. The Fire Department consists of full-time employees and trained volunteers to run engines and aid cars to respond to fires and other emergencies. Emergency Medical Services provide emergency medical care 24 hours per day to residents and visitors to the Reservation. Emergency Management provides infrastructure and plans for response to catastrophic events (e.g., tsunamis).

Makah Planning (Community Planning and Economic Development) provides integrated, comprehensive, and traditional planning support to the Makah Tribal Council in decision-making concerning economic and community development.

Makah Fisheries Management is responsible for protecting, sustaining, and enhancing the relationship between the Makah Tribe and the many aquatic species that play a vital part in the Tribe's cultural and economic well-being. Makah Fisheries Management manages more than 20 different fisheries within the Tribe's U&A. The fisheries target a wide variety of fish species, use diverse gear types, and span seasonal time periods throughout the entire year. Makah Environmental Division, which is located within Makah Fisheries Management, includes Treaty Reserved Rights Protection, Environmental Planning, Environmental Health, Air Quality, Water Quality/Resources, and Environmental Education.

Makah Whaling Commission. The Makah Tribal Council first adopted the Charter of the Makah Whaling Commission in 1996 with Resolution 10-97, and amended it in 2001 with Resolution 100-01. The Commission is organized around the traditional heads of Makah families for the purpose of advising and making recommendations to the Makah Tribal Council regarding "rules and regulations to govern the conduct of treaty ceremonial and subsistence whaling," and "the administration and enforcement of such regulations, and [the] conduct[ing of] educational programs and research relating to ceremonial and subsistence whaling" (Makah Whaling Commission Charter 2001). The Makah Tribal Council considers the Whaling Commission's recommendations regarding tribal regulations and tribal permits authorizing the conduct of treaty ceremonial and subsistence whaling.

The Whaling Commission confirms that the whaling captain and crew have met the training guidelines and other applicable requirements for a permit. The Whaling Commission issues whaling permits which must then be approved by the Makah Tribal Council. The tribal whaling permit is issued to the whaling captain. It identifies the whaling captain, date issued, vessels involved, names of crew members, and area where the hunt is authorized. The permit must incorporate all of the requirements of the Tribe's management plan and any additional

requirements the Whaling Commission and the Tribal Council deem appropriate. It also must identify conditions that will result in its termination. For example, landing of a gray whale, striking and losing a gray whale, expiration of the permit after 10 days (without a strike or landing), and termination by the Whaling Commission or Tribal Council.

Makah Finance Department provides administrative financial services to the Tribe, including complying with applicable federal, state, and local policies; ensuring effective financial, personnel, procurement, and property management; promoting the highest standards of integrity, impartiality, and professionalism (in conduct of administrative programs); and promoting effective coordination and improved management practices among tribal programs, the Makah Tribal Council, enterprises, and outside agencies.

Tribal Enterprises. There are several separately chartered enterprises: Makah Business Enterprises, Makah Forestry Enterprise, Makah Cultural and Research Center, and Port of Neah Bay/Makah Marina. Makah Business Enterprises "operates within the structure of the Tribe." The other entities operate under independent boards (appointed by Makah Tribal Council).

- **Makah Business Enterprises** is responsible for creating and enhancing a for-profit sector for the betterment of the Makah tribal community. The businesses operating under Makah Business Enterprises are intended to generate profits, develop self-sufficiency, and create employment. As of 2012, five businesses operate under Makah Business Enterprises: Makah Mini-Mart/Fuel Station, Hobuck Beach RV and Cabin Resort, Cape Resort and RV Park.
- **Makah Forestry Enterprise** focuses on sustainable timber harvests while marketing logs and other forest-related products.
- **Makah Cultural and Research Center** is a nonprofit organization dedicated to revitalizing and preserving Makah culture. Its operations include an archive and research library, a museum, an education department, a language program, and a Tribal Historical Preservation Department that manages cultural properties on the Reservation.
- **Port of Neah Bay** operates the Makah Marina, Marina Conference Center, and the Makah Office of Marine Affairs. The Port manages contracts with two oil spill response contractors to provide 24-hour response coverage and oversees the Big Salmon Fishing Resort lease. The Port's mission is to develop, construct, regulate, and operate facilities and infrastructure for the transportation and industrial needs of the Makah Reservation to create profitable opportunities for tribal and individual businesses through project revenues, bonds, grants, and other sources.

- **Makah Dock**: the mission of the Makah Dock is to provide sustainable support to the commercial fishing fleet while maintaining the assets of the Makah Tribe. There are two permanent fish buyers and activities of the Dock include: fish buying, ice delivery, floor ice, hoist and forklift services and staging services for oil spill response organizations. The Makah Dock's revenue is generated from ice sales, staging fees, forklift and crane services and offload fees.

3.1.2.2 Makah Tribal Programs and Management Plans

Through the Makah Tribal Council and tribal departments, the Makah Tribe operates numerous governmental programs under a variety of management plans. Those most relevant to this FEIS are described below.

3.1.2.2.1 Makah Public Safety Program

In addition to weapons training, police officer training includes advanced narcotics training, forensics, and critical incident management. In 2005, the Makah Tribal Council adopted the National Management Incident System for response to emergencies that may affect the tribal community. Most emergency situations are handled locally, but major incidents may require assistance from state, county, or federal authorities. The National Management Incident System was developed to better coordinate responders from different jurisdictions and disciplines in the event of natural disasters and emergencies, including acts of terrorism. Benefits include a unified approach to incident management; standard command and management structures; and emphasis on preparedness, mutual aid, and resource management. The website is http://www.fema.gov/emergency/nims/index.shtm.

Using the National Management Incident System template, the Makah Tribal Council adopted an integrated comprehensive emergency plan in 2005. The plan provides for coordinated response and unified command structure under the Makah Director of Public Safety (Police Chief). The handling of any emergency, including civil disturbance, falls under the plan. One example of the plan's implementation occurred in December 2005, when there was a water shortage emergency on the reservation because of a combination of unusual drought and storm damage. In response to the emergency, the Police Chief sought a Makah Tribal Council declaration of emergency, which placed the comprehensive emergency plan in effect. Another example was in July 2010, when the Tribe hosted the Tribal Journeys event and the incident command system used border patrol, state, and other Tribal agencies.

3.1.2.1.1 Makah Fisheries Management Department

Fisheries in Puget Sound, the Strait of Juan de Fuca, and nearshore coastal waters are co-managed by the Indian treaty tribes and the Washington Department of Fish and Wildlife (WDFW). Ocean fisheries in United States waters of the Makah U&A are regulated by the PFMC with NMFS oversight and approval under the Magnuson-Stevens Act. State and tribal biologists participate in developing the scientific information that guides the decision-making and deliberative processes of the PFMC and NMFS. Harvest of salmon is also governed internationally under the 1985 Pacific Salmon Treaty, developed through cooperation by tribes, state governments, United States and Canadian federal governments, and sport and commercial fishing groups. The treaty is implemented by the eight-member bilateral Pacific Salmon Commission, which includes representatives of federal, state, and tribal governments. The Pacific Salmon Commission does not regulate salmon fisheries, but provides regulatory advice and recommendations, and is a forum for the two countries to reach agreement on mutual fisheries issues.

The Makah Tribe regulates and coordinates its own fishery management program within its U&A following the guidance of the Makah Ocean Policy (Makah Tribe 2017). The Tribe manages fisheries for salmon, halibut and other bottom fish, rockfish, Pacific whiting, black cod/sablefish, shellfish, and other marine species off the Washington coast, in coastal rivers and bays, and in the Strait of Juan de Fuca.

According to the Makah Fisheries Management 2022 Annual Report (Makah Tribe 2022b), the following divisions and programs are under Makah Fisheries Management:

Groundfish Management Program. The Program's primary goal is to protect the Makah Tribe's treaty rights through sustainably managing marine fisheries with emphasis on environmental, economic, and social aspects. The Groundfish Management Program manages the following Makah treaty fisheries: long-line black cod (sablefish) fishery; bottom trawl fishery; mid-water trawl yellowtail rockfish-directed fishery; Dungeness crab pot fishery; Pacific halibut long-line fishery, and mid-water trawl Pacific whiting fishery. Management activities include: participation in international, federal, state, and tribal management forums and processes, including the International Pacific Halibut Commission, the Pacific Whiting Treaty Joint Management Committee, and the PFMC development and implementation of Makah management measures to preserve the resources, allow harvest of target species, and minimize bycatch; promulgation and issuance of regulations; observing, monitoring, and sampling the catch; and development of new fisheries.

Salmon Management Program. The Program's primary goal is to increase harvest opportunities of salmonids for Makah tribal fishermen while protecting, conserving, and enhancing salmonid stocks. The salmon management program manages the following Makah salmonid fisheries: ocean troll fishery, Strait of Juan de Fuca troll fishery, Strait of Juan de Fuca drift gillnet fishery, Strait of Juan de Fuca setnet fishery, and on-Reservation river fisheries. Management activities include participation in international, federal, regional, state, and tribal management forums and processes, including the Pacific Salmon Commission, North of Falcon process, and the PFMC.

Marine Mammal Program. Program staff is responsible for researching and participating in scientific and management forums regarding marine mammals, which are important biological and cultural resources within the Makah U&A. The Tribe's Marine Mammal Biologist attends and participates in the meetings of the International Whaling Commission (IWC) Scientific Committee and its subcommittees and the Pacific Scientific Review Group, which provides advice to NMFS and USFWS on marine mammal stock assessments and review of sources of mortality. In addition to these activities, the Marine Mammal Program conducts whale research, including research on gray and humpback whale life history through photo-identification and stock structure through the collection of biopsy samples. In addition to whale research, the Program's research projects have investigated a wide range of topics resulting in publications in peer-reviewed scientific journals. The Program is an active member of the regions stranding and whale disentanglement networks and monitors marine mammal strandings in the Makah U&A. The Program also has education and outreach functions including coordinating internships for Makah youth on fisheries and environmental science (https://mfminterns.home.blog) and conducting presentations in classrooms in Neah Bay and other schools in the region. The Program's activities can change and expand depending on the availability of grant funding.

Marine Ecology Program. The program addresses emerging issues that can affect treaty resources and rights. Recent issues addressed include a rapid increase in invasive European green crabs, evaluating the transmission of harmful algal bloom toxins within the ecosystem, and participating in work groups on ocean acidification and climate change. The program conducts monitoring of the nearshore ecosystems to establish baseline population numbers and distributions. The program also assists in research activities conducted by other programs within the department.

Scientific Research Program. The primary objective of this program is to conduct scientific research to solve management problems at the request of Makah Fisheries Management managers. Since 2000, the program has used stable isotope analysis to investigate questions on

fish early life history, population structure, migration, and climate change. This research has resulted in about 40 publications in national and international scientific journals.

Hatchery Operations Division. The hatchery operations program raises and rears six salmonid stocks, including two stocks of steelhead, two stocks of Chinook salmon, coho salmon, and sockeye salmon. The goals of the program are to: provide harvestable steelhead, coho salmon, and Chinook salmon for tribal and sport fishers; provide coded-wire tagged Chinook salmon smolts for the U.S./Canada wild Chinook salmon indicator stock study; increase the range and abundance of Hoko River Chinook salmon; increase the range and abundance of Lake Ozette sockeye salmon; and provide assistance with various salmon research and monitoring projects.

Environmental Division. The primary objective of the Environmental Division is to protect air, marine nearshore, freshwater, and terrestrial environments and resources for ecosystem health and human use. This objective is achieved through the Division's Air Quality Program, Water Quality Program, and Land and Solid Waste and Environmental Health Program. The Division also plays an active role in engaging and monitoring international, national, regional, and local forums on environmental issues affecting the Makah Tribe.

Habitat Division. The primary goal of the Habitat Division is to protect and restore freshwater aquatic resources on the Makah Reservation and within the Makah U&A. Principal activities of this division include participating with other tribal departments regarding planning, development, and resource extraction projects that affect freshwater resources; participating in habitat enhancement with WDFW under the State of Washington Forest Practices Act; identifying, prioritizing, and implementing habitat rehabilitation projects benefiting aquatic habitat on the Makah Reservation and in the U&A; participating in recovery efforts of Lake Ozette sockeye salmon; and developing watershed planning and protection efforts with adjacent communities to protect aquatic resources on the Makah Reservation and U&A.

Salmon Field Research and Monitoring Program. This program of the Habitat Division conducts field research and data collection on local salmon stocks for use in fishery management, stock assessments, and evaluation of salmon recovery programs. Many of the division's projects are ongoing projects with long-term data sets that can be used to assess population trends over many years. The division's main project areas are Lake Ozette sockeye monitoring, coho smolt out-migration monitoring, adult spawner surveys, and coded wire tag recovery.

3.1.2.2.2 Makah Comprehensive Economic Development Strategy

The Makah Tribe's Comprehensive Economic Development Strategy (Makah Tribe 2006b) identifies the Makah Tribal Council as the approving body for economic development within the reservation. The Makah Tribe obtains most of its tribal income through marina and harbor development, Makah Forest Enterprise, and the Makah Business Enterprises.

Goals identified within the plan include the following:

- Determine the feasibility of and priority ranking for seven projects associated with marina and harbor development (marina expansion, haul-out facility, upgraded marine fuel float [for large vessels in the fishing fleet], aquaculture, log dump expansion, Neah Bay Harbor deep-water entry, and cruise ship facility).
- Develop a small business program for ancillary businesses that support, enhance, and fulfill needs associated with the new marina.
- Expand the forested land base for the Tribe.
- Study the feasibility of a marine fish hatchery.
- Provide academic and business training and education.
- Diversify the Makah fishing industry, specifically the whiting fishery.
- Identify new projects consistent with the Makah Tribal Land Use Committee, including a visitor center (that may be associated with an ocean-front cabin resort and motel), road improvements, boardwalk (walking paths on beach side of downtown), trails for tsunami escape ways, walking path, and a new development area that would provide a wellness/medical center, senior citizen apartments, clinic staff housing, baseball fields, and new Makah Tribal Council offices.

Other priorities included in the plan are a new clean water source for tribal use, projects that provide for downtown revitalization, Shi Shi Trail expansion, tribal communications network upgrades, a potential wind generation development, and opportunities to provide value-added seafood processing.

3.1.2.1.2 Makah Living Forest Management Plan

The Makah Living Forest Management Plan (Makah Tribe 2009) identifies goals and objectives for maintaining a desired future condition for the Tribe's forest resources. The intent of the forest plan is to guide harvest of mostly second-growth timber while allowing for harvest of only small, scattered pockets of older timber (exceeding 100 years of age) in an attempt to keep the remaining, large, contiguous blocks of older timber intact. Annual harvests of 8.5 million board feet are expected to achieve this goal, while providing for a long-term sustainable timber harvest

level. Approximately 23,437 acres (78 percent of the reservation) are managed for timber harvest. The Tribe has also acquired, and continues to acquire, land off the Reservation for forest management.

3.2 Water Quality

3.2.1 Introduction

The following section describes the management and existing condition of water resources in the action area. Topics addressed include drinking water sources, shellfish harvest areas, and existing practices for the prevention of and response to spills of fuel and other contaminants. This section also addresses solid waste disposal as it relates to options for disposal of a whale carcass. Ocean currents and nearshore mixing are discussed in Section 3.3 (Marine Habitat and Species).

3.2.2 Regulatory Overview

The federal Clean Water Act (33 USC 1251 *et seq.*) establishes standards and regulations for protecting the quality and beneficial uses of the nation's waterways and regulates navigable waters of the United States. Federal agencies responsible for enforcing the Clean Water Act include EPA and the Army Corps of Engineers. On the Makah Reservation, EPA has delegated authority under sections 303(c) and 401 (both water quality standards and implementation plans and dredge and fill permits) of the Clean Water Act to the Makah Tribe. On the Makah Reservation, Makah Health Code Title III states that "it shall be a violation [of the Health Code] to conduct activities in the watershed which may degrade the physical, chemical, microbiological, viral, or radiological quality of the source of supply." All proposed activities require a written permit from the Tribal Council. EPA has retained some authority over Clean Water Act management on the Makah Reservation and administers programs such as the National Pollutant Discharge Elimination System under section 402.

Off the Makah Reservation, EPA has delegated authority over state waters (including sections 401 and 402) to Ecology, which is responsible for the implementation of the Washington State Water Pollution Control Act (RCW 90.48). This law is intended to maintain the highest possible standards for all waters of the state consistent with public health and enjoyment; the propagation and protection of wildlife, birds, game, fish, and other aquatic life; and prevention and control of pollution within waters of the State of Washington. Ecology has set water quality standards to protect the beneficial uses of surface waters. Ecology has established fresh and marine water quality standards for fecal coliform bacteria (an indicator of fecal contamination); dissolved oxygen; total dissolved gas; temperature; pH; turbidity; aesthetics; and toxic, radioactive, and deleterious materials (WAC 173-201A-210).

Ecology routinely collects marine water quality data as part of the long-term Marine Waters Monitoring Program initiated in 1967. Ecology uses these long-term data to assess marine water quality in Washington State, including coastal estuarine areas represented by Willapa Bay and Grays Harbor (Ecology 2012a). The agency uses these data to differentiate inter-annual and seasonal variations from those resulting from human activities at specific locations. Ecology uses the data primarily to maintain the federal Clean Water Act 303(d) list of impaired waterbodies throughout the state, and 305(b), the report describing the overall status of the waters of the state.

3.2.3 Existing Conditions

The primary saltwater resources in the action area include the Pacific Ocean from the mouth of the Strait of Juan de Fuca to the EEZ boundary and the western portion of the Strait of Juan de Fuca that includes the Makah Tribe's U&A (Figure 3-1). The EEZ extends up to 200 miles (321.9 km) offshore, and coastal states have the right to explore, exploit, and manage within its limits. Freshwater resources in the action area occur in portions of Water Resource Inventory Areas 20 (Soleduck-Hoh) and 19 (Lyre-Hoko), and portions of the Makah Reservation fall within both. Major rivers include the Wa'atch and Sooes Rivers, the two main tributaries that drain into Makah Bay from the Makah Reservation, as well as the Ozette River, which runs from Ozette Lake to the nearshore area of the Olympic National Park (Figure 3-2). These rivers all occur in Water Resource Inventory Area 20. Numerous additional smaller streams in the action area drain to the Pacific Ocean, the Strait of Juan de Fuca, and Neah Bay. Based on information Ecology provided, these waterbodies have extraordinary water quality, and none of the designated uses (shellfish harvesting, primary contact recreation, wildlife habitat, harvesting, commercial navigation, boating, and aesthetics) is restricted (WAC 173-201A-210).

Ecology implements marine water quality management activities in Puget Sound and the outer coastal estuaries based, in part, on periodic quantitative water quality monitoring data. The data are also used for interdisciplinary efforts aimed at assessing the health of marine ecosystem components, ranging from eelgrass to salmon, because these organisms live in and are affected by marine water and its quality.

Ecology has not listed the Pacific Ocean, the Strait of Juan de Fuca, Neah Bay, or any of the rivers and streams within the action area as impaired for water or sediment quality parameters. These parameters generally include temperature, dissolved oxygen, pH, nutrients, bacteria, metals, and toxic substances (WAC 173-201A-210). In addition, Ecology and the Washington Department of Health have monitored for fecal bacteria through the BEACH program at six beaches in the Makah U&A: Dakwas Park Beach, Front Street Beach, East Hobuck Beach, Sooes

Beach, Third Beach, and Warmhouse Beach (Figure 3-2). Of the nearly 2,500 samples taken between 2010 and 2013, fecal bacteria levels (*Enterococcus*) exceeded the EPA's water quality limits on just 35 occasions with half of these from sampling sites at Dakwas Park Beach in Neah Bay (Ecology 2013a).

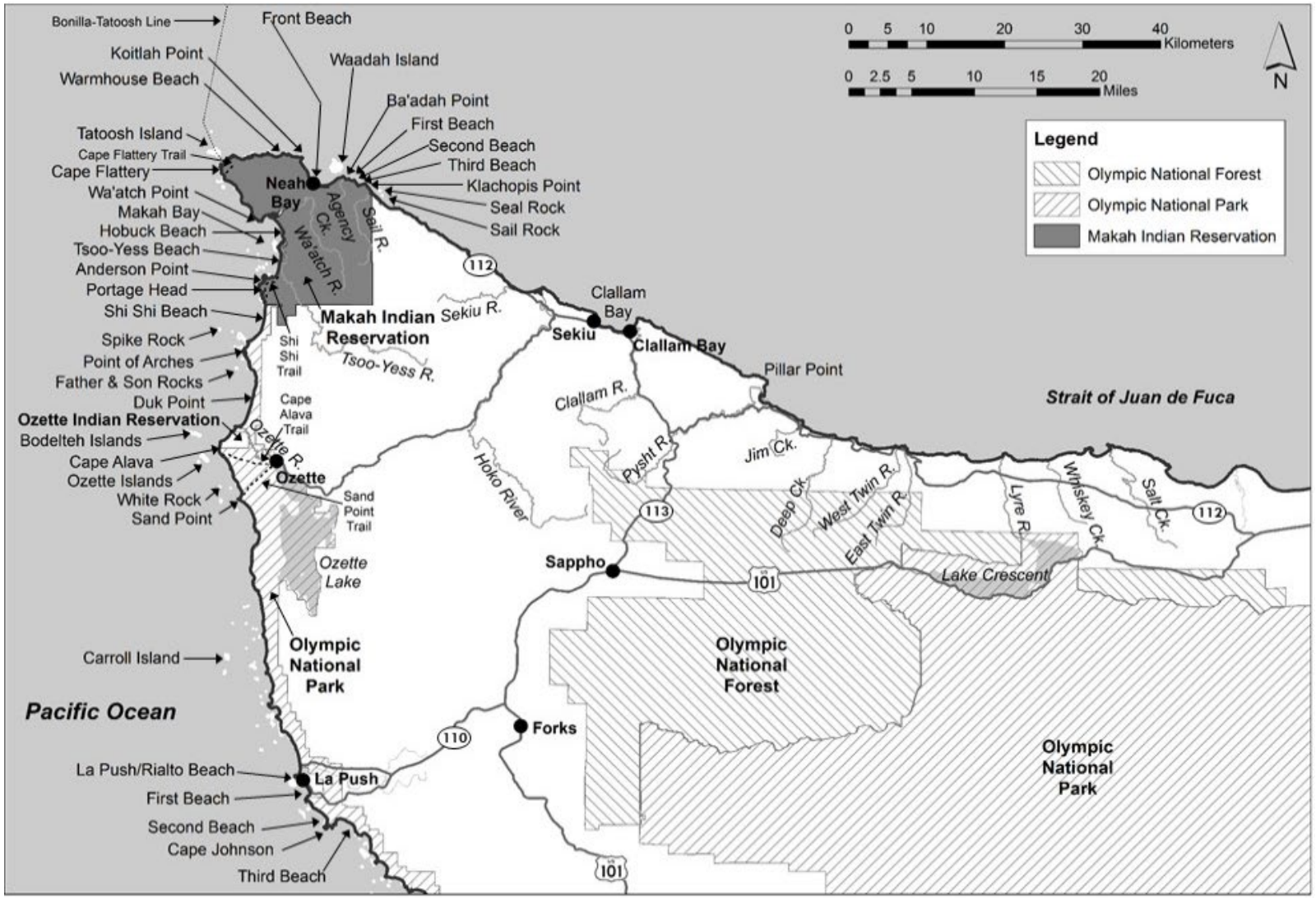


Figure 3-2. Topographic features of interest.

3.2.4 Drinking Water Sources

Drinking water sources for the Makah Reservation (with three primary settlement areas) are local rivers and the Educket Reservoir (United States Bureau of Reclamation 2006). In 2006, a drought resulted in the Makah Tribal Council issuing a state of emergency for Neah Bay. During this time, the Tribe depended on the U.S. Army to provide water to the reservation via a diesel-powered desalinization system. The Bureau of Reclamation is considering the following options for increasing the availability of drinking water for current use and planned growth:

- Reclamation of Educket Reservoir;
- Development of an additional collection system from three creeks along Cape Flattery;
- Construction and operation of a reverse osmosis desalinization plant that would collect water from the Wa'atch River intertidal zone south of the existing tribal center through an underground collection system near the outlet of the Wa'atch River.

3.2.5 Shellfish

The Washington Department of Health regularly monitors shellfish areas because shellfish tend to accumulate pollutants and generally reflect long-term (chronic) water quality concerns (Washington State Department of Health 2012a). This information supplements the periodic samples Ecology takes at discrete water quality monitoring stations. The state Surface Water Quality Standards also contain criteria to reduce the chance of people becoming ill from eating shellfish or from swimming or wading in waters of the state. Makah Fisheries and the Makah Port Authority also monitor shellfish for contamination. Managers can close shellfish beds to human harvest for three reasons: the presence of human fecal coliforms (typically from failing septic systems), fuel releases, and toxic algal blooms. Fecal coliforms are used as indicators of contamination. Although generally not harmful themselves, they indicate the possible presence of pathogenic (disease-causing) bacteria, viruses, and protozoans that live in the digestive systems of humans and other animals (EPA 1997). Toxins associated with algal blooms include domoic acid, saxitoxin, okadaic acid, and gonyautoxin derivatives. These naturally occurring neurotoxins may be harmful if consumed in significant concentrations, which can occur when people eat crabs or shellfish that have accumulated toxins by feeding on toxic algae.

In 2008, the Washington Department of Health conducted a Sanitary Survey of Neah Bay (Washington State Department of Health 2008). This survey is conducted as part of a routine 12-year evaluation of the Neah Bay commercial shellfish growing area. Shoreline survey information and water quality data indicated that Neah Bay meets the criteria for an Approved classification. A prohibited area was established to accommodate the marina/moorage area and an unclassified

area exists in the northwest portion of the bay. The Sanitary Survey also noted that the major potential sources of pollution in Neah Bay include the overboard discharge of sewage by boats, stormwater, and animals. However, none of these were cited as having had a significant adverse impact on water quality in Neah Bay and the survey noted that elevated bacteria levels in water samples are infrequent and random (except for one site in the prohibited area adjacent to the marina).

In addition to the Neah Bay site, the Washington Department of Health has also mapped an approved commercial shellfish bed in Makah Bay. These are the only two approved commercial shellfish beds within the action area (Washington State Department of Health 2022). Both have been listed as inactive since 2020 due to lack of harvest activities (Washington State Department of Health 2021a and 2021b). Subsistence shellfish gathering takes place at Neah Bay, Makah Bay, and other relatively rocky areas on the reservation. Butter clams, steamer clams, and cockles are gathered on the west and east ends of Neah Bay. A horseclam bed occurs on Front Beach, near where the gray whale was landed in 1999. A pilot project by Makah Fisheries Management with geoduck aquaculture is also underway on Front Beach. Additional species, such as mussels, are gathered in intertidal rock areas throughout the reservation.

In general, the beaches located within the action area are hotspots for algal blooms, at least partially because of the nutrient-rich waters and mixing that occur at the mouth of the Strait of Juan de Fuca (WDFW 2004). Algal blooms are triggered by a complex interaction of environmental conditions, and the duration and timing of closures are difficult to predict. The most recent closure in Neah Bay was due to saxitoxin in August of 2022. Levels remained high for several months and shellfish gathering was reopened in October 2022. In order to reopen, levels must remain below the closure level of 80 micrograms per 100 grams for two concurrent weeks. Closures, while hard to predict, typically occur in the spring – summer months when phytoplankton diversity increases and populations bloom. Different species of shellfish hold onto toxins at different rates which may result in extended closures (E. Miller, Makah Tribe Water Quality Specialist, pers. Comm., March 17, 2023). The most recent review of fecal coliform samples by the Washington Department of Health classified both Makah Bay and Neah Bay as meeting the water quality standards of the National Shellfish Sanitation Program of the U.S. Food and Drug Administration (Washington State Department of Health 2021a and 2021b).

3.2.6 Spill Prevention

The action area includes national and international shipping lanes and is open to recreational boating and commercial and recreational fishing. Wherever marine vessels are present, there is a

risk that pollutants from boat emissions and/or spills will enter the water. However, as discussed above, Ecology has not listed any of the waters of the action area as impaired for water or sediment quality parameters; however, some impairment of marine waters has occurred during major spill events.

The Washington State Department of Ecology maintains a list of organizations that are prepared to respond to emergency spills in Puget Sound, the Strait of Juan de Fuca, and off the Washington coast (Ecology 2022a). As part of Ecology's Spill Prevention, Preparedness, and Response Program, it stations a rescue tug in Neah Bay seasonally to assist tankers and cargo ships that are drifting or need support during bad weather (Ecology 2023). In general, these pollutants (such as hydrocarbons) are associated with gasoline and diesel engines used by transiting vessels, and they enter the environment from spills and/or exhaust. Smaller oil spills could occur during fueling and maintenance operations at docks.

The nearshore portion of the Makah U&A corresponds largely with the designated area to be avoided for the OCNMS. This designation is meant to reduce the potential for catastrophic oil spills by encouraging big ships (carrying large amounts of bunker fuel) to avoid the nearshore areas of the coast. While this designated area does not encompass the entire OCNMS, its boundaries protect sanctuary resources most at risk from vessel casualties, while being compatible with existing vessel traffic lanes (Galasso 2000). See Subsection 3.1.1.1.3, Olympic Coast National Marine Sanctuary, Current Issues, Area to be Avoided, and Subsection 3.13.2, Transportation, Regulatory Overview.

3.2.7 Solid Waste Disposal

Until 2012, there was a landfill at Neah Bay (the Warmhouse Beach dump site) used by U.S Air Force (USAF), U.S. Navy, U.S Army, Bureau of Indian Affairs (BIA), Indian Health Services (IHS), and the Makah Tribe for disposal of solid and hazardous waste for at least 40 years. The facility, under the jurisdiction of the Makah Tribal Council, was the only landfill in Clallam County that accepted municipal solid waste (Parametrix 2007). In the 1980s, a solid waste management plan for the Makah Reservation recommended closure of the dump site and construction of a transfer station to haul waste to the closest permitted disposal facility (Paul S. Running and Associates 1983). Previous reports indicate that materials disposed by the USAF included paint cans, paint, paint thinner, pesticides, lubricants, waste oil, asbestos-containing materials, and sewage sludge (Tecumseh 1997). Items identified in the dump include batteries, tires, appliances, construction materials, car bodies, glass, and hypodermic needs (White Shield 1995). Contaminants found in environmental samples at the Warmhouse Beach Dump and in the

creeks include polycyclic aromatic hydrocarbons (PAHs), polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), dioxins and furans, perchlorate, pesticides, metals, and asbestos. Mussels from Warmhouse Beach were found to contain elevated concentrations of lead. A comprehensive solid waste management plan update prepared for Clallam County indicated that siting a new municipal solid waste landfill in Clallam County is not feasible because of various factors, including climate, geography, land use, and the availability of a lower-cost option to export waste (Parametrix 2007).

In the fall of 2012, the Tribe opened a solid waste transfer station in Neah Bay and closed the Warmhouse Beach dump site (Greene 2013). The Makah Transfer Station includes a number of features aimed at recycling and sustainability, including sites to collect recyclable materials (e.g., paper, metal, and plastic) and collect hazardous wastes for proper disposal, and natural stormwater controls that capture water and filter sediments in natural vegetated swales and channels before allowing it to seep into the adjacent wetlands (Ridolfi 2013). Waste from the Makah Transfer Station is eventually transported in containers via truck and railway to the Roosevelt Landfill in Klickitat County, Washington (J. Garcelon, Clallam County Environmental Health Specialist, pers. Comm., November 27, 2013).

In response to a petition from the Tribe, the U.S. Environmental Protection Agency (EPA) added the Warmhouse Beach dumpsite to the General Superfund section of the National Priorities List on December 12, 2013 (78 FR 75475). The Makah Tribe considers cleanup of the dump of highest environmental priority (EPA 2013). This listing allows the EPA to utilize funds under the Comprehensive Environmental Response, Compensation, and Liability Act to clean up the site. Since the listing in 2013, the EPA has undertaken a remedial investigation in collaboration with the Makah Tribe to understand the nature and extent of the contamination at the site and to assess the associated risks to human health and the ecology. Once the level of risk is determined, a feasibility study can be undertaken to identify and compare cleanup alternatives (EPA 2021).

Given that the Warmhouse Beach site is now closed, it is highly unlikely that any whale carcass remains would be brought there for disposal. It is possible that some remains could be brought to the new transfer station; however, this too is unlikely given the high costs of shipping to a landfill. The Tribe may choose to allow unused portions of the whale carcass to decompose at the beach landing site or at other land-based sites, especially if there was interest in retrieving the whale bones after natural decomposition had made them more suitable for handicraft. It is most likely that whale carcass remains would be disposed of in deep marine waters of the Strait of Juan de Fuca or the Pacific Ocean. Doing so would lessen the chance for adverse water quality impacts

in nearshore waters (e.g., impairment of shellfish growing areas) as well as in the vicinity of the transfer stations (e.g., via decomposition and seepage).

The two primary generators of animal carcasses in Clallam County are the Humane Society (in Port Angeles) and Battelle Marine Sciences Laboratory (near Sequim). Both organizations use Petland Crematorium in Aberdeen for cremation of animals. Battelle sends hazardous carcasses to Pacific Marine Laboratory for disposal. The Clallam County Road Department buries roadkill carcasses at remote locations on public lands scattered throughout the county (Parametrix 2007).

3.3 Marine Habitat and Dependent Species

3.3.1 Introduction

The entire range of the ENP gray whale stock is vast and crosses many large marine ecosystems, including the Pacific Central American Coast, California Current, Gulf of Alaska, and Bering and Chukchi Seas (Longhurst 2006; Sherman and Alexander 1989). The action area is located within a coastal transitional zone between the Gulf of Alaska and the California Current large marine ecosystems (Sherman and Alexander 1989; Longhurst 1998). These ecosystems are largely defined by the splitting of the North Pacific Current into two broad coastal currents as it encounters the U.S./Canada west coast: the north-flowing Alaska Current and the south-flowing California Current (see Figure 3-1). Within the California Current Province, scientists regularly study and predict physical and biological features and processes in the northern California Current ecosystem, which is generally described as extending from northern California to Vancouver Island (e.g., Field et al. 2001; Field et al. 2006; Hickey and Banas 2008; Sydeman and Elliott 2008; Harvey et al. 2017; Wells et al. 2017), though some studies extend only to the U.S.–Canada border in the north because of differing management regimes between the two countries (Field et al., 2001; Field et al., 2006).

Some whales from the ENP stock forage seasonally in the semi-enclosed inland waters of Washington State and British Columbia, an area collectively known as the "Salish Sea." As described below in Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales, some PCFG whales forage during the summer/fall in the westernmost part of the Salish Sea (in the Strait of Juan de Fuca). Additionally, each spring a small number of whales from the ENP stock break off from the northward migration to feed for 2-3 months in isolated areas of North Puget Sound. Therefore, we have included information about the Salish Sea in this chapter to clarify its overlap with the action area and the potential for the action alternatives to have indirect effects on resources in these waters.

Thus, the action area is associated with the confluence of three marine ecosystems: the Gulf of Alaska, California Current, and Salish Sea. For purposes of our MMPA analysis, we took a precautionary approach of examining the impact of the proposed waiver and regulations at an ecosystem scale commensurate with the action area – specifically the northern California Current and Salish Sea ecosystems. These are the smallest recognized marine ecosystems of which ENP gray whales are a part, and, combined, they encompass the entire Makah U&A. The proposed hunt area on the outer Washington coast lies within the U&A.

The marine environment off the coast of Washington is highly energetic, productive, and dynamic, supporting a wide range of invertebrates, fish, and marine wildlife. The ecological importance of the habitat was acknowledged in the OCNMS designation (NOAA 1993). High biological productivity, diversity of habitats, the wide variety of marine mammals and birds living in or migrating through the area, and the presence of endangered and threatened species and essential habitats were identified as some of the biological resources giving the Sanctuary particular value (refer to Subsection 3.1.1.1, Olympic Coast National Marine Sanctuary, for more detail). The dynamic physical processes and high levels of disturbance experienced along the Washington coast, including the action area, affect ecosystem structure, ecological interactions, and species' recruitment dynamics. Understanding the physical processes in the action area will inform the analysis of potential direct and indirect effects to the ecosystem from activities associated with the proposed whale hunt.

The description of the marine ecosystem that follows is organized by pelagic environment (open water column) and benthic environment (bottom substrata), identifying physical features and processes and biological resources associated with each environment. ENP gray whales and other marine wildlife in the action area are described in more detail in other sections (Section 3.4, Eastern North Pacific Gray Whale, and Section 3.5, Other Wildlife Species).

3.3.2 Regulatory Overview

The conservation, preservation, and management of marine habitat and biological resources in the action area occur under several statutory and regulatory authorities, the most pertinent of which are detailed below.

Under federally granted Coastal Zone Management Act authority, Ecology administers Washington State's Coastal Zone Management Program on the state's shoreline (under the Shoreline Management Act) and waters (under the Aquatic Management Act), except for excluded federal lands (i.e., lands that the federal government owns, leases, or holds in trust, such

as the Olympic National Park coastal strip and the Makah and Ozette Reservations, and other lands the use of which is subject to the sole discretion of the federal government).

Under the National Marine Sanctuaries Act and regulations, marine plants and algae, invertebrates, plankton, and fish are protected and conserved as Sanctuary resources within the boundaries of the OCNMS. Federal designation and management of the OCNMS and protection of Sanctuary resources by NOAA's National Marine Sanctuaries Program under the National Marine Sanctuaries Act, including protection and management of habitat such as bottom formations and substratum, is described above in Subsection 3.1.1.1, Olympic Coast National Marine Sanctuary. Federal designation and management of the rocks and islands that compose the Washington Islands National Wildlife Refuges are also described above in Subsection 3.1.1.2, Washington Islands National Wildlife Refuges.

The PFMC and NMFS are the primary federal management authorities for managing and conserving living marine resources, including marine fish and plants, out to 200 miles (322 km) from shore under the Magnuson-Stevens Act and the North of Falcon planning process. Northwest Indian tribes and WDFW also participate in fisheries management. Under the Magnuson-Stevens Act, NMFS and the PFMC also protect habitat identified as essential for commercially important fish species. Essential fish habitat is defined under the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802 Section 3(10)). Regulatory guidelines elaborate that the words 'essential' and 'necessary' mean that essential fish habitat should be sufficient to "support a population adequate to maintain a sustainable fishery and the managed species' contributions to a healthy ecosystem." The PFMC describes essential fish habitat in its fishery management plans, minimizes impacts to essential fish habitat resulting from fishing activities, and consults with NMFS about activities that might affect essential fish habitat. The Council may use fishing gear restrictions, time and area closures, harvest limits, and other measures to lessen adverse impacts on essential fish habitat. The Magnuson-Stevens Act also encourages NMFS to designate habitat areas of particular concern. These are specific habitat areas, a subset of the much larger area identified as essential fish habitat, that play a particularly important ecological role in the fish life cycle or that are especially sensitive, rare, or vulnerable. Designating habitat areas of particular concern allows the PFMC and NMFS to focus their attention on conservation priorities during review of proposals, affords those habitats extra management protection, and gives the fish species within these areas an extra buffer against adverse impacts.

Under the ESA, NMFS and USFWS are responsible for the conservation of threatened and endangered species, including fish, wildlife, and plants under their jurisdiction. The agencies are required, to the maximum extent prudent and determinable, to identify and designate critical habitat for threatened and endangered fish and wildlife species under their jurisdictions. Critical habitat is 1) specific areas within the geographical area occupied by the species at the time of listing if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and 2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. Under section 7 of the ESA, all federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat. These complementary requirements apply only to federal agency actions, and the latter apply only to habitat that has been designated. A critical habitat designation does not set up a preserve or refuge; it applies only when federal funding, permits, or projects are involved.

3.3.3 Existing Conditions

3.3.3.2 Pelagic Environment

The term 'pelagic' is commonly used in reference to the upper water column of the open ocean that is not in association with the ocean bottom or bathymetric features. The oceanographic processes in the action area are generally large in scale, with ocean circulation driven by a major eastern boundary current system, the California Current System. Local conditions are energetic, dynamic, and affected by oceanographic processes operating across a spectrum of temporal and spatial scales. These physical processes and their pronounced effects on the area's biota are described in the following sections.

3.3.3.2.1 Physical Features and Processes

Large-scale Ocean Currents

The action area on the Washington coast is situated in an eastern boundary current system where the North Pacific Current divides into the northward flowing Alaska Current and the California Current System to the south (Hickey 1998; Gramling 2000). The California Current System is composed of the California Current, the California Undercurrent, the wintertime Davidson Current, and possibly a subsurface Washington Undercurrent. The relative strength of these currents and their influence on the temperature, salinity, flow, and productivity of the action area varies considerably over seasonal and interannual time scales (Hickey 1998; Hickey and Banas 2003; MacCall et al. 2005). The components of the California Current System are described

below, along with discussion of how they contribute to the dynamic physical environment of the action area.

The California Current extends up to 600 miles (966 km) offshore and ranges from the Pacific Northwest south to Baja California (Hickey 1979; Miller 1996; Hickey 1998; Burtenshaw et al. 2004). The California Current is a major force in shaping local ecosystems by affecting upwelling, downwelling, and biological production along the Pacific coast (Airamé et al. 2003). Despite being one of the most studied oceanographic systems in the Pacific Ocean, the mechanisms underlying the variability of this meandering current are still obscurely understood and inadequately sampled (Miller 1996). Flow of the California Current is strongest in the summer and early fall and weakest in the winter (Hickey 1998; Gramling 2000; Hickey and Banas 2003). The California Current is strongly affected by seasonal wind forcing (Thomas et al. 2003), and shifts in regional climate can have dramatic effects on its flow (e.g., during El Niño events, the flow of the California Current is unusually weak) (Hickey 1979; Gramling 2000). For further description of El Niño events, see El Niño Southern Oscillation Cycle below in this subsection.

The California Undercurrent is a permanent, relatively narrow (6- to 25-mile/9.6- to 40.2-km), deep subsurface feature that flows northward over the continental slope from Baja California to Vancouver Island (Reed and Halpern 1976; Hickey 1998; Neander 2001). The California Undercurrent transports warm, saline, low-oxygen, equatorial water to the northern Pacific, with strongest northward flows in the summer or early fall and minimum flows in the spring (Hickey 1998; Neander 2001; Hickey and Banas 2003). During El Niño years, when flow of the California Current is weakened, the California Undercurrent is unusually enhanced (Hickey 1979; Gramling 2000).

The Davidson Current is an inshore, seasonal, northward flowing feature that develops when the southward flowing California Current is weaker and situated further offshore. The Davidson Current is approximately 60 miles (97 km) wide, extends seaward of the continental slope, and transports warm, saline, low-oxygen, high-phosphate, equatorial water to the north (Gramling 2000; Hickey and Banas 2003). The Davidson Current develops along the Washington coast in September, is well established in January, and dissipates by May (Purdy 1990; Hickey and Banas 2003). The strongest flow of the current occurs during the winter months (Hickey and Banas 2003). There is speculation that the Davidson Current is a surface expression of the California Undercurrent (Hickey 1979).

There is some indication that a southward undercurrent, the Washington Undercurrent, occurs over the continental slope of Washington and Oregon in the winter (Werner and Hickey 1983; Purdy 1990). This undercurrent is located 1,000 to 1,600 feet (305 to 488 m) deep, deeper than the northward-flowing California Undercurrent (Hickey 1998; Hickey and Banas 2003).

Dynamic Processes and Variability

Seasonal Variability, Upwelling, and Downwelling

Seasonal variations in the oceanography of the action area occur in response to various forcing events, including solar heating and cooling, wind mixing, freshwater runoff, and coastal upwelling (Brueggeman et al. 1992). The seasonal pattern of the physical environment is typified by periods of intense coastal upwelling (April through September) and periods of relaxed winds (October through March) punctuated by strong winter storms (November to March).

Upwelling is a wind-driven, dynamic process that brings nutrient-rich deep water to the surface and transports nutrient-poor surface waters offshore (Mann and Lazier 1991). During spring and summer, northwesterly winds and the earth's rotation combine to push the surface waters offshore. This, in turn, results in the movement of deeper cold water upward into surface waters, introducing nitrate, phosphate, and silicate nutrients essential for phytoplankton production. Periods of wind relaxation lasting 2 to 6 days may alternate with upwelling-favorable conditions during the spring, contributing to dynamic and patchily distributed nutrient availability and productivity. The strongest upwelling in the action area occurs during July and August (Brueggeman et al. 1992; Airamé et al. 2003). Prolonged periods of wind relaxation may occur from late summer to early fall. The timing and intensity of regional upwelling varies from year to year (Huyer et al. 1979; Strub and James 1988; Bograd et al. 2009) and with changes in long-term climatic phenomena (El Niño Southern Oscillation Cycle and Pacific Decadal Oscillation in this section, below) (Huyer and Smith 1985; Barth and Smith 1997).

In October or November, there is a shift in wind direction that results in predominant winds that flow from the east/southeast (Norman et al. 2004), resulting in the onshore transport of surface waters and the conditions typical of fall and winter that favor downwelling (Hickey 1998). During periods of diminished upwelling or downwelling, the survivorship and reproductive success of planktivorous invertebrates and fishes decrease in response to reduced plankton abundance and productivity (Airamé et al. 2003; Bograd et al. 2009). Between late November and mid-March, low pressure systems from the Gulf of Alaska generate strong winter storms, southerly winds, and large waves in the Pacific Northwest (Strub and Batchelder 2002; Airamé et

al. 2003). These winter storms create intense vertical mixing, usually persist for only a few days, and are important sources of localized oceanographic disturbance.

Eddies and Fronts

During the spring, the large counterclockwise Juan de Fuca Eddy (or Tully Eddy) (Tully 1942) develops offshore of northern Washington at the mouth of the Strait of Juan de Fuca (Burger 2003; Hickey and Banas 2003). The eddy forms as a result of the interaction between effluent from the Strait of Juan de Fuca, southward wind-driven currents along the continental slope, and the bathymetry of the region (Hickey and Banas 2003). At its maximum, the eddy has a diameter of approximately 30 miles (48 km), and it is the dominant circulation pattern off northern Washington until its decline in the fall (Freeland and Denman 1982; Hickey and Banas 2003). The eddy upwells deep, cold, nutrient-rich water into surface waters, resulting in locally enhanced biological productivity (Freeland and Denman 1982; Thomson et al. 1989; Freeland 1992).

Ephemeral eddies and offshore filaments of variable duration (days, weeks, months, years) are also generated by meanders of the California Current, bathymetric features, and coastal upwelling events. Such ephemeral features are most common during summer and fall in the California Current System (Huyer et al. 1998; Barth et al. 2000; Strub and James 1988; Ressler et al. 2005). As with the Juan de Fuca Eddy, ephemeral counterclockwise eddies stimulate enhanced productivity by drawing cooler, nutrient-rich waters to the surface, while clockwise eddies are associated with warmer, nutrient-poor, and less productive conditions. Ephemeral eddy-like features are also generated by the Columbia River plume (see Columbia River Plume below in this section) (Yankovsky et al. 2001; Berdeal et al. 2002). Subsurface eddies are generally observed within and overlying submarine canyons off the Pacific coast (Hickey and Banas 2003), providing an effective mechanism for locally increased productivity and the suspension of sediment and organic detritus over these features (Hickey 1995).

Oceanic ‘fronts’ are zones of high water property gradients (e.g., gradients in temperature, salinity, and nutrients). Ephemeral fronts often exist at the interface between upwelled water and ambient coastal water, and the onset and relaxation of upwelling may result in the cross-shelf transport of planktonic organisms associated with these gradients. Persistent fronts tend to occur regularly at certain locations along the coast (e.g., capes and points) and may extend 60 miles (97 km) offshore (Short 1992). Ephemeral fronts generated off of Vancouver Island may extend southward off of the Washington coast near the action area (Freeland and Denman 1982).

Columbia River Plume

The Columbia River plume, through its influence on sea surface salinity, has a major effect on the coastal oceanography of the Pacific Northwest, including the action area. In general, salinity increases southward along the Pacific coast (Hickey and Banas 2003). However, the low-salinity plume of freshwater discharge from the Columbia River constantly changes direction, depth, and width in response to variation in discharge and fluctuations in local wind strength and direction (Hickey et al. 1998; Berdeal et al. 2002; Hickey and Banas 2003). In spring and summer, the plume moves southward, well offshore of the Oregon shelf (Hickey and Banas 2003) and has no influence on the coastal oceanography of the action area. During the winter, however, the plume flows northward and can generate local currents with magnitudes on the order of wind-driven currents in the near-surface layer (Hickey et al. 1998). In addition to seasonal variability, the structure and magnitude of the Columbia River plume has significant interannual and long-term variability (Hickey and Banas 2003). For example, in years of high snowmelt in the Pacific Northwest, fresh water generated from the plume can influence coastal oceanography for prolonged periods.

El Niño Southern Oscillation Cycle

El Niño Southern Oscillation events (including both El Niño and La Niña events) produce extreme interannual anomalies in global climate, atmospheric circulation, and oceanographic processes (Jacobs et al. 1994; Schwing et al. 1996). El Niño Southern Oscillation conditions typically last 6 to 18 months, although they can persist for longer periods (Barber and Chavez 1983; Lynn et al. 1998; Durazo et al. 2001; Schwing et al. 2002a; Schwing et al. 2002b). El Niño conditions occur when unusually high atmospheric pressure develops over the western tropical Pacific and Indian Oceans, and low sea level pressures develop in the southeastern Pacific (Trenberth 1997; Conlan and Service 2000). The trade winds consequently weaken in the central and west Pacific, reducing the normal east to west surface water transport. Upwelling along South America decreases, resulting in shoaling of the thermocline[1], increased sea surface temperatures, and diminished productivity across the mid to eastern Pacific (Donguy et al. 1982). Rainfall patterns also shift eastward across the Pacific, resulting in increased (sometimes extreme) rainfall across the southern United States and Peru (Conlan and Service 2000). La Niña is the opposite phase of El Niño in the El Niño Southern Oscillation Cycle. La Niña is characterized by strong

[1] A thermocline is the depth where water temperature changes relatively rapidly and separates less dense, warmer waters from denser, colder waters.

trade winds that push the warm surface waters back across to the western Pacific (Schwing et al. 2000). Under these conditions there is increased upwelling along the eastern Pacific coastline, the thermocline in the eastern Pacific becomes shallower, and there is increased upwelling and productivity.

Although the direct effects of El Niño Southern Oscillation events are observed in the equatorial latitudes, significant correlations exist between the climate of the Pacific Northwest and El Niño/La Niña events (e.g., Pulwarty and Redmond 1997; Cayan et al. 1999). In the Pacific Northwest, El Niño events are characterized by increases in ocean temperature and elevated sea level (4 to 12 inches/10.2 to 30.5 cm), enhanced onshore and northward flow, and reduced coastal upwelling (Crawford et al. 1999; Smith et al. 1999; Freeland 2000; Airamé et al. 2003). Historically, the region was impacted by strong El Niño events in 1940, 1958, 1983, 1992, 1997 to 1998, and 2004 to early 2005 (Hayward 2000; Lyon and Barnston 2005). The 1997 to 1998 El Niño was one of the largest ocean perturbations in the historical record, inducing a 4 to 5 °Fahrenheit (F) (2.2 to 2.8 °Celsius [C]) warming of sea surface temperatures over the historical average and profoundly affected the productivity and marine ecology of the region (Castro et al. 2002; Airamé et al. 2003; Childers et al. 2005; Zamon and Welch 2005). This El Niño was immediately followed by an equally strong, cold La Niña event in 1999. While the effects of such events can be conspicuous in the water column, Paine (1986) noted that they may be masked or diluted for the benthic community. For the ENP gray whale, Subsection 3.4.3.3, Distribution and Habitat Use, discusses the effect of oceanic climatic cycles, including El Niño/La Niña events, on gray whale distribution and habitat use; and Subsection 3.4.3.4.2, Stranding Data, discusses the potential relationship between the 1997 and 1998 El Niño events and the ENP gray whale unusual mortality event.

Marine Heatwaves

Marine heatwaves (MHWs) are extreme warm sea surface temperature (SST) events that persist for days to months and can extend up to thousands of square kilometers (Scannell et al. 2016; Frölicher et al. 2018). Hobday et al. (2016) outlined three specific characteristics to define MHWs: (1) an area of anomalously warm water compared to a 30-year baseline for that area; (2) prolonged duration lasting for at least five days; and (3) discrete in that there is a defined start and end date that may include gaps of less or no warming. The SST generally exceeds the local 90th percentile for the duration of the five-day minimum period. MHWs are believed to be caused by unusual weather patterns that either cause the ocean to absorb more heat, which warms the surface layer, or prevent heat from escaping from the ocean (NOAA Research 2019). Anomalous

barometric pressure at sea level is often linked to MHWs because it suppresses heat loss from the ocean to the atmosphere (Bond et al. 2015; Leising et al. 2015; Cavole et al. 2016).

The frequency of MHWs has increased globally since 1985 as the upper ocean temperatures have warmed around the world (Oliver et al. 2018). It is very likely that 84-90 percent of MHWs have occurred between 2006 and 2015, caused by increased temperatures due to anthropogenic climate change. Future MHWs are projected to increase in frequency, duration, spatial extent, and intensity (maximum temperature) (IPCC 2019). The largest changes in MHW occurrences are projected for the tropical Pacific and the Arctic Ocean (Frölicher et al. 2018). There have been six notable MHWs in recent history: in the northern Mediterranean Sea in 2003; off the Western Australian coast in 2011; in the northwest Atlantic in 2012; in the northeast Pacific from 2013 to 2015; off of southeastern Australia in 2015 and 2016; and through northern Australia in 2016 (Oliver et al. 2018). The MHW in the northeastern Pacific from 2013 to 2015, referred to as the "Blob," was the largest recorded MHW (Frölicher & Laufkötter 2018). During that event, the West Coast of North America experienced increased marine layer stratification, decreased nutrient fluxes (due to decreases in upwelling), and the deepening of the nutricline (Cavole et al. 2016). Offshore ocean temperatures reached as high as 4 degrees Celsius above the climatological mean (Leising et al. 2015). A Blob-like event developed in the northeastern Pacific Ocean again in the summer and fall of 2019. It was the second largest MHW event in terms of area and was one of the top five largest MHWs recorded within the last 40 years in the region (Northwest Fisheries Science Center 2019).

The long-term impacts of MHWs remain uncertain. Short-term impacts have been severe in some regions. Recent MHWs have resulted in kelp forest loss, coral bleaching, decreases in surface chlorophyll, mass mortality of marine invertebrates, greater toxicity of harmful algal blooms (HABs), rapid shifts in species ranges, fisheries closures, increases in seabird and sea lion disability and mortality, and increases in whale entanglements (Cavole et al. 2016; McCabe et al. 2016; Oliver et al. 2018; Santora et al. 2020). Marine species appear more susceptible to acute environmental extremes than to slower changes in ocean temperature (Oliver et al. 2018). Many species have shifted their distributions north during the warming events in the North Pacific Ocean (Cavole et al. 2016), similar to range shifts witnessed during El Niño events (Sanford et al. 2019). Some species' ranges return to their normal extent once the warming has stopped; other species have developed relict populations that slowly disappear or sink populations that can persist indefinitely (Sanford et al. 2019).

The Blob resulted in lower primary productivity from weak upwelling and extremely low levels of ocean mixing and a shift in warm water copepod abundance in the northern California Current (Leising et al. 2015; Di Lorenzo & Mantua 2016). The decrease in productivity led to a decrease in the amount of krill near the coast, which resulted in prey switching by large cetaceans such as humpback whales and large die-offs of some seabirds (Cavole et al. 2016; Harvey et al. 2020). HABs in Washington, Oregon, and California resulted in increased levels of domoic acid that delayed and closed fisheries and led to the death of many seabirds (Cavole et al. 2016; Di Lorenzo & Mantua 2016). However, some of these impacts appear to be temporary. For example, northern copepod biomass has increased steadily since 2016, as has the mean body length of krill (Harvey et al. 2020). Another study found that ecological communities returned back to their usual state following disturbance after the Blob (Hunsicker et al. 2022). Although reported entanglements of humpbacks were higher in 2019 than pre-2014 levels, they were lower than the number of reports received each year from 2015-2018 (Harvey et al. 2020). In addition, while it is unclear what, if any, impact the Blob may have had on the ENP gray whale stock, that stock continued to grow steadily through that event, with a 22 percent increase in abundance estimates in 2014/2015 and 2015/2016 since the 2010/2011 estimates (Durban et al. 2017). Still, the California Current Ecosystem has experienced exceptional ocean warming due to El Niño events and MHWs since 2013, and the impacts of this warming will continue to warrant investigation (Harvey et al. 2020).

Pacific Decadal Oscillation

The Pacific Decadal Oscillation is a long-term (approximately every 20 to 30 years) climatic pattern correlated with alternate regimes of sea surface temperature, surface winds, and sea level atmospheric pressure (Mantua 2002; Mantua and Hare 2002). The Pacific Decadal Oscillation is often described as a long-lived, El-Niño-like pattern of Pacific climate variability with both warm and cool phases (Mantua 2002; Mantua and Hare 2002; Airamé et al. 2003; Minobe et al. 2004). There are, however, noteworthy distinctions between the Pacific Decadal Oscillation and El Niño Southern Oscillation-induced events: (1) Pacific Decadal Oscillation regimes can persist for 20 to 30 years, in contrast to the comparatively shorter duration of El Niño Southern Oscillation events (typically up to 18 months) (Minobe 1997; Minobe 1999; Hare and Mantua 2000; Mantua and Hare 2002); (2) the ecosystem effects of the Pacific Decadal Oscillation are more pronounced in temperate latitudes (Hare and Mantua 2000); and (3) the mechanisms controlling the Pacific Decadal Oscillation are unknown, while those underlying El Niño Southern Oscillation variability have been well resolved (Mantua and Hare 2002). During warm Pacific Decadal Oscillation

regimes, the western and central North Pacific Ocean typically exhibit cold sea surface temperature anomalies, while the eastern Pacific (including the action area) exhibits above-average temperatures and reduced productivity. The opposite conditions exist during cool Pacific Decadal Oscillation regimes. The Pacific Decadal Oscillation has been correlated with markedly different regimes of Columbia River discharge (Mantua et al. 1997), ocean productivity, zooplankton species composition, and forage fish and salmonid recruitment in the Pacific Northwest (e.g., Hare et al. 1999; Tanasichuk 1999; Botsford 2001; Mueter et al. 2002; Gustafson et al. 2006). The Pacific Decadal Oscillation regime shifts are abrupt, with observed shifts occurring in 1925, 1947, and 1977 (Hare 1996; Minobe 1997). The most recent shift, from a warm to a cool phase, occurred in 1998 (Airamé et al. 2003; Peterson and Schwing 2003; Childers et al. 2005; Gómez-Gutiérrez et al. 2005). For the ENP gray whale, Subsection 3.4.3.3, Distribution and Habitat Use, discusses the effect of oceanic climatic cycles, including the Pacific Decadal Oscillation, on gray whale distribution and habitat.

3.3.3.2.2 Biological Resources

Phytoplankton

The biological productivity and composition of the action area is best characterized as diverse, variable, and patchily distributed owing to the dynamic physical processes described above which vary across a spectrum of temporal and spatial scales. Phytoplankton (freely floating photosynthetic organisms) are responsible for the bulk of the primary production in the ocean (the conversion of inorganic carbon to organic matter) and form the basis of the pelagic food web. The distribution and concentration of phytoplankton are affected by ocean currents, vertical mixing, and the rate of photosynthesis. The intensity and quality of light, the availability of nutrients, and seawater temperature all influence rates of photosynthesis (Valiela 1995). The Pacific Northwest coast supports high phytoplankton production, stimulated by the upwelling of nutrient-rich waters and retention of phytoplankton by local oceanographic currents and bathymetric features (Sutor et al. 2005). In general, the Washington coast experiences two seasonal peaks in phytoplankton production; the first occurs from February to April, and the second occurs in October. There is, however, considerable spatial and temporal variability in the production and distribution of phytoplankton caused by the physical oceanographic processes described above. For example, during an El Niño event, less upwelling occurs along the Pacific Northwest coast, fewer nutrients are available for phytoplankton growth, and phytoplankton concentration may decrease by as much as 70 percent compared to an average year (Wheeler and Hill 1999; Thomas and Strub 2001).

In addition to controlling the distribution and concentration of phytoplankton, physical oceanographic processes also affect the species and size composition of phytoplankton in the water column. For example, the onset and relaxation of upwelling events result in dramatic shifts in the phytoplankton community within the California Current System. Newly upwelled water along the shelf is composed chiefly of high concentrations of large, chain-forming diatoms. Following upwelling events, the phytoplankton community is predominantly composed of reduced concentrations of small phytoplankton species (less than 5 microns in size) (Sherr et al. 2005) better adapted to survival in low-nutrient conditions. Similarly, during low productivity conditions induced by El Niño events, 80 to 90 percent of the phytoplankton community along Pacific Northwest shelf waters consists of these smaller phytoplankton species (Corwith and Wheeler 2002; Sherr et al. 2005).

Zooplankton

Zooplankton are a taxonomically diverse group of organisms that consume phytoplankton (as well as other zooplankton). Juvenile crabs (megalopae), copepods, amphipods, euphausiids, and chaetognaths tend to dominate the near-surface zooplankton community (Peterson 1997; Reese et al. 2005; Swartzman et al. 2005). The distribution of zooplankton along the coastline can be described as spatially and temporally patchy, reflecting the variable concentration and distribution of phytoplankton prey, as well as the underlying dynamic physical environment (Reese et al. 2005; Ressler et al. 2005). The highest zooplankton concentrations typically are found within 90 miles (145 km) of the coastline (Swartzman and Hickey 2003; Ressler et al. 2005; Swartzman et al. 2005) in the upper 66 feet (20 m) of the water column over the inner and mid shelf (Peterson and Miller 1975; Peterson and Miller 1977). Zooplankton densities along the Pacific Northwest are highly seasonal, with summer densities ten times greater than those observed during the winter months (Burger 2003; Reese et al. 2005). Copepods form the largest fraction of the zooplankton biomass. Although smaller copepods are numerically dominant (e.g., *Acartia* spp.), larger copepods make up most of the zooplankton biomass (e.g., *Calanus* spp.) (Strickland 1983) and tend to feed on the diatoms that dominate under upwelling conditions. Euphausiids, amphipods, and mysids are also important components of the zooplankton assemblage (Strickland 1983). Ephemeral, seasonal, interannual, and interdecadal physical oceanographic processes (described above) largely control the abundance, distribution, and species composition of zooplankton in the region (e.g., Batchelder et al. 2002; Botsford 2001; Peterson 1999; Peterson and Miller 1977; Peterson and Keister 2003; Tanasichuk 1999; Bograd et al. 2009).

Fish and Invertebrates

The productivity of the action area is strongly affected by the California Current System and the dynamic physical oceanographic processes that induce variability within the California Current System, as noted in Subsection 3.3.3.1.1, Physical Features and Processes, Large-scale Ocean Currents. The high productivity of the region produces a diverse plankton community that, in turn, supports a large assemblage of pelagic marine fish and invertebrates dependent upon this spatially and temporally patchy planktonic food supply (e.g., diatoms, dinoflagellates, copepods, euphausiids, and other organisms). Marine fish and invertebrate species associated with the pelagic environment include coastal pelagics, salmonids, midwater groundfish, and highly migratory species (Table 3-1). Various physical features within the action area such as ocean currents, upwelling, the Columbia River plume, fronts, and eddy features influence the distribution and abundance of pelagic prey species, as well as that of their fish and invertebrate predators (Doyle 1992; Dower and Perry 2001; Nasby-Lucas et al. 2002; Williams and Ralston 2002; Bosley et al. 2004; Emmett et al. 2004; Emmett et al. 2006). The distribution and abundance of pelagic fish and invertebrate species also are profoundly affected by interannual and interdecadal climatic variations such as El Niño/La Niña or the Pacific Decadal Oscillation (Hickey 1993). For example, dramatic changes in species assemblages were observed during extreme El Niño/La Niña years (1998 to 2002) off northern Washington State to central Oregon. The pelagic community shifted from one dominated by southern species (mackerels and hake) to one dominated by northern species (squid, smelts, and salmon), with the small pelagic species (sardines, herring, and anchovy) showing no consistent trends in abundance over this time (Brodeur et al. 2005).

Coastal Pelagic Species

The coastal pelagic species in the action area include four commercially valuable finfish species (Pacific sardine, *Sardinops sagax*; Pacific [chub] mackerel, *Scomber japonicus*; northern anchovy, *Engraulis mordax mordax*; and jack mackerel, *Trachurus symmetricus*) and market squid (*Loligo opalescens*) (NOAA 1993; PFMC 2022a) (Table 3-1). The distribution of coastal pelagic species typically depends on water temperature, but can vary both annually and seasonally (PFMC 2022a). For many of these species, occupancy zones may vary by life-history stage.

Table 3-1. Associations and times of occurrence for common pelagic and benthic species potentially present in the action area.

Fish	Typical Habitat	Time of Occurrence
Coastal Pelagic Species		
Sardine/anchovy/herring	Pelagic (open water) schooling fish	Year-round
Mackerel	Pelagic, schooling fish	Spring-summer
Squid	Pelagic, shelf zone	Spring-summer
Salmon		
Pacific salmon and steelhead	Pelagic, nearshore, upwelling areas	Year-round
Sea-run bull and cutthroat trout	Pelagic, nearshore, upwelling areas	Fall through winter (returning adults); spring (juvenile outmigrants)
Highly Migratory Species		
Tuna	Pelagic, shelf and slope	Year-round
Shark	Pelagic, nearshore, upwelling areas	Year-round
Groundfish		
Rockfish	Demersal (on or near the bottom), nearshore, shelf, and slope rocky areas	Year-round
Thornyhead	Demersal, shelf or slope, soft-bottom areas	Year-round
Flatfish	Demersal, nearshore/shelf, and slope sandy, muddy, or gravelly bottoms	Year-round
Gadid	Pelagic/semipelagic, nearshore, and shelf in large inlets	Year-round
Shark	Pelagic, nearshore and shelf	Year-round
Skate	Demersal, shelf, mud or sand substrate	Year-round
Lingcod and cabezon	Demersal, nearshore, rocky, or steep slopes	Year-round
Sablefish	Demersal, shelf slope, sand, mud, or clay substrate	Year-round
Green sturgeon	Demersal, shelf slope, sand, mud, or clay substrate	Summer
Other Demersal Species		
Halibut	Demersal, shelf, sand, and gravel substrate	Year-round
Crustaceans: mysids, euphausiids, amphipods	Nearshore, sand/mud substrate	Year-round
Crab	Nearshore, sand/mud substrate	Year-round

The PFMC and NMFS identified essential fish habitat for coastal pelagic species based on the temperature range where the fish occur and on the geographic area where they are present at any particular life stage. This range varies widely according to ocean temperature. Identifying essential fish habitat for coastal pelagic species is also based on where these species have been observed in the past and where they may occur in the future.

The east-west boundary of essential fish habitat for coastal pelagic species includes all marine and estuary waters from the coasts of California, Oregon, and Washington to the limits of the EEZ and above the thermocline (PFMC 2021). Surface temperatures above the thermocline exhibit considerable variability, ranging from 50 to 79 °F (10 to 26 °C). The northern essential fish habitat boundary is defined as the position of the 50° F isotherm, which varies seasonally and annually. The 50 °F (10 °C) isotherm is a rough estimate of the lowest temperature where coastal pelagic finfish managed by PFMC are found; thus, it represents their northern boundary. In years with cold winter sea surface temperatures, the 50 °F (10 °C) isotherm during February is around 43 degrees north latitude in the offshore zone and slightly farther south along the coast. In August, this northern boundary moves up to Canada or Alaska (PFMC and NMFS 2006). Therefore, the northern extent of essential fish habitat for coastal pelagic species likely occurs south of the action area in winter. During spring and summer months, with the northward migration of the 50 °F (10 °C) isotherm, essential fish habitat likely occurs within the action area.

Salmonid Species

All Pacific salmonid species exhibit varying forms of anadromy (they spend their early life stages in fresh water, migrate to the ocean to grow and mature, and return to fresh water as adults to reproduce). For further information on the life history and behavioral ecology of Pacific salmonid species, see Groot and Margolis (1991) and Emmett et al. (1991). Twenty-eight population groups of West Coast salmon and steelhead (*Oncorhynchus* spp.) are currently listed as threatened (23) or endangered (5) under the ESA. Threatened bull trout (*Salvelinus confluentus*) populations occur in major coastal rivers of Washington (64 FR 58913, November 1, 1999). Although limited data exist regarding the distribution of bull trout in marine waters, they are known to migrate between these rivers and are expected to occur occasionally in the action area (USFWS 2004). Although some of the ESA-listed salmonids noted above might occur in the action area, there is no designated critical habitat for these salmonids within the action area, except for the freshwater habitat areas used by threatened Ozette Lake sockeye salmon. The depressed production of many West Coast salmonid stocks, particularly the ESA-listed species, is due to a combination of factors, including freshwater habitat degradation and unfavorable ocean

conditions during the 1990s. The population sizes of some of these salmonid species have increased in recent years, presumably in part because of improved ocean survival conditions (Ford 2011; PFMC 2022b). As noted above, run sizes of salmonid species over decadal time scales appear to be strongly affected by the Pacific Decadal Oscillation ocean climate cycle (Subsection 3.3.3.1.1, Physical Features and Processes, Dynamic Processes and Variability, Pacific Decadal Oscillation). Salmonid species are also influenced by El Niño events, with the effect depending on the preferred water depth of the given species. Salmon that prefer more shallow habitats, such as coho salmon, are more likely to be affected by El Niño than other salmon species, such as Chinook salmon (PFMC 2022c).

The PFMC and NMFS identified essential fish habitat for salmon in estuaries and marine areas extending from the shoreline to the 200-mile (322 km) limit of the EEZ and beyond. In fresh water, salmon essential fish habitat includes all lakes, streams, ponds, rivers, wetlands, and other bodies of water that have been historically accessible to salmon (PFMC and NMFS 2006). The PFMC may use gear restrictions, time and area closures, and harvest limits to reduce negative impacts on salmon populations and essential fish habitat. Salmon essential fish habitat occurs throughout the year in the action area.

Highly Migratory Species

Highly migratory species include tuna, billfish, and sharks. These species exhibit a wide-ranging distribution throughout the Pacific Ocean and are not typically associated with specific substrata or benthic habitats (e.g., kelp forests or rocky substrata). Rather, their distribution often reflects large-scale oceanographic features with preferred levels of physical characteristics (for example, temperature, salinity, and oxygen), or concentrations of preferred prey (PFMC 2022d; see also PFMC (2022e) for a description of essential fish habitat by species).

For a general description of gray whale feeding on pelagic prey, see Subsection 3.4.3.1.3, Feeding Ecology and Role in the Marine Ecosystem. For a description of variable and dynamic gray whale habitat use and distribution in the action area related to pelagic prey distribution and climatic and ocean condition variability, see Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration, and Movements.

3.3.3.3 Benthic Environment

3.3.3.3.1 Physical Features and Processes

Substrata

Nearshore Habitats

As with the pelagic environment, nearshore benthic habitats are dynamic environments subject to energetic disturbances from climatic, oceanographic, and terrestrial processes. Nearshore habitat characteristics and species composition are strongly influenced by the dominant forms of marine algae, tidal range, depth, and type of substrate (Proctor et al. 1980). The nearshore habitats in the action area are composed of rocky shores, sandy beaches, and gravel beaches (Department of the Navy 2006). These habitats can be divided into several vertical zones: the splash zone, the upper intertidal zone (submerged for a short time and exposed to the widest range of temperatures), the mid-littoral zone (alternately submerged and exposed for moderate periods of time), the swash zone (submerged for approximately 12 hours per day), the low intertidal zone (exposed for brief periods of time during the lowest tides), and the subtidal zone (substrata below the lowest tides that are always submerged). These vertical zones reflect the intensity of the physical forces affecting nearshore habitats and structure the ecosystems that inhabit them.

Coastal Benthos

The continental shelf off the action area varies from 15 to 40 miles (24 to 64 km) wide, including habitats of hard and soft substrata. The most common seafloor habitat, particularly north of La Push, consists of mixed hard and soft substrates (e.g., coarse sand, gravel); hard-bottom habitats are the least common component of seafloor substrate (N. Wright, OCNMS, pers. comm., June 12, 2012). The Department of the Navy (2006) estimated that, beyond the depths of kelp beds (more than 100 feet/30 m), approximately 3 percent of the sea floor consists of hard-bottom substrata. Hard-bottom habitats may be composed of bedrock, boulders, cobble, or gravel.

The Columbia River is a major source of sediment for soft-bottom habitats along the Pacific coastline. The sediment is initially deposited near the mouth of the Columbia River. As winter storms pass through the Pacific Northwest, much of this sediment is transported northward along the coast, resulting in a 30-foot-thick (9-meter-thick) deposit of silt overlying the Washington continental shelf (Hickey and Banas 2003). Offshore soft-bottom habitats are composed primarily of silt and mud with sandy areas occurring closer to the coastline.

Submarine Canyons

The otherwise smooth bathymetry along the action area is broken by two submarine canyons, the Juan de Fuca and Quinault canyons, running perpendicular to the shore (Strickland and Chasan 1989). These habitats are dynamic, highly productive, and complex ecosystems. Submarine canyons facilitate locally increased upwelling, high nutrient availability, and vigorous productivity (Freeland and Denman 1982; Hickey 1995). Submarine canyons are also sites of

accumulation for organic debris from drift macroalgae, surfgrass, and plankton detritus produced in surface waters. The complex habitat structure of submarine canyons (such as vertical cliffs, ledges, talus, cobble and boulder fields, and soft sediments) also provides cover for numerous fish and invertebrate species.

Dynamic Processes and Variability

Nearshore community structure and species composition in rocky tidal and beach habitats are principally determined by the frequency and magnitude of physical disturbances (Sebens 1987), intense intra- and inter-specific competition and predation (Connell 1978; Paine 1969; Robles and Desharnias 2002), and highly variable recruitment dynamics (Gaines and Roughgarden 1985; Menge and Sutherland 1987; Roughgarden et al. 1988). These nearshore habitats and the organisms that inhabit them are subjected to nearly constant and intense physical agitation and disturbance (Proctor et al. 1980; Airamé et al. 2003) from wind, waves, tides, temperature, desiccation, sediments, and sand scouring. Despite some protection from offshore islands, submarine ridges, projecting headlands, and large offshore kelp beds, the coast of the action area is subject to strong wave action even in calm weather.

Soft substrata habitats of the coastal benthos are structured by depth gradients in temperature, disturbance by storms and wave action, and movement and accumulation of sediments (Maragos 2000). Submarine canyons that indent the Washington coastal shelf, such as the Juan de Fuca and Quinault canyons in the action area, facilitate locally increased upwelling and nutrient availability in nearshore areas (Freeland and Denman 1982; Hickey 1995). Turbidity currents associated with submarine canyons represent episodic disturbances that serve as major conduits for sediment transport to the deep sea. These turbidity currents erode canyon walls, transport loose sediments and detrital material, and significantly structure infaunal communities associated with submarine canyons (Vetter and Dayton 1998; Vetter and Dayton 1999).

As in the pelagic environment, benthic and nearshore environments may also be affected by short-term MHWs that are becoming more frequent in the 21st century (Frolicher et al. 2018; Hobday et al. 2016; Oliver et al. 2018).

The Salish Sea

The semi-enclosed inland waters of Washington State and British Columbia are collectively known as the Salish Sea. This area encompasses the Strait of Juan de Fuca, the Strait of Georgia, and Puget Sound. These three areas were seen as distinct water bodies until 2010 when they were unified under the Salish Sea name to honor the region's first inhabitants, the Coast Salish people

(Gaydos et al. 2009; Tucker and Rose-Redwood 2015; Western Washington University 2020). The Salish Sea is bordered by 7,470 km (4,642 mi) of coastline, has a sea surface area of 16,925 km^2 (6,535 mi^2), and contains the largest estuary by water volume in the United States (Puget Sound Partnership 2019; SeaDoc Society 2020). Researchers estimate that 37 mammal species (including gray whales, see subsection 3.2.1.2), 172 bird species, 253 fish species, and over 3,000 invertebrate species utilize the Salish Sea habitat to some degree (Gaydos and Brown 2011; Gaydos and Pearson 2011).

The environment of the Salish Sea is characterized by strong seasonality and spatial gradients in dissolved oxygen, temperature, salinity, and primary productivity (Masson and Cummins 2007; Grundle et al. 2009; Johannessen and Macdonald 2009). Snowmelt and rain in the Cascade and Olympic mountain ranges drain into the Salish Sea, delivering minerals and nutrients to the marine zone (EPA 2019). In addition to the nutrients delivered from freshwater input, coastal upwelling also plays an important role in primary productivity in the Salish Sea, as ocean-derived nutrients entering the Strait of Juan de Fuca spur spring phytoplankton blooms and fuel biogeochemical cycles (Mackas and Harrison 1997; Khangaonkar et al. 2012; Allen and Wolfe 2013). On the sea floor, the primary driver of benthic productivity in the Salish Sea is temperature, followed by the quality of organic matter on the benthic substrate following phytoplankton blooms (Belley et al. 2016). Like the adjacent northern California Current Ecosystem, dynamic physical processes affect the ecosystem structure, ecological interactions, and species' recruitment mechanisms in the Salish Sea, especially in that portion overlapping with the action area.

3.3.3.3.2 Biological Resources

Marine Algae, Marine Plants, and Associated Biota

Surfgrass (*Phyllospadix* spp., and associated macroalgae) and kelp (bull kelp *Nereocystis luetkeana*, giant kelp *Macrocystis pyrifera*, and other brown algae) communities are associated with rocky nearshore habitats. Surfgrass (*Phyllospadix* spp.) is an aquatic plant species present in rocky subtidal and intertidal habitats with high wave exposure. Surfgrass occurs from the intertidal zone to 23 feet (7 m) deep (Ramírez-García et al. 2002), exhibits very high rates of production (Proctor et al. 1980), and hosts a diverse community of invertebrates and fishes. Kelp communities are found 6 to 200 feet (2 to 61 m) deep (Rodriguez et al. 2001) and can persist in areas subject to severe wave action and tidal currents. The overlying canopies, understory, turf, and coralline algae layers of kelp forests provide essential refuge, forage, and nursery habitats for associated algal, invertebrate, and fish communities (Proctor et al. 1980; Rodriguez et al. 2001).

Kelp forests also provide an important food resource for inhabitants of soft and rocky benthic habitats, submarine canyons, deep channel basins, sandy and gravel beaches, rocky shores, and coastal lagoons (Airamé et al. 2003). Several marine mammal species, including sea otters and gray whales, forage and find refuge from predators in kelp forests (Cummings and Thompson 1971; Deysher et al. 2002; Nerini 1984). Kelp forests exhibit extremely high rates of primary production, growing up to 4 inches (10.2 cm) per day. Temperature, light, sedimentation, substrate, relief, wave exposure, nutrients, salinity, and biological factors (i.e., grazing, competition with other species) determine the distribution and abundance of kelp (Graham 1997). The highest densities are found on moderately low relief rocky substrata with moderate to low sand coverage (Deysher et al. 2002), while areas with very low relief and abundant sand are less favorable to persistent stands of kelp (Foster and Schiel 1985; Graham 1997). In addition to the primary habitat that kelp forests provide, they also provide secondary habitat for juvenile fishes, invertebrates, and seabirds in the form of drifting rafts of detached kelp.

Infaunal, Benthic, and Epibenthic Organisms

Rocky benthic subtidal habitats support extensive communities of benthic marine algae and invertebrates, as well as demersal invertebrates (e.g., mysids and cumaceans) living in close association with the sea floor (refer to Marine Algae, Marine Plants, and Associated Biota above). Sessile benthic invertebrates in these habitats are subject to less severe physical agitation and disturbance than in rocky intertidal habitats. As with intertidal communities, however, intense intra- and inter-specific competition and predation, along with highly variable recruitment dynamics, are principal forces in structuring the abundance, composition, and variability of these communities.

Soft-bottom subtidal habitats also support a rich diversity of infaunal invertebrates, including amphipod crustaceans, echinoderms, and polychaete worms, as well as highly motile epibenthic invertebrate species (such as Dungeness crab). Benthic infauna are organisms that live in the sediments by attaching to the soft substratum, dwelling in tubes, or burrowing through the sediments. Infaunal communities are often used as baselines for ecological assessments because they tend to exhibit more stable species composition and population dynamics than more mobile epifaunal assemblages such as crabs or bottom fish. This apparent stability is, however, subjected to considerable physical disturbance and variability and should not be interpreted to reflect a static environment. Soft-bottom benthic habitats along the Washington coast, including the action area, are productive biological environments influenced by a variety of complex physical processes (Braun 2005). The major short-term processes that affect infaunal communities include

predation (e.g., by gray whales; Feyrer 2010), as well as tidal-, wind-, and wave-induced turbulence; currents; sedimentation from the Columbia River plume and local rivers; storms; and variability in food availability associated with upwelling and plankton blooms (Braun 2005). The infauna that inhabit this environment are adapted to these high-energy environments with high sediment deposition, erosion, and sediment transport. Large storms with large waves, large freshwater outputs from the Columbia River and other rivers, and semi-diurnal tides act to suspend sediments and organic particulates. The organisms that inhabit these constantly shifting substrata tend to be highly motile rapid burrowers, rapid tube builders, or rapid colonizers with regular recruitment. Seasonal and interannual variability in the species composition and abundance of infaunal communities off the Washington coast is considerable, particularly at inshore locations influenced by sediment movement resulting from winter storms and river outfalls (Richardson et al. 1977). In summary, benthic soft-bottom habitats are subject to frequent high-intensity disturbances and are inhabited by infaunal communities of opportunistic colonizers exhibiting strong seasonal variability and spatial patchiness (Richardson et al. 1977; Oliver et al. 1980; Hancock 1997).

For a general description of gray whale feeding on benthic prey, refer to Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem. For a description of gray whale benthic feeding in the northern portion of the summer range, refer to Subsection 3.4.3.3.1, Summer Range Distribution and Habitat Use, Northern Portion of the Summer Range. For a description of gray whale benthic feeding occurring in the action area, refer to Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration and Movements.

Groundfish

Benthic habitats along the continental shelf support a large biomass of demersal (bottom-dwelling) groundfishes (Dark and Wilkins 1994). Adult groundfish species (e.g., rockfish, *Sebastes spp*.; sablefish, *Anoplopoma fimbria*; Pacific hake/whiting, *Merluccius productus;* spotted ratfish, *Hydrolagus colliei*; and spiny dogfish, *Squalus suckleyi*) can be associated with hard substrata of offshore reefs, banks, and submarine canyons, as well as soft or mixed substrates. As with pelagic species, physical oceanographic processes such as currents, upwelling, the Columbia River plume, fronts, and eddy features influence the distribution and abundance of groundfish species (Doyle 1992; Dower and Perry 2001; Nasby-Lucas et al. 2002; Williams and Ralston 2002; Bosley et al. 2004; Emmett et al. 2004; Emmett et al. 2006). The groundfish community in the Pacific Northwest also exhibits a strong depth gradient in species composition and diversity (Tolimieri and Levin 2006). Many groundfish species produce pelagic larval and

juvenile life stages, which generally float or swim near the sea surface and may be associated with floating debris such as kelp rafts. Pelagic larval and juvenile life stages are widely dispersed by storms, upwelling and ocean currents, and have limited associations with specific nearshore or benthic habitats (NOAA 1993). Older life stages, however, exhibit stronger habitat associations based on specific zones, depths, or substrate characteristics. Other groundfish species may exhibit seasonal migrations, resulting in an annual variation in habitat preferences (NMFS 2005c). The distribution, abundance, and recruitment of groundfish species is also strongly affected by climatic/oceanographic variability such as El Niño events. During periods of El Niño, there is an overall northward shift of tropical and temperate species (Cross 1987; Cross and Allen 1993). Rockfish respond in a range of ways to climate variability: in some major El Niño events, rockfish experienced a decline in overall biomass as a result of recruitment failure and reduced growth of adults due to poor ocean conditions in the region (Lenarz et al. 1995; Moser et al. 2000). In contrast, many rockfish experienced surprisingly strong recruitment in the midst of the 2015 MHW, due in part to local upwelling that produced good reproductive conditions for adult females (Schroeder et al. 2019).

With respect to conservation status, one West Coast groundfish species, yelloweye rockfish (*Sebastes ruberrimus*) occurring in the action area is designated as rebuilding under the Magnuson-Stevens Act (PFMC 2022f) (an overfished species is defined as a population below 25 percent of its natural [unfished] population size, a rebuilding species is defined as a population below 40 percent of its natural [unfished] population size). The PFMC and NMFS have established the Yelloweye Rockfish Conservation Area in the action area to limit the incidental catch of this rebuilding species.

Two non-salmonid, ESA-listed species of fish occur in the action area—green sturgeon and eulachon. The Southern distinct population segment of North American green sturgeon (*Acipenser medirostris*), which spawns in the Sacramento River (California), was listed as threatened on April 7, 2006 (71 FR 17757). Its critical habitat includes the entire action area out to a depth of 60 fathoms (74 FR 52300, October 9, 2009). The Southern distinct population segment of Pacific eulachon was listed on March 18, 2010 (75 FR 13012) and also occurs in the action area. None of its critical habitat occurs within the action area.

Essential fish habitat has been designated by the PFMC and NMFS for groundfish in the action area. A comprehensive description of essential fish habitat off the coast of Washington is available in the Final Groundfish Essential Fish Habitat EIS (NMFS 2005c), and was recently updated in 2019 (PFMC 2019). In addition to designating essential fish habitat for groundfish,

NMFS has also identified habitat areas of particular concern (HAPCs) for groundfish. HAPCs include seagrass, canopy kelp, rocky reef, and estuaries along the Pacific coast, including the action area (PFMC 2022f).

3.4 Gray Whales

3.4.1 Introduction

The Makah Tribe included in its request "certain management measures . . . designed to minimize impacts to those whales that exhibit inter-annual site fidelity to the Pacific coast south of Alaska."[2] While a Makah whale hunt (as proposed by the Tribe) would target migrating ENP gray whales, it might also kill gray whales from the Pacific Coast Feeding Group (PCFG), and there is a chance that Western North Pacific (WNP) gray whales might be killed, subjected to harpoon attempts, or approached. More detailed information about ENP, WNP, and PCFG whales is contained in Subsection 3.4.3, Existing Conditions. The status, population structure, distribution, and habitat use of the gray whale are relevant when analyzing the effects of any hunt on the population and on whales that migrate through or stop to feed in the waters off the Washington coast. We also describe information to analyze how an individual gray whale may be affected by a hunt.

[2] Also known as the Pacific Coast Feeding Group (PCFG) whales.

3.4.2 Regulatory Overview

The regulatory information presented for the MMPA and Whaling Convention Act (WCA) in Subsection 1.2, Legal Framework, including the Treaty of Neah Bay and the Makah Tribe's whaling rights, describes the legal processes relevant to our evaluation of the tribe's proposal to resume hunting gray whales. The information in the current subsection focuses on the statutory and regulatory conservation standards that inform our management of cetaceans in general, including gray whales.

GRAY WHALE DEFINITIONS AS USED IN THIS FEIS

Western North Pacific (WNP) gray whales: Gray whales that feed during the summer and fall in the Okhotsk Sea (primarily off northeast Sakhalin Island, Russia), some of which also feed off southeastern Kamchatka in the Bering Sea.

Eastern North Pacific (ENP) gray whales: Gray whales that feed during the summer and fall primarily in the Chukchi, Beaufort, and northwestern Bering Seas, but also as far south as California.

PCFG whales: Gray whales observed in at least 2 years between June 1 and November 30 in the PCFG area (along the U.S. and Canada coasts between 41°N and 52°N, excluding areas in Puget Sound) and entered into the Cascadia Research Collective's photo-identification catalog. For purposes of determining whether a harvested whale is a PCFG whale (i.e., counts against a bycatch or mortality limit) the Tribe's proposal under Alternative 2 would include cataloged whales seen in at least 1 year, while the other action alternatives would include cataloged whales seen in 2 or more years. Alternative 7, the preferred alternative, would assume any whale struck, struck and lost, or approached during the summer hunt time period to be a PCFG whale.

OR-SVI whales: PCFG whales observed in any survey area from southern Oregon to southern Vancouver Island (excluding areas in Puget Sound) from June 1 to November 30.

Makah U&A whales: PCFG whales observed in either the northern Washington survey area (from Cape Alava to Cape Flattery) or Strait of Juan de Fuca survey area (from Cape Flattery to Admiralty Inlet) from June 1 to November 30.

3.4.2.1 Marine Mammal Protection Act Management

NMFS has jurisdiction over cetaceans and most other marine mammals under the MMPA, the primary federal law governing marine mammal conservation and protection in the United States (Subsection 1.2.3, Marine Mammal Protection Act) (the USFWS has jurisdiction over some marine mammals). Therefore, the discussion below describes basic principles of marine mammal management under the MMPA that are relevant to the Tribe's request. The take moratorium, waiver, regulations, and permits are discussed in Subsection 1.2.3.2, Section 101(a) – Take Moratorium and therefore are not addressed here. The requirements of the MMPA help inform the evaluation criteria we use to analyze and compare the alternatives; however, it is not the purpose of this EIS to resolve legal issues.

3.4.2.1.1 Defining Marine Mammal Population Parameters

Optimum Sustainable Population — OSP

The MMPA declares that marine mammals should "not be permitted to diminish beyond the point at which they cease to be a significant functioning element of the ecosystem of which they are a part" and that "consistent with this major objective, they should not be permitted to diminish

below their optimum sustainable population" (OSP) (16 USC 1361(2)). OSP is defined statutorily as "the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem in which they form a constituent element" (16 USC 1362(9)). We have further defined OSP in agency implementing regulations as "a population size which falls within a range from the population level of a given species or stock which is the largest supportable within the ecosystem [known in biological terms as carrying capacity, abbreviated as K] to the population level that results in maximum net productivity level [MNPL]" (50 CFR 216.3). We manage impacts to marine mammal populations according to congressional directives with the goal of maintaining the number of animals within OSP (i.e., between K and MNPL), or, if a population is below OSP, achieving that level. To understand the operating theory of OSP, it is important to understand the biological implications of K and MNPL, the endpoints of the OSP range.

Carrying Capacity — K

K (the upper limit of OSP) is the population level that can be supported in the ecosystem as determined by the natural elements, such as food, predation, temperature, ice cover, etc. As population density increases, birth rates often decrease and death rates typically increase. K is the point at which birth rates and death rates are equal. It is, thus, the number of individuals an environment can support and is the largest size of a density-dependent population at which the population maintains equilibrium (population size neither increases nor decreases). For a particular environment, K will vary by species and can change over time because of a variety of factors, including food availability, disease, competition, predation, environmental conditions, and space. It is possible for a species to exceed its K temporarily.

Maximum Net Productivity Level — MNPL

MNPL (the lower limit of OSP) is a population level related to maximum net productivity, a rate of change defined in NMFS regulations as "the greatest net annual increment in population numbers or biomass resulting from additions to the population due to reproduction and/or growth less losses due to natural mortality" (50 CFR 216.3). In practical terms, MNPL is the population level (i.e., number of animals) that will yield the maximum recruitment into a marine mammal population (i.e., births minus deaths). Sometimes, MNPL is expressed as a fraction of K.

3.4.2.1.2 Calculating Marine Mammal Population Parameters

As implemented by NMFS, K is not the historic but the current carrying capacity of the habitat, without correctable human influence (Gerodette and DeMaster 1990; NMFS 1992a). As described in NMFS (1992a):

> "NMFS has determined that recreating historic carrying capacity before intereference by human activities is not possible in most cases. Instead, NMFS will rely on current carrying capacity and will modify OSP determinations to account for situations where correctable habitat degradation or destruction has been caused by human activities… Where human-cased, correctable degradation of the marine environmental has occurred, OSP levels would reflect K modified (increased) by habitat restoration efforts. If data are available, NMFS would determine K based on the long-term equilibrium population that can be supported under reasonable and proper use of the marine environment and living marine resources."

Gerodette and DeMaster (1990) describe various methods of estimating K. For a population that was hunted or subjected to fisheries bycatch, one method is to start with the present size of the population and back-calculate, using the numbers of animals that were killed by hunting or killed as bycatch. Various researchers used this method to estimate the K value for dolphin populations being incidentally killed in tuna fisheries and for ENP gray whales and bowhead whales (Gerodette and DeMaster 1990). The challenge of this method is that it requires reliable information about several different factors, including present population size and numbers of removals.

Another method described by Gerodette and DeMaster (1990) is to estimate K based on some environmental limiting factor, such as food supply or haulout sites (e.g., the work by Laidre et al. 2011 to estimate carrying capacity of sea otters in Washington State). A third method is to infer K based on an estimate of MNPL. In a logistic model of population growth, MNPL (the lower limit of OSP) is 50 percent of K. However, it is generally accepted that because marine mammals are long-lived with slow rates of reproduction, they have MNPL closer to K (Eberhardt and Siniff 1977).

In the absence of direct measurements of MNPL, we have chosen the model-derived value of 60 percent of K as the MNPL for long-lived marine mammals (45 FR 72178, October 31, 1980). Some researchers have assessed OSP for some species using estimates of abundance over time as the population recovered from exploitation to an equilibrium level. By fitting logistic growth models to the abundance estimates, the researchers have been able to determine the point at which productivity peaked and population growth slowed, indicating the population had passed its MNPL (the lower bound of OSP) (Wade and Perryman 2002; Jeffries et al. 2003; Brown et al. 2005; Punt and Wade 2012).

3.4.2.1.3 Linking Marine Mammal Population Parameters to Removals

A goal of the MMPA is to prevent stocks from diminishing below their OSP (that is, below MNPL). The difficulty of determining whether a stock is at OSP, and how human-caused mortality might affect population abundance relative to OSP, makes it challenging to manage

toward this goal. Given these challenges, NMFS explored other options that specifically focus on human-caused mortality, as reducing this mortality is a primary focus of management efforts. This led to the development of a management tool known as the potential biological removal (PBR) approach that allows NMFS to determine whether particular mortality levels would maintain a given stock within OSP, or allow it to reach OSP if it was below that level. In 1992, NMFS submitted a legislative proposal to Congress outlining the PBR approach which determines the number of individuals that can be removed from a population stock of marine mammals while allowing the stock to recover to, or be maintained within, its OSP (NMFS 1992a).[3]

3.4.2.1.4 Defining and Calculating PBR

Congress amended the MMPA in 1994 to incorporate a regime to govern the taking of marine mammals incidental to commercial fishing operations (section 118); many aspects, including the PBR approach, of the new provision were based on the legislative proposal we submitted to Congress in 1992 (NMFS 1992a). Under 16 USC 1362(20), PBR level is defined as the "maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population."

The MMPA (16 USC 1362(20)) also prescribes a formula for calculating PBR, which is the product of three factors:

$$PBR = N_{min} * 0.5R_{max} * F_r$$

- N_{min} is the minimum population estimate of the stock.
- $0.5R_{max}$ is one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size.
- F_r is a recovery factor of between 0.1 and 1.0.

[3] NMFS and the IWC use different methods to calculate allowable removals from marine mammal populations. Under the MMPA, NMFS applies the PBR approach for certain types of take, which focuses on maintaining marine mammal populations at OSP. The IWC operates under the ICRW, which historically had a harvest focus. The IWC calculates allowable removals or catch limits by focusing on sustainable yield under the maximum sustainable yield model (refer to Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling). The IWC's Scientific Committee advises the IWC on a minimum stock level for each stock, below which whales are not taken, and on a rate of increase towards the maximum sustainable yield level for each stock (footnote to IWC Schedule, Paragraph 13(a)(2)). The ENP gray whale stock is at or above the maximum sustainable yield level (IWC 2022a), so aboriginal subsistence catches are allowed as long as they do not exceed 90 percent of that maximum sustained yield (Paragraph 13(a)(1)).

As long as the total number of animals removed from the population as a result of human sources is no more than the calculated PBR of an affected stock of marine mammals, then the removals will not prevent the stock from recovering to, or being maintained within, its OSP.

3.4.2.1.5 Implementing the PBR Approach

Before implementing the PBR approach, we evaluated whether maintaing human-caused mortality below the PBR level would maintain OSP or allow recovery to OSP. To do this, we selected default values for the parameters of the PBR formula that would meet specific performance criteria and ran simulations in performance trials (Barlow et al. 1995). In these trials, individuals from a hypothetical marine mammal stock were removed from the population at levels up to the calculated PBR each year. One of the following two conditions was satisfied for at least 95 percent of simulation trials: 1) populations at MNPL (i.e., the low end of the OSP range) would remain at that level or above it after 20 years, and 2) populations below OSP (i.e., depleted populations considered as 30 percent of K) would recover to OSP within 100 years. In their conclusions, Barlow et al. (1995) noted that the PBR approach, as recommended and tested, would satisfy the objectives of the MMPA and would facilitate the section 2 mandate to develop marine mammal stocks to the greatest extent feasible. In other words, for marine mammal stocks at OSP, human-caused mortality at or below the PBR level would not cause the stock to fall below OSP, and for marine mammal stocks below OSP, human-caused mortality at or below the PBR level would not prevent the stock from achieving OSP. Wade (1998) reported on more extensive trials simulating the PBR approach and confirmed the major conclusions related to the performance of PBR from Barlow et al. (1995).

Wade and Angliss (1997) describe the results of a NMFS-convened workshop to review the initial PBR guidelines. Workshop participants recommended only relatively minor revisions to the initial guidelines for the use of abundance estimates in calculating PBR. The most notable recommendation was that PBR levels should be reported as unknown when the supporting abundance estimate for the affected marine mammal stock is at least 8 years old, unless there is compelling evidence that the stock has not declined since the last abundance estimate.

3.4.2.1.6 Stock Assessment Reports

Section 117 of the MMPA (16 U.S.C. 1386) requires preparation of a stock assessment report for each recognized marine mammal stock occurring within U.S. jurisdiction. The report must describe the geographic range of the stock; provide a minimum population estimate (Nmin), current and maximum (MNPL) net productivity rates, and current population trend; report human-caused mortality and serious injury by source; describe commercial fisheries that interact

with the stock; categorize the status of the stock according to whether human-caused mortality and serious injury are likely to cause it to be below OSP; and estimate PBR for the stock. The reports are reviewed by the regional scientific review groups and made available for review and comment by the Marine Mammal Commission and the public before they are finalized. The most recent stock assessment report for gray whales is Carretta et al. (2023).

As noted above, in 2005, we adopted new Guidelines for Preparing Stock Assessment Reports pursuant to section 117 of the MMPA and produced a report "Revisions to Guidelines for Assessing Marine Mammal Stocks" (commonly known as GAMMS) (NMML 2005). A workshop of NMFS scientists convened in 2011 recommended revisions to the 2005 GAMMS (Moore and Merrick 2011). The proposed revisions were made available for public comment via a Federal Register notice on January 24, 2012 (77 FR 3450) and in which NMFS emphasized a number of specific issues discussed at the workshop, including:

- Improving stock identification – proposals included 1) specifying whether it is plausible that a stock may actually comprise multiple stocks, and 2) identifying where human-caused mortality or serious injury is concentrated within the range of such a stock.
- Apportioning PBR across feeding aggregations, allocating mortality for mixed stocks, and estimating PBR for transboundary stocks – proposals included 1) ways to apportion and report on mortality or serious injuries, and 2) clarifying when and how to estimate PBR over broad areas with disparate survey data.

Workshop participants also recommended that the criterion for determining when a group of animals should be considered a separate population stock is when it is demographically independent, rather than demographically isolated. The workshop report states:

> "The group agreed to replace references to 'reproductive isolation' and 'demographic isolation' in the Report guidelines with references to 'demographic independence,' as the term 'isolation' is likely to be interpreted by some as implying that there should be no interchange between stocks."

After receiving public comments on the proposed revisions, NMFS finalized the revised guidelines on March 2, 2016 (81 FR 10830) as a NMFS Procedural Directive (NMFS PD 02-204-01). Seven of the nine topics were revised as proposed, including improving stock identification, and replacing "reproductive/demographic isolation" with "reproductive/demographic independence" as described above.

Under the NMFS Policy Directive System, the GAMMS were scheduled for another review in February 2021. In July 2020, NMFS initiated the process to review and revise the guidelines via an internal working group, instead of the usual in-person workshop, due to the COVID-19

pandemic. The working group identified eight topics for potential revisions, which were made available for public comment on August 25, 2022 (87 FR 52368). The 2023 revisions include updated guidance regarding Nmin in post-survey years, strategic stock designations, unobserved mortality and serious injury, incorporation of information on climate change, among other topics. The revised guidelines were finalized on February 7, 2023 (88 FR 7953).

Prior to 2019, the stock assessment process was the appropriate mechanism for designating population stocks of marine mammals under the MMPA. In 2019, NMFS established procedural directive 02-204-03: *Reviewing and Designating Stocks and Issuing Stock Assessment Reports under the Marine Mammal Protection Act* (NMFS 2019a), which separates the stock designation process from the SAR development. Prior to the annual SAR revision, NMFS identifies if "there are (1) any stocks that should be examined for possible revision or (2) potential new stocks that should be added" (NMFS 2019a). The procedural directive outlines examples and criteria for when a stock revision may need to occur, as well as the steps involved in conducting such an assessment.

3.4.2.2 Whaling Convention Act

3.4.2.2.1 Whaling License

Under the WCA (16 USC 916d) and implementing regulations (50 CFR 230.3(b)), no person may engage in whaling without a license. We have by regulation issued a license "to whaling captains identified by the relevant Native American whaling organization" (50 CFR 230.5(a)). We may suspend the license of any captain who fails to comply with NMFS' regulations. Our regulations further specify that any aboriginal subsistence whaling quota shall be allocated to each whaling village or captain by the appropriate Native American whaling organization. At least annually, we are to publish aboriginal subsistence whaling quotas and any restrictions on subsistence whaling in the Federal Register. When we published the first aboriginal subsistence whaling quotas for the use of the Makah Tribe, we also explained the background of the request to the IWC and the relevance of the IWC authorization (see, for example, 63 FR 16701, April 6, 1998).

3.4.2.2.2 Equipment, Crew, Supplies, and Training

WCA section 916d(d) requires an applicant for a whaling license to furnish evidence or an affidavit that the whaling vessel is adequately equipped and competently manned to engage in whaling in accordance with the provisions of the ICRW, the regulations of the IWC, and NMFS' regulations. NMFS' regulations regarding aboriginal subsistence whaling prohibit whaling without adequate crew, supplies, or equipment (50 CFR 230.4(d)). In the past, when we published aboriginal subsistence whaling quotas for the use of the Makah Tribe, we executed agreements

with the Makah Tribal Council that specified the details regarding the supplies, equipment, crew, and training.

3.4.2.2.3 Wasteful Manner Restrictions

WCA regulations prohibit whaling captains from engaging in whaling in a wasteful manner (50 CFR 230.4(k)). Wasteful manner means "a method of whaling that is not likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve the whale" (50 CFR 230.2). Related to reasonable efforts to retrieve any whale, WCA regulations also require whaling captains to use harpoons, lances, or explosive darts that bear a permanent distinctive mark identifying the whaling captain (50 CFR 230.4(j)). The mark allows struck and lost whales that wash ashore, or are found later, to be identified and reported as struck and lost whales. WCA regulations also prohibit whaling for any calf or parent accompanied by a calf (50 CFR 230.4(c)).

3.4.2.2.4 Recording and Reporting

WCA regulations require the Native American whaling organization to monitor the hunt, keep a tally of the number of whales struck and landed, and close the season when the quota is reached (50 CFR 230.7(b)). Whaling captains must provide oral or written reports on whaling activities to the Native American whaling organization, including, but not limited to, striking, attempted striking, or landing of a whale, and (where possible) specimens from a landed whale (50 CFR 230.8(b)). The report must include information on the number, dates, and locations of each strike, attempted strike, or landing; the length and sex of the whale landed; and an explanation of the circumstances involving any whale struck and not landed. We are also authorized to provide technical assistance to facilitate prompt reporting and collection of specimens from landed whales, including, but not limited to, ovaries, ear plugs, and baleen plates (50 CFR 230.8(b)). Following the 1999 and 2000 hunts, the NMFS' observers to the hunt provided their own reports to NMFS (Gosho 1999; Gearin and Gosho 2000). The Makah Tribe and NMFS also published a joint report for the 1999 hunt (NMFS and Makah Tribal Council 2000).

3.4.3 Existing Conditions

3.4.3.1 General Life History and Biology

3.4.3.1.1 Identifying Physical Characteristics

Adult gray whales are 36 to 50 feet (11 to 15 m) long and weigh between 16 and 45 tons; females are larger than males. Gray whales have two to five deep longitudinal creases on their throats, and their heads appear narrowly triangular when viewed from above; there is no head ridge (Leatherwood et al. 1982). Gray whales have a dorsal hump followed by a series of bumps or

"knuckles" along the back. Body coloration varies from light to dark gray and is typically mottled and covered with barnacles, scrape marks, and whale lice (Calambokidis et al. 1994). Scientists are able to identify individual whales using the shape of the dorsal hump, knuckle patterns, body scars, and coloration (Darling 1984; Calambokidis et al. 2004a). Gray whales have two blowholes that are side-by-side on top of their heads and can produce a large and distinctive V-shaped blow when they exhale. Migrating gray whales surface to breathe at regular intervals, generally blowing three to five times at intervals of 30 to 50 seconds, then lifting their flukes and submerging for 3 to 5 minutes (Leatherwood et al. 1982). Gray whales usually make shallow dives of 13 to 400 feet (4 to 120 m) to feed (Jones and Swartz 2009).

3.4.3.1.2 Global Distribution and Population Structure

Historically, gray whales occurred in both the North Pacific and North Atlantic Oceans (Fraser 1970; Mead and Mitchell 1984) but are currently found only in the North Pacific Ocean (Rice et al. 1984). At one time, the whales may have accessed both the Pacific and Atlantic Oceans by swimming through migratory corridors in the Arctic (Gilmore 1978), but the distribution of the species changed, likely due to periodic closures of the Bering Sea during ice ages (Swartz et al. 2006). Glaciation dropped sea levels and exposed underlying continental shelf regions, including the Bering Isthmus, which effectively blocked access to the Arctic (Berta and Sumich 1999). Gray whales disappeared in the North Atlantic by the end of the seventeenth century (Mead and Mitchell 1984). However, two anomalous sightings have occurred—one in the Mediterranean Sea in 2010 and one in the South Atlantic in 2013, suggesting that the present reduction in Arctic ice may someday allow gray whales to re-inhabit the North Atlantic (Scheinin et al. 2011; Elwen and Gridley 2013; Hoelzel et al. 2021).

U.S. and international management authorities, including NMFS and the IWC, have identified two populations for this species: an ENP and a WNP population (IWC 2018a; Carretta et al. 2023).[4] These populations are also recognized as separate subpopulations by the International Union for Conservation of Nature (IUCN) (Reilly et al. 2008). Genetic studies using both mitochondrial and microsatellite markers[5] have found statistically significant differences between

[4] Both NMFS and the IWC also commonly refer to these populations as "stocks" (e.g., in NMFS' Stock Assessment Reports), although the IWC's stock definition may not be equivalent to a stock as defined under the MMPA. Also, WNP gray whales are sometimes referred to as the "Korean stock" while ENP gray whales are occasionally termed the "California stock."

[5] Mitochondrial DNA (commonly referred to as mtDNA) is maternally inherited and provides information about historic gene flow of females only. Microsatellites are short segments of nuclear DNA inherited from both parents and reflect gene flow of both males and females.

the two populations (LeDuc et al. 2002; Meschersky et al. 2015; Lang et al. 2022; Brüniche-Olsen et al. 2021). Lang et al. (2022) noted that the significant but low level of differentiation may reflect recent divergence of the two populations as well as some limited degree of interchange between them. Genetic analysis showed that although there was apparent ENP admixture (i.e. interbreeding) in some of the individuals sampled off Sakhalin Island, Russia, as well as those sampled in the Mexican wintering lagoons, the analysis revealed significant genetic differences between the two locations (Lang et al. 2022). Although some have speculated that the observed movements of whales between the WNP and ENP (refer to Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) signifies a lack of gray whale population structure (Bickham et al. 2013), the results of the aforementioned genetic comparisons represent the best available science and clearly demonstrate that significant mitochondrial and nuclear genetic differences exist between whales sampled in the ENP and those sampled on the feeding ground off Sakhalin Island in the WNP (Lang et al. 2022).

In addition, there is emerging evidence for possible substructure within the ENP population, specifically a PCFG that exhibits seasonal fidelity to feeding grounds off the west coast (Subsection 1.1.3, Summary of Gray Whale Status). After reviewing results from photo-identification, telemetry, and genetic studies available in 2010 (i.e., Calambokidis et al. 2010; Mate et al. 2010; Frasier et al. 2011), the IWC agreed that the hypothesis of the PCFG[6] being a demographically distinct feeding group was plausible and warranted further investigation (IWC 2011a). The term 'feeding aggregation' has been used in scientific literature to describe concentrations of feeding whales (e.g., Berzin 1984; Calambokidis et al. 2002). Research by Lang et al. (2014) provided further support for recognizing the PCFG as a distinct feeding aggregation. These researchers compared genetic markers from whales in the southern (i.e., in the seasonal PCFG range) and northern feeding areas (north of the Aleutians, principally near Chukotka, Russia and Barrow, Alaska). They found that samples from whales demonstrating site fidelity to the southern feeding area (i.e., whales sighted over 2 or more years) had mtDNA patterns that were marginally but significantly different from whales sampled in northern feeding areas, which included samples collected off Chukotka, Russia. However, no significant differences were found when microsattelite allele frequencies were compared between whales representing the PCFG and

[6] The PCFG is defined by the IWC as follows: gray whales observed between June 1 to November 30 within the region between northern California and northern Vancouver Island (from 41° N to 52° N) and photo-identified within this area during 2 or more years (IWC 2011a; IWC 2011b; IWC 2011c).

those sampled on northern feeding areas or the Mexican wintering lagoons (D'Intino et al. 2013; Lang et al. 2014). These genetic studies concluded that 1) structure is present among gray whales using different feeding areas, 2) matrilineal fidelity plays a role in creating such structure, and 3) individuals from different feeding areas may interbreed. Although NMFS concluded that the PCFG did not currently warrant designation as a stock, these findings led the agency to state in the stock assessment report that the PCFG may warrant consideration as a stock in the future. Accordingly, NMFS expanded the ENP stock assessment report to include informational abundance, PBR, and human-caused mortality estimates for PCFG whales (Carretta et al. 2023). The issue of stock structure of the PCFG is discussed in more detail in Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales.

The annual migration of gray whales is a conspicuous but unexplained feature of their behavioral repertoire. Some hypotheses offered to explain migratory behavior focus on benefits to newborn calves (e.g., thermoregulation, protected "nursery areas," etc.) and some do not (e.g., resource tracking, the evolutionary "holdover" hypothesis, etc.) (Corkeron and Connor 1999). Corkeron and Connor (1999) propose that migration to low latitude areas provides a major selective advantage for pregnant female whales in that it reduces the risk of killer whale (*Orcinus orca*) predation on their newborn calves. Killer whales are substantially more abundant in high latitudes, and this is where most attacks on gray whale calves have been observed. Seasonally predictable sources of food have broadly shaped gray whale life history into two major periods: summers, when whales feed in higher latitudes with abundant food and minimal sea ice, and winters, when whales migrate to lower latitudes to escape sea ice and inclement weather and to nurture newborn calves in warmer waters (Swartz 1986; Swartz et al. 2006). Gray whales feed opportunistically on a diversity of prey species throughout their entire range (Nerini 1984). Similarly, they breed in the late fall in their summer range at the onset of the southward migration, breed and calve along the migratory corridor, and breed and calve in the winter on the winter grounds (Rice and Wolman 1971). The summer range is primarily a feeding area but also serves as a weaning and, potentially, a breeding area late in the season. The winter range is primarily a resting and nursing area, although some breeding also occurs. The migratory corridor supports a continuum of behaviors (feeding, breeding, and calving) as whales shift between summer and winter ranges.

Gray whale distribution and habitat use are dynamic, varying seasonally and year-to-year in response to changes in the prey base and the physical properties of the ocean environment (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem) (Yablokov and

Bogoslovskaya 1984; Darling et al. 1998; Gardner and Chávez-Rosales 2000; Dunham and Duffus 2001; Feyrer and Duffus 2011). Additionally, the species can shift its range over longer time frames in response to long-term environmental variability such as oceanic climate cycles (Pyenson and Lindberg 2011).

During summer and fall, most whales in the ENP population feed in the Arctic (Chukchi, Beaufort, and Bering Seas) (Figure 3-3). An exception to this generality is the relatively small number (100s) of whales that summer and feed along the Pacific coast between Kodiak Island, Alaska and northern California (Darling 1984; Calambokidis et al. 2002; Gosho et al. 2011; Calambokidis et al. 2014). These whales include animals north of the PCFG area (i.e., northern British Columbia), as well as PCFG animals and 'stragglers,' 'transients,' or 'visitors' (IWC 2012e; Calambokidis et al. 2014; Carretta et al. 2014) that have only been seen feeding in the PCFG area in a single year (presumably using feeding grounds north of the PCFG area in other years). By late November, the southbound migration is underway as ENP whales begin to travel from summer feeding areas to wintering areas associated with lagoons off the west coast of Baja California, Mexico and the southeastern Gulf of California (Rugh et al. 2001; Swartz et al. 2006).

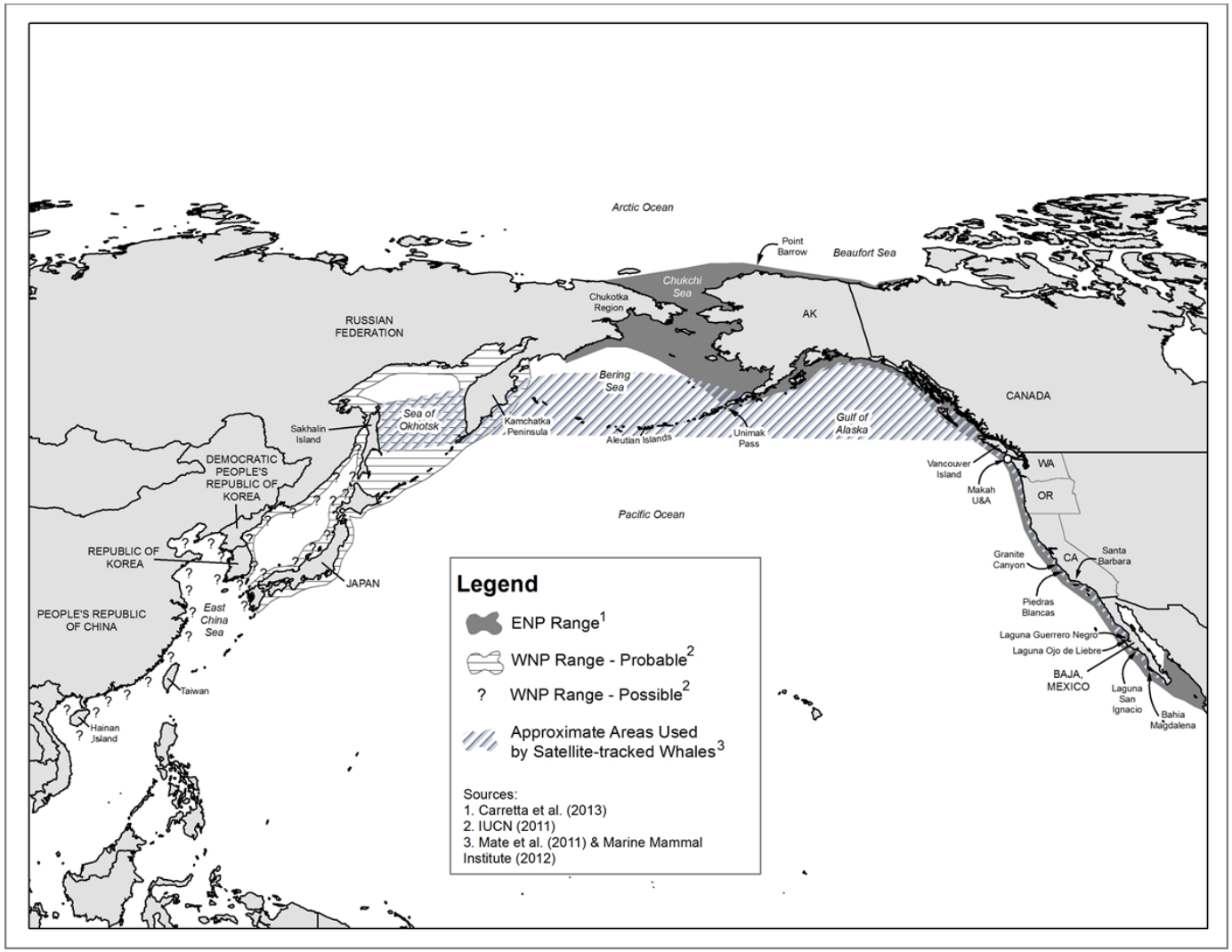


Figure 3-3. Approximate rangewide distribution of the ENP and WNP gray whale populations.

The distribution and migration patterns of gray whales in the WNP are less clear. The main feeding ground is off the northeastern coast of Sakhalin Island, Russia in the Okhotsk Sea, but some animals occur off eastern Kamchatka and in other coastal waters of the northern Okhotsk Sea (Figure 3-3) (Weller et al. 2002; Vertyankin et al. 2004; Tyurneva et al. 2010). Some WNP whales are thought to migrate south along the coast of Asia in the fall, but the migration route(s) and winter ground(s) are poorly known. Information collected over the past century indicates that the gray whale range in the WNP is much more restricted than it was historically (Reeves et al. 2008), and that whales once migrated along the coasts of Japan and South Korea (Andrews 1914; Mizue 1951; Omura 1984) to wintering areas somewhere in the South China Sea, possibly near Hainan Island (Wang 1984). No sightings off South Korea have been reported since 1977 (Park 1995; Kim et al. 2013), although an unconfirmed sighting off South Korea was reported in 2015 (Kim et al. 2018).

Photo-identification (Urbán-Ramirez et al. 2012, 2019; Weller et al. 2012; Martinez-Aguilar et al. 2022a), genetic (Lang et al. 2010; Lang et al. 2022), and telemetry studies (Mate et al. 2011; 2015) have documented that some gray whales observed on the feeding grounds in the WNP migrate to and from the ENP. Such documentation includes: 1) eleven whales photographically matched from off of Sakhalin Island and/or southeastern Kamchatka and waters off of California or the Pacific Northwest, 2) four whales genetically matched from samples off of Sakhalin to and on the ENP migratory route, 3) 48 whales photographically matched from Sakhalin Island and/or southeast Kamchatka to those sighted in Mexican wintering lagoons, and 4) three satellite-tagged whales that migrated from Sakhalin Island to the west coast of North America, with one whale tracked from the WNP to Baja Mexico and back to the WNP over the course of 408 days (August 2011 to October 2012) (Mate et al. 2011; 2015). In combination, these studies have recorded a total of 60 gray whales known to have traveled between the eastern and western North Pacific.

Although these studies show that some whales use both the ENP and WNP, significant mtDNA and nuclear DNA differences exist between samples of whales summering in the WNP and samples of those summering in the ENP (Lang et al. 2022). In addition, gray whales in the WNP and the ENP have exhibited different rates of recovery and levels of abundance following overexploitation as a result of commercial harvest (Rugh et al. 1999; Swartz et al. 2000; Swartz et al. 2006). Bickham et al. (2013) identified several hypotheses regarding the potential stock structure of North Pacific gray whales, and in April 2014 the IWC Scientific Committee convened a rangewide workshop that included a review of these and other hypotheses (IWC 2014b). A key objective of that meeting was to begin developing a modeling framework to better

assess the status (including stock structure and movements) of North Pacific gray whales. Workshop participants reviewed a number of potential hypotheses for inclusion in the modeling framework. Currently, the following two hypotheses are identified as high priority for inclusion in in the modelling framework used for assessing stock status of North Pacific gray whales (IWC 2021a) given available data:

- Hypothesis 4a – Two breeding stocks characterized by maternal feeding ground fidelity. The eastern breeding stock (EBS) consists of northern feeding group (NFG) and PCFG whales, the second, unnamed breeding stock includes western feeding group whales that breed with each other on the migration route to Mexico for overwintering.
- Hypothesis 7a – Three breeding stocks characterized by maternal feeding ground fidelity: the EBS consists of NFG and PCFG whales that overwinter in Mexico, the western breeding stock consists of whales that feed in the WNP and overwinter in the South China Sea, the third, unnamed breeding stock consists of whales that feed in the WNP and breed with each other on the migration route to Mexico for overwintering.

In 2023, NMFS convened a status review team (SRT) to determine whether WNP gray whales qualify as a DPS under the ESA. The SRT evaluated three separate WNP groups that they determined warranted consideration as a DPS under the ESA. They concluded that a combined unit of animals that remain in the WNP year-round and that migrate to the ENP during the winter was most appropriate for designation as a DPS (see Subsection 3.4.3.2.2, WNP Population Structure for more detail) (Weller et al. 2023; NMFS 2023c).

3.4.3.1.1 Population Exploitation, Protection, and Status

Both WNP and ENP populations were greatly reduced by commercial whaling that began in the mid-19th century and continued as late as the 1960s for WNP gray whales (Swartz et al. 2006; Weller et al. 2002). For WNP gray whales, Yablokov and Bogoslovskaya (1984) speculated that pre-exploitation numbers may have been between 1,500 and 10,000 individuals, and Berzin and Vladimirov (1981) estimated only 1,000 to 1,500 remaining WNP gray whales by 1910. However, Weller et al. (2002) noted that it is unclear how the estimates from pre-exploitation and 1910 were derived. Bradford (2003) concluded that at least 1,868 WNP gray whales were harvested in the 20th century, predominantly by commercial whalers off the Korean Peninsula between 1905 and 1935. WNP gray whales were thought to be extinct as recently as the 1970s (Bowen 1974); however, more recent reports and research efforts indicate that a small relic WNP population still exists (Weller and Brownell 2012; Cooke et al. 2013).

From 1845 to about 1900, American whalers hunted gray whales in the ENP from the winter grounds in Baja to the summer feeding areas in the subarctic. Scammon (1874) and Henderson (1984) estimate that approximately 11,300 whales from the population were killed between 1845 and 1874. A more recent assessment by Reeves et al. (2010) estimates that the number of gray whales killed was likely lower (between 6,124 and 8,021 animals) and may not have accounted for calves that were killed or orphaned and presumably died. Punt and Wade (2012) reported a similar commercial catch estimate of 8,300 gray whales between 1846 and 1874 and noted that catch estimates prior to 1930 are subject to considerable uncertainty. Hunts in and near the Baja California lagoons greatly reduced the reproductive capacity of the population by killing the females with calves (Swartz et al. 2006; Reeves et al. 2010).

From approximately 1914 to 1946, modern industrial whaling by the United States, Japan, Norway, and the Soviet Union in the North Pacific took an estimated 940 gray whales (Reeves 1984). Estimates of ENP gray whale abundance before commercial exploitation vary. Henderson (1984) estimated that the original population was between 15,000 and 20,000 whales. Reilly (1981) estimated that there may have been 24,000 gray whales before 1846. Scammon (1874) proposed that the population numbered about 30,000 whales from 1853 to 1856. After the heavy exploitation of gray whales, especially from 1855-1874, the abundance may have dropped to only a few thousand animals (Henderson 1984).

More recently, Alter et al. (2007 and 2012) used estimates of genetic diversity to infer that the pre-whaling abundance of gray whales may have been approximately three to five times more numerous (76,000 to 118,000) than the average census size at the time of publication (22,000). Alter et al. (2007) note that their estimate likely measures both the ENP and WNP stocks together and that an important question is whether carrying capacity has declined over time. If it has, then ENP gray whales may be reduced from historical numbers but may have reached an alternative stable state with a lower carrying capacity today (refer to Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates).

Estimates of ENP gray whale abundance after commercial exploitation vary. Reilly (1981) estimated that the population declined to below 12,000 whales; Henderson (1984) estimated that the population did not exceed 8,000 to 10,000 whales; and Butterworth et al. (2002) estimated a number between 4,000 to 5,000 whales, down to as low as 1,500 to 1,900 whales after commercial whaling stopped in 1937 and 1938. Since then, gray whales have been protected pursuant to a suite of international agreements and federal laws (refer to Subsection 1.2, Legal Framework). The list below includes a summary of these efforts and expands on the protection

provided under the ESA. Although ENP gray whales were removed from the ESA list of endangered species in 1994, the history of their listing and de-listing provides relevant context for analysis of the Makah Tribe's request.

1. 1937 International Agreement for the Regulation of Whaling — The 1937 Agreement protected gray whales from commercial whaling but included certain exceptions, including to allow for aboriginal subsistence use and scientific research. Norway, the United States, and others signed the Agreement in 1937 (Reeves 1984), and Canada, the Soviet Union, and Japan signed it in 1938, 1946, and 1951, respectively.

2. 1946 International Convention for the Regulation of Whaling — The ICRW continued the 1937 Agreement's prohibition on commercial whaling of gray whales, as well as allowing aboriginal subsistence and scientific whaling (refer to Subsection 1.2.4.1, International Whaling Governance under the ICRW for more detail). Consequently, since 1951, all nations with factory ships operating in the North Pacific Ocean have been subject to the provisions protecting gray whales from commercial whaling (Reeves 1984). During the fall southward and spring northward migrations between 1959 and 1969, scientists in the United States took 316 gray whales off the coast of central California under IWC special research permits to establish the status of the population (Rice and Wolman 1971).

3. Whaling Convention Act — The WCA prohibits commercial whaling in the United States and authorizes aboriginal subsistence whaling consistent with the IWC Schedule (i.e., regulations of the IWC that are an integral part of the ICRW) (refer to Subsection 1.2.4, Whaling Convention Act, for more detail).

4. Endangered Species Act — The gray whale (i.e., the entire taxonomic species) was listed as an endangered species under the statute preceding and replaced by the ESA (35 FR 8495, June 2, 1970). Following a comprehensive evaluation of its status (Breiwick and Braham 1984), NMFS concluded on November 9, 1984 (49 FR 44774) that the population should be listed as threatened, instead of endangered. On November 22, 1991, NMFS proposed to remove the gray whale population from the list of endangered and threatened wildlife (56 FR 58869). NMFS published a final notice of determination (58 FR 3121, January 7, 1993) to remove the population from the list because the species had recovered to near its estimated original population size and was neither in danger of extinction throughout all or a significant portion of its range, nor likely to again become endangered within the foreseeable future. On June 16, 1994 (59 FR 21094), the ENP gray

whale population was formally removed from the list of endangered and threatened wildlife. The WNP stock remained on the list as an endangered species. As required under section 4(g) of the ESA, we drafted a plan to monitor the status of the ENP stock for at least 5 years following the delisting. A comprehensive status review, completed in August of 1999, recommended that the population continue under a non-threatened classification (Rugh et al. 1999).

In 2001, we received a petition to relist the gray whale under the ESA but found that the petition did not present substantial scientific or commercial information indicating that relisting was warranted (66 FR 32305, June 14, 2001). We have continued monitoring the population since delisting.

5. Marine Mammal Protection Act — The MMPA established a moratorium on the taking of all marine mammal species, including gray whales, with certain exemptions and exceptions (Subsection 1.2.3, Marine Mammal Protection Act). The agency publishes annual stock assessment reports for gray whales and other marine mammals, as required by section 117 of the MMPA (Subsection 3.4.2.1.6, Stock Assessment Reports).

   On October 21, 2010, NMFS received a petition requesting a status review under the MMPA for the ENP stock of gray whales but found that the petition did not present substantial information indicating that a status review may be warranted (75 FR 81225, December 20, 2010). NMFS released the most recent stock assessment report for ENP gray whales in July 2023 (Carretta et al. 2023). The report was reviewed by the independent scientific review group (established under the MMPA) and made available for comment by the Marine Mammal Commission and the public. This report, along with the scientific information cited therein, summarizes the best available scientific information on the status of the ENP gray whale stock.

The WNP population was listed as critically endangered by the IUCN in 2000 (Hilton-Taylor 2000; Reilly et al. 2000; Baillie et al. 2004). The most recent population assessment (Cooke 2017; Cooke et al. 2018) resulted in a median estimate of 290 individuals of age 1+ (non-calf), with a 90 percent confidence interval of 271 to 311 individuals. The estimated population growth rate over the 10 years from 2006 to 2016 was 2.8 percent per annum (±0.8 percent).

In contrast, the ENP population is thought to have recovered to pre-exploitation numbers, and it was removed from the endangered species list in 1994 (59 FR 21094, June 16, 1994) after 3 decades of research supported the conclusion that it had recovered (Buckland and Breiwick

2002). The most recent abundance estimate for the ENP population is 14,526 whales (Eguchi et al. 2023a), and the PCFG population currently numbers 212 whales (Harris et al. 2022). Washington State, in the latest Periodic Status Review, maintained that gray whales are a "state sensitive" species due to the presence of WNP and PCFG gray whales in Washington and the current status of threats (Sato and Wiles 2021).

Based on their conclusion that there may have been as many as 118,000 gray whales historically, Alter et al. (2007) concluded that the ENP stock should be designated as depleted based on genetic approach to estimating historic abundance. NMFS rejected this conclusion for the following reasons: 1) the analysis of Alter et al. (2007) included both the WNP and the ENP, and may have included Atlantic gray whales as well, whereas NMFS' stock assessments are based on individual stocks and "it is speculative to try to determine what proportion of the estimated abundance may have been in the eastern or western populations," and 2) NMFS relies on current carrying capacity in making MMPA determinations and "an estimate of stock abundance 1,100 to 1,600 years ago is not relevant to MMPA decision-making, even if such an estimate were available."

PCFG whales are not recognized by NMFS as a separate population stock, but we have determined that these whales appear to be a distinct feeding aggregation and may warrant consideration as a stock in the future (Carretta et al. 2023). Given this possibility, and because the Tribe's request specifically addresses the potential for "local depletion" of gray whales in the Tribe's U&A, we have included PCFG-related sections in this FEIS where appropriate.

3.4.3.1.2 Feeding Ecology and Role in the Marine Ecosystem

Gray whales use various feeding techniques, including 1) suction feeding, also called benthic feeding or bottom feeding, which allows them to feed on crustaceans that live burrowed in (infauna) and just above (epifauna) the sea floor; and 2) engulfing or skimming prey in the water column and on the sea surface. This broad foraging capability allows gray whales to feed on a wide variety of prey throughout their range (Nerini 1984; Darling et al. 1998; Dunham and Duffus 2001; Moore et al. 2003; Moore et al. 2007; Budnikova and Blokhin 2012). Pyenson and Lindberg (2011) hypothesized that flexibility in feeding modes and migratory behavior allowed gray whales to survive major, glacially-driven changes in sea levels and available foraging habitat during the Pleistocene. Such flexibility may account for the gray whale's more rapid recovery from commercial whaling when compared with other large whale species (Nerini 1984; Moore et al. 2001).

Gray whales regularly consume benthic prey (Nemoto 1970; Nerini 1984), often creating furrows or pits and leaving a tell-tale plume of mud in the water column (Johnson and Nelson 1984; Nerini 1984; Kvitek and Oliver 1986; Weitkamp et al. 1992). Gray whales display an adaptation to bottom feeding because their baleen plates are thicker and the hairs are coarser and stronger than those of other whales. This allows them to excavate coarse bottom sediments on a regular basis (Nemoto 1959; Nerini 1984). Nerini (1984) and more recently Budnikova and Blokhin (2012) and Budnikova et al. (2013) listed prey obtained from gray whale stomachs comprising up to 33 genera, including a wide variety of benthic and epibenthic invertebrates, such as amphipods, decapods, molluscs, polychaete worms, algae, and sponges. Moore et al. (2007) and Gosho et al. (2011) also documented tens to hundreds of gray whales feeding off Kodiak Island, primarily on epibenthic marine crustaceans commonly referred to as hooded shrimp. Fadeev (2011) and Vladimirov et al. (2012) noted that the primary prey of WNP gray whales are benthic amphipods, but noted circumstantial evidence that they also feed on sandlance near Sakhalin's Piltun Lagoon. Various studies in the PCFG area have affirmed that gray whales are opportunistic foragers on a wide variety of prey species, including mysids, crab larvae, amphipods, ghost shrimp, clams, and herring eggs/larvae (Murison et al. 1984; Darling et al. 1998; Dunham and Duffus 2002; Coyle et al. 2007; Nelson et al. 2008; Newell 2009; Feyrer 2010; Feyrer and Duffus 2011; Lindsay 2013; Burnham and Duffus 2016; Hildebrand et al. 2021; 2022).

Excavation of bottom sediments by feeding gray whales may play a role in maintaining the benthic habitat in some areas, though its relative importance is not clear. Some investigators hypothesize that gray whale benthic feeding may help maintain the substrate (Johnson and Nelson 1984; Oliver and Slattery 1985) or otherwise have an important influence on the benthic community (Nelson and Johnson 1987; Grebmeier et al. 1989; Burnham and Duffus 2016). Excavated sites also trap woody debris, which affects benthic productivity (Oliver and Slattery 1985). Gray whale excavation has been proposed as a major source of disturbance and part of a cycle of exploitation, recolonization, succession, and maturing of the prey community (Nerini 1984; Oliver et al. 1984; Oliver and Slattery 1985). Conversely, some investigators have proposed that the growing gray whale population has reached carrying capacity and that the population's overexploitation of benthic amphipods in the Bering Sea may have led to a decrease in amphipod abundance during a documented period from 1986 to 1988 (Highsmith and Coyle 1992). It has further been suggested that gray whale foraging can lead to localized loss of amphipod or other prey communities, forcing whales to forage elsewhere (Highsmith and Coyle 1992; Weitkamp et al. 1992; Feyrer 2010; Feyrer and Duffus 2011). In the action area, gray whales may be feeding on both pelagic and benthic prey (Lindsay 2013; Scordino et al. 2014a).

Gray whales excavating the benthos may also make food available for surface-feeding seabirds. As the whales stir up the benthos, particularly in shallow waters, feed rises to the surface. Observations in the Bering Sea suggested this association (e.g., Grebmeier and Harrison 1992), but no similar observations have been made in the action area. When gray whales die, decomposing whale carcasses also deliver large pulses of organic material to the seafloor. This material may serve as islands of habitat for unique assemblages of deep-sea macrofauna (Dahlgren et al. 2004; Goffredi et al. 2004). Barrett-Lennard et al. (2011) speculated that the frequent occurrence of gray whale carcasses (as a result of predation by killer whales) in shallow waters and beaches near Unimak Pass, Alaska, may affect the structure of bear and shark populations that scavenge on the remains. These authors also report on an apparent shallow water carcass-storing behavior that may promote the development and cultural transmission of specialized feeding behaviors by the area's killer whale population.

Although gray whales are consistently characterized as benthic feeders in the literature, they also feed on pelagic prey, including mysid crustaceans, crab larvae, herring eggs and larvae, sandlance, ghost shrimp, and euphausiids (Murison et al. 1984; Nerini 1984; Oliver et al. 1984; Weitkamp et al. 1992; Duffus 1996; Darling et al. 1998; Benson et al. 2002; Dunham and Duffus 2002; Nelson et al. 2008; Stelle et al. 2008; Newell 2009; Brownell et al. 2010; Feyrer and Duffus 2011; Lindsay 2013; Scordino et al. 2014a). They feed in the water column by making short dives and random movements in kelp beds and within the surf zone of rocks and islets (Murison et al. 1984; Nerini 1984; Darling 1998). When they skim feed on the sea surface, they move along the surface, biting down on plankton streams along the tide line (Darling 1998).

Over the years, researchers have observed gray whales aggregating in particular areas to feed where prey densities are high, especially in areas of benthic prey densities in the northern seas (e.g., Berzin 1984; Yablokov and Bogoslovskaya 1984; Clarke and Moore 2002; Moore et al. 2000; Moore et al. 2003; Highsmith et al. 2007). Areas where whales congregate to feed on a regular basis have been referred to as 'feeding grounds' or 'feeding areas' (e.g., Berzin 1984; Calambokidis et al. 2002; Moore et al. 2003; Calambokidis et al. 2004a), though the whales also feed continuously along their migration route (e.g. Vancouver Island, Burnham and Duffus 2022) and in Mexican lagoons (Gelippi et al. 2022). Some scientists have proposed that whales primarily feed on benthic prey in higher latitudes and switch to pelagic prey in lower latitudes (Nerini 1984), or that prey are in primary, secondary, or tertiary feeding grounds with pelagic prey occurring further south in the range (Kim and Oliver 1989). Others have proposed that whales select pelagic prey first when available because it is easier to obtain than benthic prey

(Dunham and Duffus 2001). Dunham and Duffus (2001) hypothesize that pelagic prey concentrate in the water column, making a relatively easy filter-feeding target and that the distribution of pelagic prey is not as patchy or unpredictable as benthic prey.

Rather than exhibiting strong regional or prey-type preferences, whales probably exhibit highly flexible and opportunistic foraging behavior using a variety of prey resources, both benthic and pelagic, within a given feeding area (Darling et al. 1998; Dunham and Duffus 2001, 2002; Fadeev 2011; Feyrer and Duffus 2011; Vladimirov et al. 2012). After 26 years of observations off the southwest coast of Vancouver Island, some researchers noted that whales could be observed feeding in discrete pockets of habitat over short time frames, depending on prey availability. Over longer time frames, however, virtually all of the southwest coast study area was used by feeding gray whales (Darling et al. 1998; Dunham and Duffus 2001). Darling et al. (1998) proposed that gray whales are attuned to natural patterns of abundance and absence occurring within a prey assemblage and that different prey species play equal roles over a season or several years.

The best available information indicates that feeding aggregations (the whales) and feeding areas (the prey) are dynamic, with both small- and large-scale changes over time and space. Gray whales change location and habitat to exploit the optimum prey species at any one time, based on abundance, density, size, caloric content, and predation pressure. Such factors may vary by season and year, depending on environmental variability and the population dynamics of prey (Darling et al. 1998; Clarke and Moore 2002; Moore et al. 2007).

3.4.3.1.3 Reproduction and Calf Production

Gray whale breeding and calving are seasonal and closely synchronized with migratory timing. Sexual maturity is attained between 6 and 12 years of age (Rice 1986; Rice and Wolman 1971; Bradford et al. 2010). The reproductive cycle in female gray whales lasts approximately 2 years and includes copulation, pregnancy, lactation, and a resting period (Yablokov and Bugoslovskaya 1984). A calf therefore can be produced every other year. The sexual cycle is tied to annual migrations and environmental conditions favorable for the early development of calves (Swartz 1986; Swartz et al. 2006). Both male and female gray whales are promiscuous breeders and copulate repeatedly with more than one mate (Jones and Swartz 1984). Mating behavior is observed during most seasons (Gilmore 1960; Rice and Wolman 1971; Jones and Swartz 1984; Swartz 1986; Berta and Sumich 1999).

Female gray whales come into estrous primarily during a 3-week period from late November to early December, which coincides with the onset of the southward migration from the summer feeding grounds to wintering grounds (Rice and Wolman 1971; Shelden et al. 2004). At this time,

ENP whales are known to congregate in nearshore areas of the summer feeding range at or near the top of the migratory corridor, possibly to find mates (Swartz et al. 2006). The mean conception date is approximately December 5 (Rice and Wolman 1971). Mating occurs throughout the southward migration in the migratory corridor. Females that have not successfully bred may enter a second estrous cycle within 40 days (Rice and Wolman 1971), such that a few females may breed as late as the end of January while present on the winter grounds (Jones and Swartz 1984). Estrous females and mature males in the second breeding cycle have been observed in Baja lagoons at highest densities near lagoon inlets and in adjacent coastal waters (Swartz et al. 2006). The gestation period lasts approximately 13.5 months (or approximately 418 days) (Rice et al. 1984), so newly pregnant females can calve about a year later during the winter.

As noted previously, we have a poor understanding of the migration route(s) and winter breeding ground(s) used by gray whales in the WNP. It was believed that these whales migrate along the coasts of Japan and South Korea (Andrews 1914; Mizue 1951; Omura 1984) to wintering areas somewhere in the South China Sea, possibly near Hainan Island (Wang 1984). More recent information from photo-identification and genetic and telemetry studies indicates that some whales winter in the ENP (refer to Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements).

In contrast, we have a much better understanding of the migration route and breeding grounds used by ENP whales. Some gray whales in the ENP calve in the shallow, protected lagoons of Baja Mexico (often referred to in scientific literature as birthing lagoons, calving lagoons, or breeding lagoons), starting around December 26 and ending approximately at the beginning of March (Swartz and Jones 1983; Sánchez-Pacheco 1998), with a median birthdate around January 27 (Rice and Wolman 1971). Since the late 1970s and early 1980s, calf sightings have increased near Carmel (Shelden et al. 2004) and scientists currently believe that perhaps one-quarter to one-half of the calves are born north of Carmel (well north of the Baja lagoons) during the southward migration (Shelden et al. 2004). Shelden et al. (2004) propose that some mothers that reach parturition along the southward migration may winter with their calves in the Southern California Bight, near the Channel Islands, until the calves are large enough to return north.

Calves are approximately 15 feet (4.6 m) long and weigh 1,000 pounds (454 kg) at birth (Rice 1986). The sex ratio of calves is 1:1 for the ENP gray whale (Rice and Wolman 1971; Jones and Swartz 1984), but it is closer to 66 percent males and 34 percent females for whales first identified as calves on the WNP feeding grounds (Weller et al. 2009; Lang 2010). The mothers' rich milk is more than 50 percent fat and nourishes the calves for several weeks while they

prepare for the long northward migration to summer feeding areas. Calves are weaned and become independent by 6 to 8 months of age while on the summer feeding ground (Rice and Wolman 1971; Calambokidis et al. 2010). Gray whale calves are approximately 28 to 30 feet (8.5 to 9.1 m) long before migrating southward (Rice 1986).

Gray whale calf production trends have been monitored in the ENP using three methods:

1. Surveying for calves from shore and from aircraft in central California during the northward migration (Perryman et al. 2002; Perryman et al. 2004; Perryman et al. 2011; Perryman and Weller 2012; Weller and Perryman 2019; Stewart and Weller 2021a; Eguchi et al. 2023b)
2. Counting calves from shore at Granite Canyon, California during the southward migration (Shelden et al. 1995; Shelden and Rugh 2001; Shelden et al. 2004)
3. Conducting aerial and vessel surveys for calves in the lagoons of Baja California, principally Laguna Guerrero Negro, Laguna Ojo de Liebre (most occupied), Laguna San Ignacio, and the Bahia Magdalena Lagoon complex (Urbán-Ramírez et al. 2003; Urbán-Ramírez et al. 2010; Rosales-Nanduca et al. 2012; Swartz et al. 2012; Swartz et al. 2020; Urbán-Ramirez et al. 2018; 2019; 2022)

NMFS' Southwest Fisheries Science Center has conducted shore-based sighting surveys of northward migrating whales annually since 1994 to estimate the number of calves passing Piedras Blancas, California (Perryman et al. 2002, 2021; Eguchi et al. 2023b). Additional research included aerial surveys in 1994 and 1995 to determine offshore distribution, and concurrent replicate watches near the peak of each migration to estimate sightings missed by the standard watch team (Perryman et al. 2002). Data from these surveys, including calf counts, corrected calf estimates (to account for periods not on watch and for calves missed), and calf production indices (calf estimate/total population estimate) are summarized in Table 3-2 and illustrated in Figure 3-3.

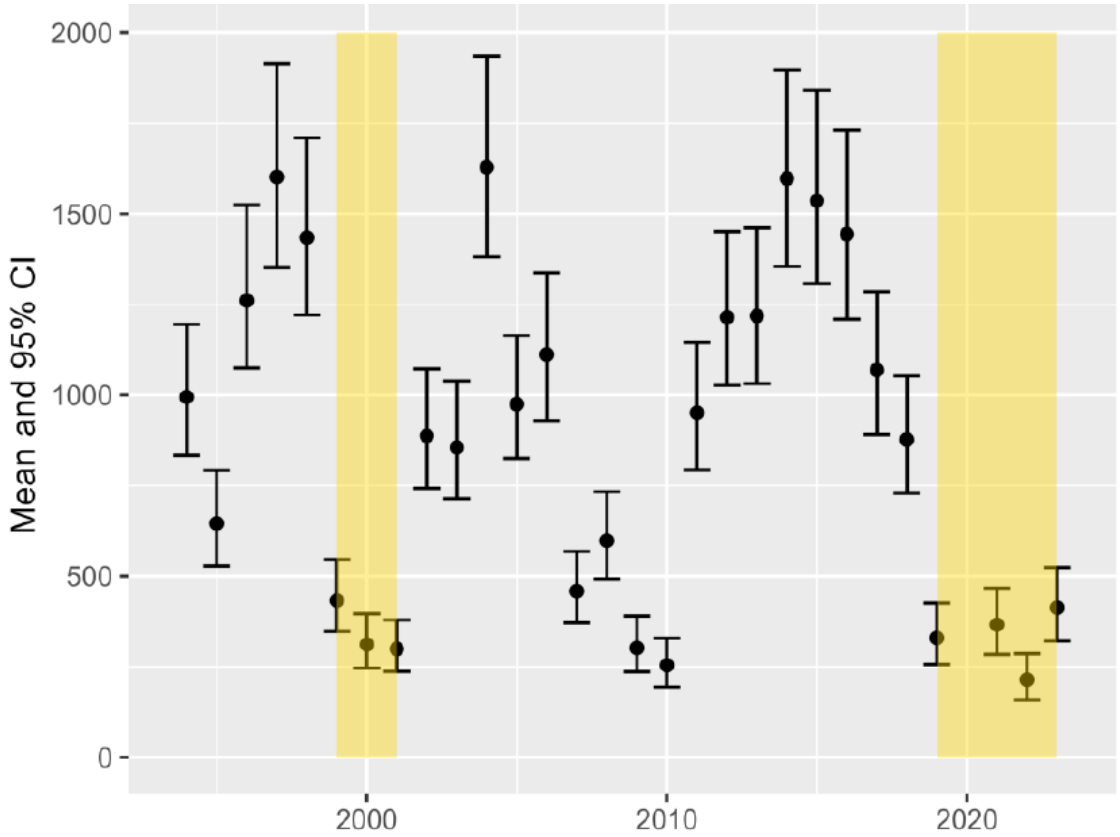


Figure 3-3. Annual estimates of eastern North Pacific gray whale calf production from 1994 to 2023 with associated 95% confidence intervals. Yellow vertical bars indicate unusual mortality events (figure from Eguchi et al. 2023b).

Table 3-2. Eastern North Pacific gray whale calf production from 1994-2023 with mean, median, standard error (SE), 95% lower (LCL) and upper (UCL) confidence limits. Years with unusual mortality events are highlighted in gray (table from Eguchi et al. 2023b).

Year	Mean	Median	SE	LCL	UCL
1994	1,038.9	1,027.0	99.0	873.5	1,254.5
1995	656.3	652.0	69.4	538.5	809.0
1996	1,195.1	1,184.0	108.0	1,016.0	1,420.5
1997	1,632.8	1,619.0	142.6	1,394.0	1,938.0
1998	1,435.6	1,419.0	117.3	1,253.5	1,697.0
1999	484.0	481.0	52.8	395.0	595.0
2000	318.0	315.0	36.9	254.0	403.0
2001	300.8	299.0	36.3	235.5	375.0
2002	922.3	918.0	84.3	771.5	1,105.0
2003	845.2	839.0	77.6	710.5	1,013.6
2004	1,643.4	1,636.0	145.5	1,388.5	1,958.6
2005	1,014.4	1,008.0	93.5	859.5	1,215.0
2006	1,137.6	1,132.0	106.8	958.5	1,373.5
2007	453.9	451.0	50.7	364.0	568.0
2008	612.1	608.0	62.2	501.5	750.5
2009	360.1	356.0	43.4	286.0	455.5
2010	295.3	293.0	37.4	228.5	375.0
2011	931.7	924.0	88.5	784.5	1,123.5
2012	1,266.9	1,259.0	113.4	1,067.0	1,505.5
2013	1,229.3	1,220.5	114.6	1,036.5	1,481.0
2014	1,606.7	1,589.0	142.8	1,367.0	1,912.0
2015	1,558.0	1,542.5	141.6	1,318.9	1,889.6
2016	1,458.3	1,446.5	132.4	1,236.5	1,753.5
2017	1,143.3	1,133.0	105.2	965.5	1,371.0
2018	950.2	944.0	89.6	800.5	1,152.5
2019	356.5	353.0	43.2	282.0	452.0
2021	382.3	380.0	48.1	295.0	488.0
2022	216.7	214.0	33.4	159.0	290.0
2023	412.4	411.0	51.6	321.0	524.0

The calf estimates and calf production index in the ENP indicate that the gray whale population experienced periods of decreased production from 1999 to 2001 and 2007 to 2010. The 1999 to 2001 period coincides with an unusual mortality event that resulted in numerous stranded gray whales in 1999 and 2000 (Gulland et al. 2005) (Subsection 3.4.3.1.7, Strandings). It is apparent that, although calf production dipped from 1999 to 2001, it recovered during 2002 to 2006 (Table 3-2). Perryman et al. (2021) noted the high interannual variability in calf production between 1994 and 2016 and found that environmental indices (the Pacific Decadal Oscillation and the North Pacific Index) in combination with ice cover in the Bering and Chukchi Seas during the early phase of gestation are important factors in explaining the observed variability. They concluded that access to prey early in the gestation period is critical to reproductive success in the ENP population.

Starting in 2019, calf production has been among the lowest years on record (Stewart and Weller 2021b; Eguchi et al. 2022b; Eguchi et al. 2023b), coinciding with the onset of the current UME. Eguchi et al. (2022b) noted that there was a linear relationship between estimated abundance of the ENP population and estimated calf production, suggesting that the factor(s) mediating mortality may also be influencing fecundity. In 2023, the calf production estimate nearly doubled from the year prior (412 in 2023), although Eguchi et al. (2023b) note that the counts are still much lower than in years prior to the current UME.

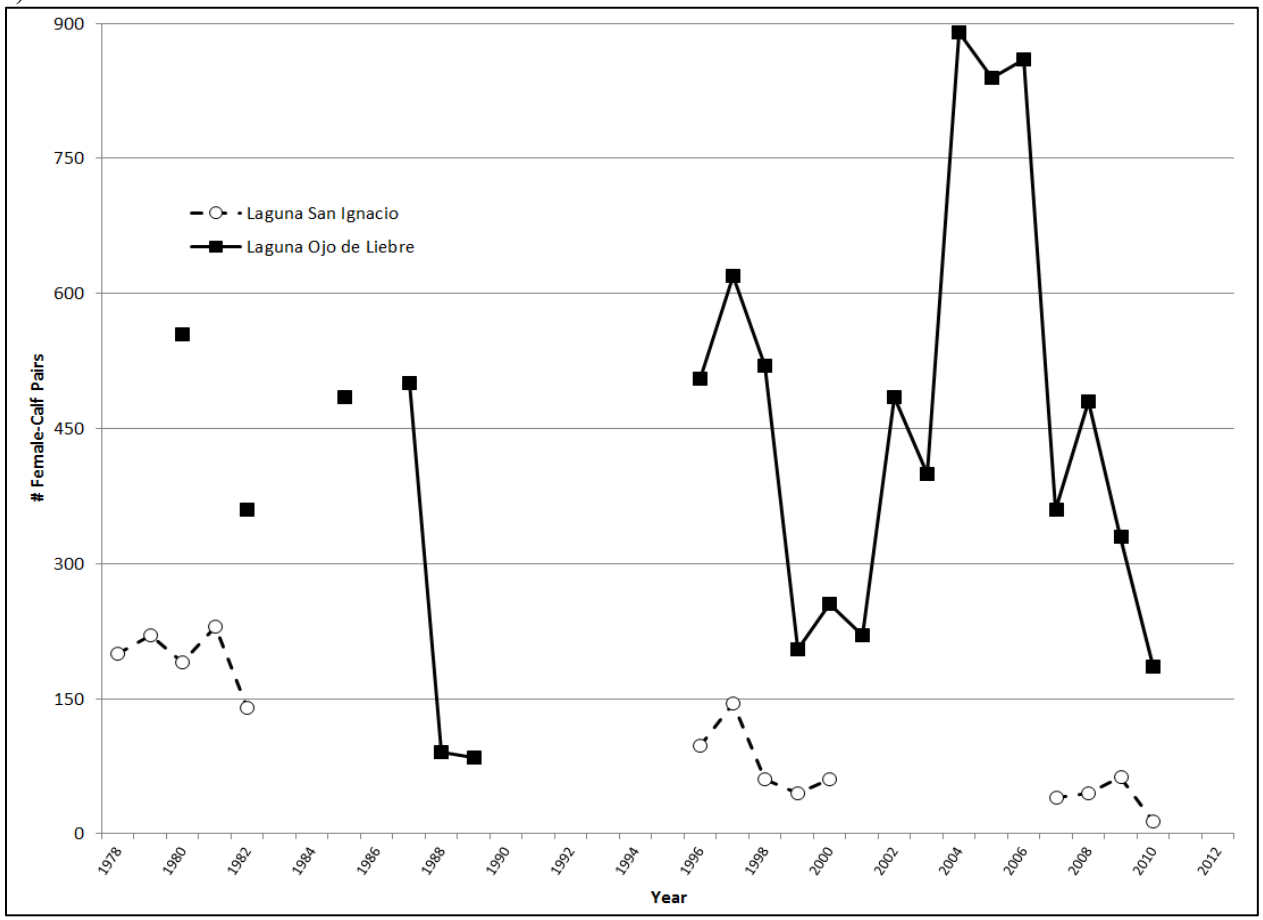
Additional evidence of changes in calf production comes from observations at the Mexican calving lagoons. Annual mother-calf counts by Urbán-Ramírez et al. (2010) in two of the lagoons (San Ignacio and Ojo de Liebre) closely reflect the variability seen during the 1994 to 2010 period monitored by Perryman et al. (2011), including the steep decline in 1999 to 2001 coincident with the unusual mortality event (Figure 3-4a). The data for Laguna Ojo de Liebre also suggests that there was a significant rebound in mother-calf pairs during 2002 to 2006 (nearly 900 pairs in 2004) followed by another decline to low counts (less than 200 pairs) in 2010 (Figure 3-4a) (Urbán-Ramírez et al. 2010). Swartz et al. (2012) reported that maximum counts of mother-calf pairs in Laguna San Ignacio during 2011 to 2012 were 175 to 232 percent higher than the 2007 to 2010 average counts and that more females appear to be using this lagoon (including females that gave birth elsewhere). These authors speculated that increasing numbers of mother-calf pairs might be a result of new, mature females replacing those that were lost during the 1999 to 2000 unusual mortality event. Swartz et al. (2012) also noted that observations of healthy “fat”

calves and few "skinny" adults in Laguna San Ignacio in 2011 and 2012 suggests that gray whale females had found adequate prey resources during previous summers.

Coincident with the 2019-2023 ENP gray whale UME, Urbán-Ramirez et al. (2022) reported significant declines in winter calf counts in Laguna San Ignacio and Bahía Magdalena between 2018 and 2022 (Figure 3-4b), along with an increase in the percentage of "skinny" and "emaciated" whales (Ronzón-Contreras et al. 2021, Christiansen et al. 2021), increased adult mortality (Martinez-Aguilar et al. 2022b), and an approximately two week earlier departure of whales from the lagoons. However, in 2023, body condition of whales in the lagoons improved and the number of mother-calf pairs in the lagoons increased (LSIESP 2023). The number of calves increased during the spring calf count as well (Eguchi et al. 2023b), suggesting a recent change in these trends.

Calf production in the WNP has been monitored annually since 1995 during photo-identification surveys off Sakhalin Island. Between 1995 and 2021, the number of calves observed ranged from a low of 2 calves in 1995 to 20 calves in 2019 (Table 3-3; Figure 3-5) (Burdin et al. 2022). Unlike the California/ENP counts described above, these WNP counts represent calves that reached the Sakhalin feeding grounds but not those that perished during the potentially lengthy migration from birthing areas. Based on photo-identification studies of the gray whales feeding of Sakhalin Island, Russia, between 1995 and 2009, Bradford et al. (2010) reported on two gray whales—out of 17 females first sighted as calves or yearlings—that were observed to have first produced a calf at the ages of 7 and 11 years.

a)


900
750
600
450
300
150
0
Female-Calf Pairs
Laguna San Ignacio
Laguna Ojo de Liebre
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
Year

b)

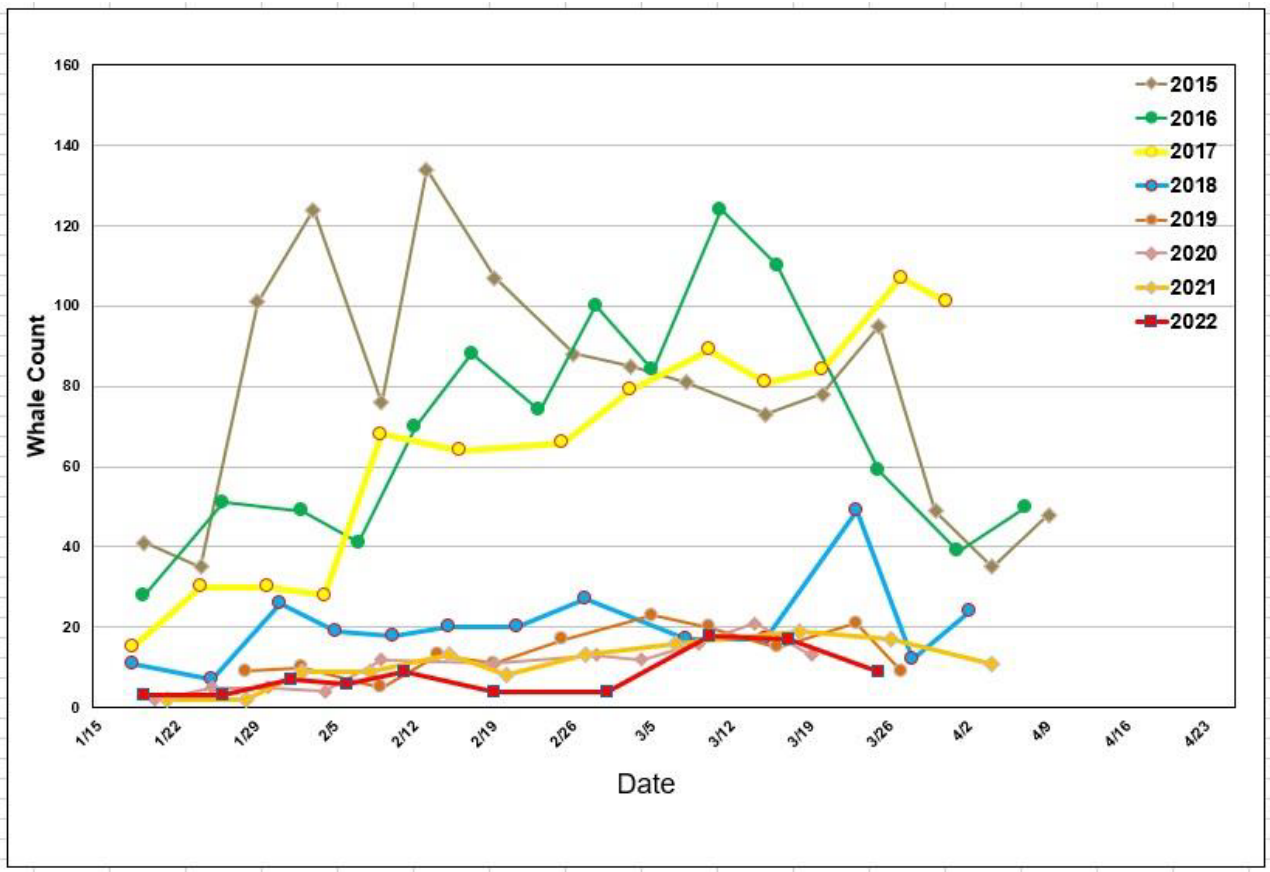


Figure 3-4. a) Number of female-calf pairs counted in San Ignacio and Ojo de Liebre Lagoons, 1978-2010. Lines between points represent surveys in continuous years (adapted from Urbán-Ramírez et al. 2010). b) Number of female-calf pairs counted in San Ignacio Lagoon, 2015-2021, from January through April (figure from Urbán-Ramírez et al. 2022).

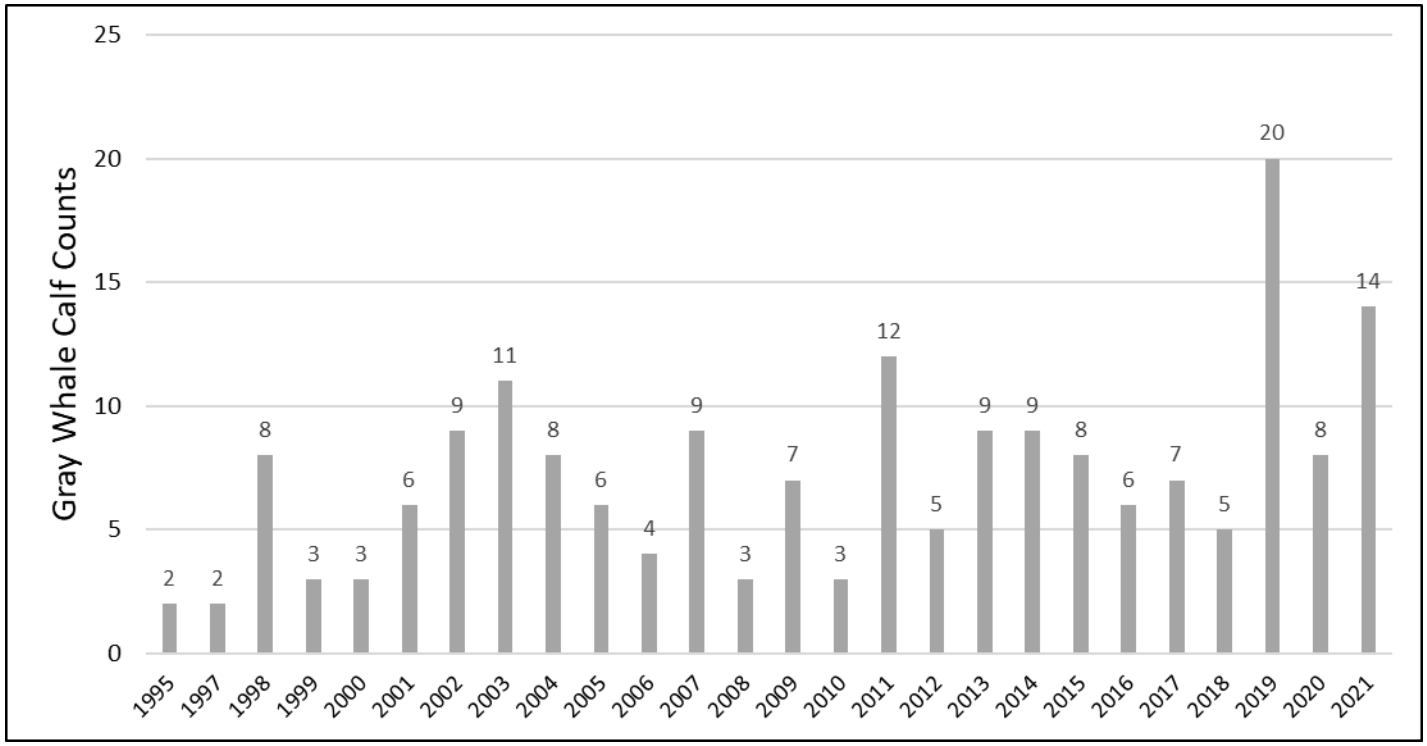


Figure 3-5. Gray whale calf counts off Sakhalin Island, Russia, 1995 to 2021.

Table 3-3. Summary of gray whale calf counts off Sakhalin Island, Russia, 1995 to 2021.

Year	Calf Counts	Whales Identified
1995[1]	2	28
1997	2	47
1998	8	54
1999	3	69
2000	3	58
2001	6	72
2002	9	76
2003	11	75
2004	8	94
2005	6	93
2006	4	79
2007	9	83
2008	3	45
2009	7	82
2010	3	42
2011[2]	12	82
2012	5	88
2013	9	94
2014	9	78
2015	8	30
2016	6	56
2017	7	46
2018	5	23
2019	20	49
2020	8	32
2021	14	42

[1] Data from 1995 were pilot in nature and are thereby viewed as incomplete for some of the reported values.
[2] Total of 15 calves identified in 2011 when data collected during a separate satellite tagging study (see Mate *et al*. 2011) are included.
Source: Burdin et al. 2022

3.4.3.1.4 Natural Mortality

Sources of natural mortality for gray whales include predation, disease, entrapment in ice, and starvation. In an assessment of the ENP stock, Punt and Wade (2012) estimated that the annual natural mortality of non-calf animals is approximately 2 percent in a normal year. Using an individual-based population model fit to photo-identification data collected from WNP whales, Cooke et al. (2019) estimated that the survival of non-calves is 0.975 (SE=0.005). Killer whales are the primary natural predators of gray whales. In the WNP, Weller et al. (2018) reported that gray whales had a relatively high incidence of killer whale tooth scars compared to estimates

made for other baleen whale populations. Corsi et al. (2022) found that ENP gray whales had a higher incidence of predatory scarring than did eastern North Pacific blue and humpback whales. There are many anecdotal reports of killer whale interactions with gray whales, as well as observations of gray whale carcasses with injuries consistent with probable killer whale predation (Willoughby et al. 2022), but it is difficult to quantify the proportion of the gray whale stock killed or approached by killer whales each year (Rice and Wolman 1971; Fay et al. 1978; Jones and Swartz 1984; Poole 1984; Goley and Straley 1994; George and Suydam 1998). Recent studies indicate that killer whale predation could be common in certain locations. In the False Pass-Unimak Island region of Alaska, over 100 transient killer whales amass in the spring to feed on migrating gray whales (Matkin et al. 2007). In May to early June in 2003 and 2004, Matkin et al. (2007) reported killer whales taking gray whales more frequently than any other species, with 19 harassments, of which 18 resulted in kills. Barrett-Lennard et al. (2011) also found that the gray whales migrating past Unimak Island were vulnerable to predation by killer whales. They observed four gray whales killed and three gray whales harassed by killer whales; attacks would sometimes be terminated after brief harassments. All observed attacks occurred in deep water, where young-of-the-year calves and juveniles were selectively attacked. Killer whale attacks on gray whales were also the most frequently observed predation event off the Chukotka Peninsula (Melnikov and Zagrebin 2005). Of the 92 observed killer whale attacks on marine mammals, 66 percent were on gray whales with nearly 80 percent of them resulting in kills (Melnikov and Zagrebin 2005). In a study by Wade et al. (2007), gray whales accounted for approximately 8 percent of 466 observed predation events by transient killer whales off the west coast of North America; calves and juvenile gray whales were taken preferentially over adults.

Predation by transient killer whales has been suggested as a significant cause of gray whale calf mortality (Barrett-Lennard et al. 2011). Several studies suggest that gray whale calves may be particularly vulnerable during their northward (spring) migration (Ternullo and Black 2002; Ford and Reeves 2008). The majority (85 percent) of the gray whales killed off the Chukotka Peninsula were juveniles (Melnikov and Zagrebin 2005). Of the 15 killer whale attacks described in Ford and Reeves (2008), 14 involved groups of gray whales, and eight involved mothers with young calves. Barrett-Lennard et al. (2011) speculate that gray whale migration patterns likely shift over time because of changes in the distribution and abundance of transient killer whales. For example, these authors suggest that gray whales behave most cryptically and follow shorelines most closely in areas where they have encountered killer whales in the past. Gray whale responses to predatory attacks by killer whales have included swimming towards shore, rolling and turning, slashing

their tail flukes, or a female gray whale defending her young by interposing her body between the killer whales and her calf (Ford and Reeves 2008; Barrett-Lennard et al. 2011).

Other predators of gray whales are sharks, including the great white shark (*Carcharodon carcharias*) and tiger shark (*Galaeocerdo cuvier*) (Jones and Swartz 2002), but the impact of such predation is not known.

3.4.3.1.5 Strandings

A stranding is an event where a marine mammal is dead on a beach or shore or in water within the U.S. EEZ, or a marine mammal is alive on a beach or in shallow water within the EEZ but is unable to return to its natural habitat without assistance (50 CFR 216.3). In the 1992 MMPA Amendments, Congress designated NMFS as the lead agency to coordinate a Marine Mammal Health and Stranding Response Program. Through the Marine Mammal Stranding Network, we oversee, coordinate, and authorize volunteers from network partners including non-profit organizations, aquaria, universities, animal care institutions, veterinarians, wildlife agencies, the Makah Tribe, and state and local governments to respond to marine mammal strandings throughout the coastal states. The NMFS Marine Mammal Health and Stranding Response Team also coordinates with partners in neighboring countries when strandings cross national lines. Stranding network volunteers collect and report stranding data to NMFS, and we maintain a database of gray whale stranding records for Alaska, Washington, Oregon, and California. We also have access to some stranding data from Canada and Mexico, but only limited access to stranding data from Asia. Strandings are known to occur in the WNP (see review by Weller and Brownell 2012); however, the information is not recorded in a consistent fashion as is done for whales in the ENP.

Annual gray whale stranding data from Alaska to Mexico (where available) for the years 1995 to 2023 are in Table 3-4 and Figure 3-6. The number of gray whale strandings along the west coast of North America averaged 41 animals from 1995 to 1998. Stranding detection effort during these times was not directed; reports were compiled from opportunistic reports that were later relayed to NMFS' regional stranding coordinators (Gulland et al. 2005). In 1999 and 2000, gray whales stranded dead, or moribund, in unprecedented numbers from Alaska to Baja California, Mexico, with the highest numbers reported in Mexico and Alaska (Norman et al. 2000; Gulland et al. 2005). For comparison, 29 dead gray whales were found on the Alaska coast in 1989 during surveys associated with assessment of impacts caused by the *Exxon Valdez* oil spill (Loughlin 1994). The 1999 and 2000 strandings and the subsequent return to normal conditions from 2002 through 2018 are discussed in detail below. While stranding data from Mexico are not available

for every year, Martinez-Aguilar et al. (2020) reported that from one to seven gray whales have stranded in San Ignacio Lagoon annually from 2009-2019 (prior to the current UME; discussed below).

Table 3-4. Summary of ENP gray whale stranding data from Alaska to Mexico, 1995 to 2023.

YEAR	Alaska	Canada	Washington	Oregon	California	Mexico	Total
1995	1	2	7	3	12	13	**38**
1996	0	0	2	2	13	3	**20**
1997	3	5	3	3	10	22	**46**
1998	3	2	4	0	31	17	**57**
1999	62	10	28	3	48	124	**275**
2000	43	22	23	2	61	207	**358**
2001	5	1	1	0	4	10	**21**
2002	0	0	2	3	7	15	**27**
2003	4	4	3	2	8	NA	**≥21**
2004	1	2	2	3	16	2	**26**
2005	5	3	11	4	8	12	**43**
2006	8	2	9	4	13	NA	**≥36**
2007	2	2	3	2	12	NA	**≥21**
2008	15	0	2	2	8	NA	**≥27**
2009	12	1	6	3	9	NA	**≥31**
2010	16	4	6	2	11	NA	**≥39**
2011	9	4	4	2	7	NA	**≥26**
2012	24	2	3	0	12	NA	**≥41**
2013	10	2	4	3	10	NA	**≥29**
2014	21	1	5	5	6	NA	**≥38**
2015	18	2	3	1	19	60	**103**
2016	20	1	4	4	9	NA	**≥38**
2017	15	2	7	5	13	29	**71**
2018	22	3	9	1	13	25	**73**
2019	48	11	35	6	34	83	**217**
2020	47	5	14	3	18	88	**175**
2021	24	5	9	3	19	55	**115**

2022	18	4	15	4	10	54	**105**
2023 (as of September 26, 2023)	11	2	13	6	13	35	**80**

NA – not available

Sources: Gulland et al. 2005; The U.S. National Marine Mammal Stranding Data was compiled from the Marine Mammal Stranding Report – Level A data form (NOAA Form 89-864; OMB No. 0648-0178; form available at https://www.fisheries.noaa.gov/national/marine-life-distress/level-data-collection-marine-mammal-stranding-events). Level A data include details of each stranding (e.g., species, date, stranding location, carcass condition, sex, length). Details on the National Stranding Database can be found at https://www.fisheries.noaa.gov/national/marine-life-distress/national-stranding-database-public-access Details on the National Database can be found at: https://www.fisheries.noaa.gov/national/marine-life-distress/national-stranding-database-public-access. The final U.S. Marine Mammal Stranding data used in this paper were extracted from the database on 05 October 2022 and data through August 31, 2022 are included for strandings prior to the current UME.

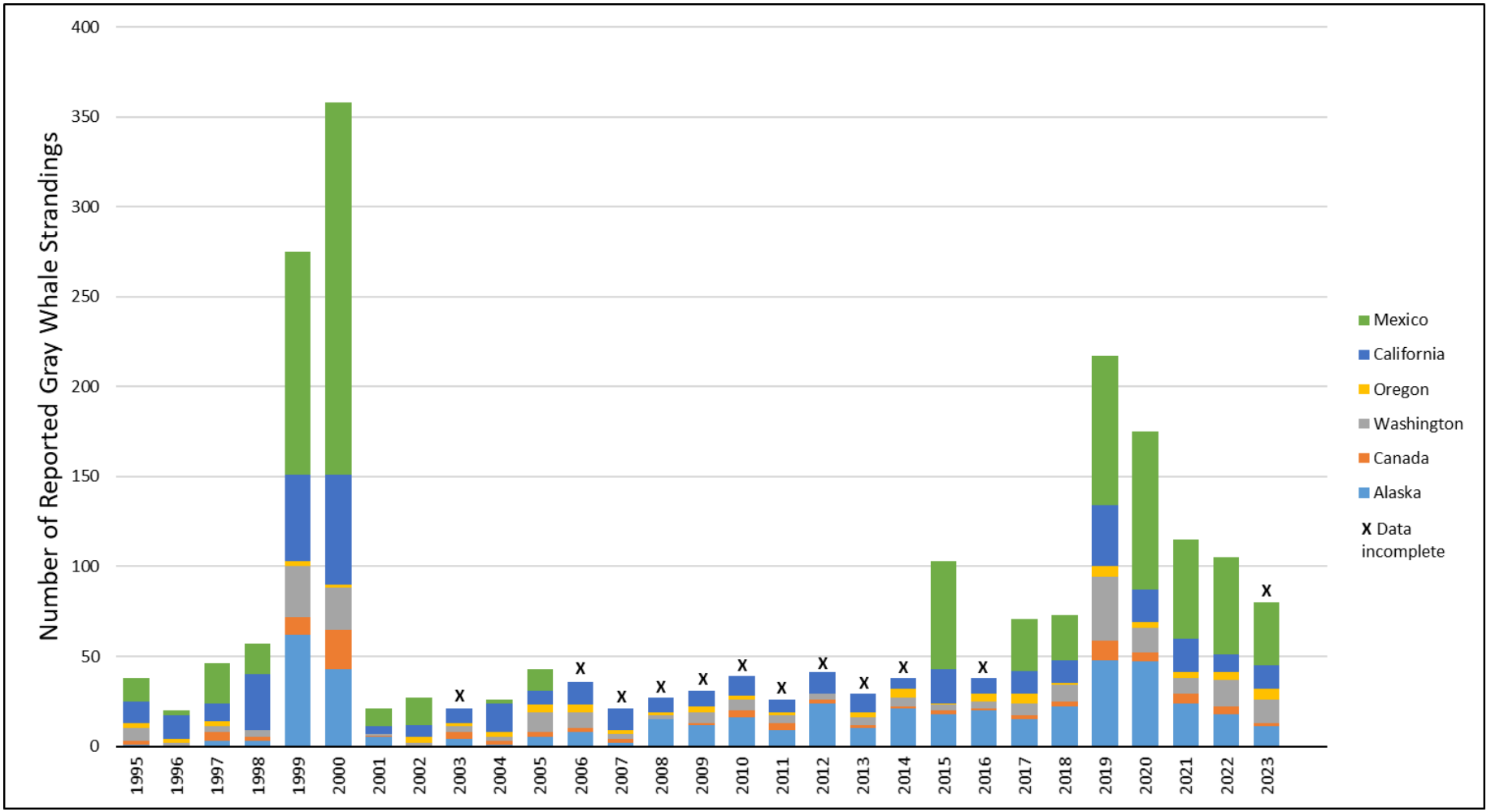


Figure 3-6. ENP gray whale strandings reported from Alaska to Mexico, 1995-2023. Years with an 'X' indicate data are incomplete; years 2003, 2006-2014, and 2016 do not have complete data from Mexico. Year 2023 shows strandings through September 26, 2023.

In 1999, the number of gray whale strandings documented along the west coast of North America increased to approximately seven times the annual mean (41) reported between 1995 and 1998 (Gulland et al. 2005; Figure 3-6). The 1992 amendment of the MMPA defines a mortality event to be "unusual" when the stranding event "is unexpected; involves significant die-off of any marine mammal population; and demands immediate response" (16 U.S.C. 1361 et seq.). Under the MMPA, the declaration of a UME authorizes a federal investigation led by the Working Group on Marine Mammal Unusual Mortality Events (referred to here as the Working Group) into the cause of the event. In July 1999, we consulted the Working Group on Marine Mammal Unusual Mortality Events (Working Group) because of the unusually high number of stranded whales (283) that year (Gulland et al. 2005). The Working Group is an advisory board created under section 404 of the MMPA and comprises 12 members with expertise in marine science, including conservation and veterinary science, who are consulted when marine mammals are dying in an unusual way.

The Working Group weighed the 1999 stranding evidence against the following seven criteria[7] developed to determine whether a stranding event is unusual:

1. A marked increase occurs in the magnitude of or a marked change in the nature of strandings when compared with prior records.
2. Animals strand at a time of the year when strandings are unusual.
3. An increase in strandings occurs in a localized area (possibly suggesting a localized problem), occurs throughout the geographical range of the species/population, or spreads geographically with time.
4. The species, age, or sex composition of the stranded animals differs from that of animals that normally strand in the area at that time of the year.
5. Stranded animals exhibit similar or unusual pathologic findings or the general physical condition (e.g., blubber thickness) of stranded animals is different from that normally seen.

[7] The criteria used to determine an unusual mortality event were updated in 2006 (71 FR 75234, December 14, 2006) to include morbidity, pathology, and population-level declines. See https://www.fisheries.noaa.gov/insight/understanding-marine-mammal-unusual-mortality-events for a list of the current criteria.

6. Mortality accompanies unusual behavior patterns observed among living individuals in the wild, such as occurrence in habitats normally avoided or abnormal patterns of swimming and diving.

7. Critically endangered species are stranding. Stranding of three or four right whales, for example, may be cause for great concern, whereas stranding of a similar number of fin whales may not.

A single criterion or a combination of criteria may indicate the occurrence of a UME.

The Working Group concluded that the 1999 stranding event was a UME because the animals were stranding throughout their range, stranding rates had increased precipitously, animal behavior and body condition were different from those reported previously (emaciated), and animals were stranding in areas where such events had not been historically noted (behavioral change) (Gulland et al. 2005). The Working Group recommended increasing evaluations and examinations of carcasses, providing a small team to summarize the available information for the Working Group, and coordinating and exchanging information between the four countries in which the gray whale stock occurs (Mexico, the United States, Canada, and Russia) (Gulland et al. 2005).

After the 1999 mortality event was declared unusual, coordination between the stranding networks increased, and two workshops were held in Mexico to enhance coordination (La Paz, March 2000 and Guerrero Negro, March 2001) (Gulland et al. 2005). Stranding detection effort varied significantly, both geographically and temporally. Because of the high stranding report rates, an increased emphasis on timely reporting started in April 1999 and continued through 2002 to allow for real-time analysis of trends (Gulland et al. 2005). We prepared a provisional report for the Working Group in 2000 (Norman et al. 2000), and preliminary findings were presented to the Scientific Committee of the IWC (Pérez-Cortés Moreno et al. 1999). In 2000, the number of stranded animals remained high, with 368 carcasses reported, representing a nine-fold increase from the 1995 to 1998 average (Gulland et al. 2005). At the annual Working Group meeting in March 2001, the Working Group recommended keeping the unusual mortality event open for monitoring, but when only 20 strandings had occurred by October 2001, they recommended closing the event (NMFS 2001b). Based on this information, we closed the event (NMFS 2001b).

We examined and synthesized stranding network information for 1999 and 2000 in Gulland et al. (2005). The authors observed that most of the strandings in 1999 and 2000 occurred in Mexican waters during the winter season. Researchers consistently surveyed stranding effort in the wintering

lagoons of Mexico, and the effort in 1999 and 2000 was comparable to that of previous years, except that records of gray whales that stranded outside their normal winter range were obtained opportunistically (Gulland et al. 2005). Increases in all regions, except Oregon, were significant. Fairly consistent stranding detection and reporting in California, Oregon, and Washington (except for remote areas of the Olympic Peninsula) took place from 1995 to 2002. Effort in British Columbia was opportunistic because of the complex coastline. Detection effort and geographic coverage in Alaska differed significantly from year to year, but dedicated surveys were conducted in some areas of the Alaska coast from 1999 to 2001 (Gulland et al. 2005).

Although each stranding was examined as thoroughly as was practical, only 3 (0.5 percent) of the 651 animals that stranded in 1999 and 2000 were examined thoroughly enough to determine the cause of death (including detection of pre-existing conditions). One whale was diagnosed with a viral infection not previously reported in stranded whales (equine encephalitis), one whale had an unusually intense infection of parasites normally associated with baleen whales, and one whale was intoxicated with domoic acid (Subsection 3.4.3.6.3, Harmful Algal Blooms). Researchers considered several factors as possible causes for the high number of gray whale strandings reported in 1999 and 2000. Factors include starvation, chemical contaminants (refer to Subsection 3.4.3.6.2, Environmental Contaminants), biotoxins (refer to Subsection 3.4.3.6.3, Harmful Algal Blooms), disease, parasites, fisheries interactions and ship strikes, variability in detection effort and reporting, and effects of winds and currents on carcass decomposition (Norman et al. 2000; Gulland et al. 2005). While the cause of the 1999-2000 UME is unkown, the emaciated condition of the stranded whales, combined with evidence of low lipid concentrations and organochlorines in the stranded animals (Krahn et al. 2001) and decreases in calf production in the population during the same time frame (Perryman et al. 2002), led many scientists to conclude that starvation was the most likely cause of mortality. Some of the animals that stranded were in good to fair nutritional condition, suggesting that not all of the strandings link logically to food resource limitation and starvation (Gulland et al. 2005).

The cause of such large-scale starvation remains unknown (Gulland et al. 2005). Some scientists think that the starvation was related to a climatically based decline in prey availability, especially related to the 1997 and 1998 El Niño events in the winter range and the Pacific Decadal Oscillation and Arctic Oscillation in the summer range (LeBouef et al. 2000; Moore et al. 2001; Moore et al. 2003). Perryman et al. (2002) also showed that seasonal changes in ice distribution in the Bering and Chukchi Seas might influence the duration of whale feeding. Because gray whales feed opportunistically on a broad suite of prey species throughout their range and move to

alternate areas when the food runs out (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem), these explanations seemed simplistic (Nerini 1984; Moore et al. 2001; Moore et al. 2003; Moore 2005; Moore et al. 2007). Others postulated that the starvation related to density-dependent population effects—animals approaching carrying capacity (K) experience heightened competition for food resources and decreased reproductive success. This explanation for the starvation is imperfect, given the suddenness of the demographic change and the relatively larger numbers of adult whales that stranded (Moore et al. 2001). Gulland et al. (2005) suggested that the starvation was probably a result of both density dependence and environmental variability; populations of cetaceans that are at or near K probably are more vulnerable to environmental variability because of nutritional stress.

Weller et al. (2001) reported on the occurrence of unusually "skinny" whales in 1999 and 2000 off Sakhalin Island, Russia and suspected one or more of the following causal factors: 1) disease, 2) stress-induced metabolic shifts, 3) natural or human-produced changes in prey availability, or 4) habitat perturbation by industrial activities. Bradford et al. (2008) noted that the body condition of gray whales in the WNP varied annually and that, in the short term, these whales seem to recover from periods of compromised body condition; however, the long-term consequences are unknown. An assessment by Bradford et al. (2012) revealed that, compared to the reference year of 1997, whales in the WNP were in significantly better body condition in 2004 and in significantly worse body condition in 1999, 2006, and 2007.

Akmajian et al. (2021) used the methodology presented in Bradford et al. (2012) to assess the body condition of PCFG whales over an 18-year time span between 1996 and 2013. They found that the body condition of PCFG gray whales improved throughout the feeding season, although the rate of improvement and body condition at the start and end of the feeding season was variable by year. Local and basin-wide environmental drivers, including the Pacific Decadal Oscillation and measures of sea surface temperature and upwelling, explained some of the observed annual variability in PCFG body condition. Although the body condition of PCFG whales was lower, but not significantly so, between 1998 and 2000 when compared to their reference year of 1997. Body condition in these three years, which directly precede or include the years in which the ENP population of gray whales was undergoing a UME, was higher than in the subsequent years of 2007, 2009, and 2010, and the body condition of PCFG whales was highest in 2001, directly following the 1999/2000 UME. When compared to the data presented in Bradford et al. (2012), Akmajian et al. (2021) found that PCFG whales attained good body condition more slowly, and less predictably, than did the whales feeding in the WNP off Sakhalin

Island, likely reflecting a difference in the availability or density of prey resources on the two feeding grounds.

Using drone photogrammetry, Lemos et al. (2020) applied an index of body area to measure and compare body condition of ENP gray whales foraging off the coast of Oregon between 2016 and 2018. They found that body condition varied with age, sex, and reproductive status, with calves and pregnant females displaying the highest body condition followed by resting females, mature males, and, finally, lactating females. Body condition was significantly higher in 2016 than in 2017 and 2018, which was associated with two prior years of poor local upwelling conditions that may have caused reduced prey availability. Lemos et al. (2021) analyzed hormone levels in the feces of gray whales feeding off the Oregon coast during these same years (2016-2018) and found a significant negative correlation between body condition and the concentration of glucocorticoid metabolites. Glucocorticoid metabolite concentrations were highest in 2018, which may indicate that animals sampled in that year had endured prolonged nutritional stress.

In 2007, researchers investigating one of the main wintering lagoons in Mexico noted large numbers of whales that were "skinny" in appearance, suggesting malnourishment (Swartz et al. 2007; Urbán-Ramirez and Swartz 2007; Urbán-Ramirez et al. 2007). Photographic data collected during 2007 in Laguna San Ignacio indicated that 11 to 13 percent of the whales photographed exhibited obvious signs of malnutrition and/or disease, including noticeable depressions in the head region, sub-dermal protrusions of bony parts (e.g., the scapula), and concave rather than convex profiles of whale dorsal flank areas (Swartz et al. 2007). Urbán-Ramirez and Swartz (2007) noted other studies where some "skinny" whales that were pregnant returned to their summer feeding areas with apparently healthy calves, suggesting that "skinniness" may not be a fatal condition but instead reflect "a tolerable reduction [in] nutritional resources." Researchers have continued photographing and monitoring the condition and health of gray whales as part of the Laguna San Ignacio Ecosystem Science Program (Urbán-Ramirez et al. 2007; Urbán-Ramirez et al. 2010; Swartz et al. 2012; Rosales-Nanduca et al. 2012). More recently, drones were used to measure the body condition of gray whales in San Ignacio Lagoon, Mexico, between 2017 and 2019 (Christiansen et al. 2021). Body condition was significantly lower in 2018 versus 2017 for all reproductive classes (calves, juveniles, adults and lactating females). Torres et al. (2022) compared these images to drone images collected from whales on the PCFG feeding grounds in Oregon to evaluate variability of gray whale body condition relative to changing oceanographic conditions. The whales on the PCFG feeding ground had significantly lower body condition than did the whales in San Ignacio Lagoon. However, while the body condition of the whales

photographed in San Ignacio Lagoon declined over the time period, the body condition of the whales on the PCFG feeding ground improved over the three years of the study. The decline among whales in San Ignacio Lagoon may have been associated with the ongoing UME for ENP gray whales that began in 2019, while the increase among whales feeding off Oregon may reflect recovery from poor prey conditions during the Northeast Pacific marine heatwave that occurred from 2014 to 2016.

Following the 1999 and 2000 stranding events, stranding levels returned to the normal range, decreasing to 21 and 27 whales in 2001 and 2002, respectively, and remaining at similar levels until 2018 (Figure 3-6). Most of the dead whales that biologists examined from 2002 to 2005 died of unknown causes. In a few cases, biologists found evidence of ship strikes (propeller cuts) or entanglement in fishing gear (Gulland et al. 2005).

Elevated strandings of ENP gray whales beginning in January 2019 prompted NMFS to declare another UME for the stock on May 29, 2019 and establish a Working Group to investigate the cause of the event. NMFS assembled an independent team of scientists to coordinate with the Working Group to collect samples from the stranded whales, review the data collected, and determine the next steps for the investigation.

As of September 26, 2023, the UME declared in 2019 is ongoing with 688 gray whales stranded along the coast of Mexico, the United States, and Canada, with the greatest number of strandings concentrated in the United States and Mexico (Table 3-4). The full extent of the mortality from this event is unknown. Although some carcasses have been recovered, it is likely that many carcasses sank, washed out to sea, or stranded in remote locations and were unobserved by humans. However, it is possible to estimate mortality resulting from this UME through ongoing population surveys conducted by NMFS, and noted above in Subsection 3.2.1.2. The current UME coincides with a recent 46 percent decline in abundance observed in the 2019/2020 survey (Stewart and Weller 2021a; Eguchi et al. 2022a; Eguchi et al. 2023a).

NMFS has relied on the West Coast Marine Mammal Stranding Network for compiling reports of stranded animals, collecting data, conducting necropsies, and collecting samples from carcasses when possible in Washington, Oregon, and California. So far, full or partial necropsies have been performed on just a few of the stranded animals. Samples can be difficult or impossible to collect if the whale has become too decomposed or has stranded in an inaccessible location. NMFS does not mandate what necropsy data to collect. However, stranding network partners often record as much basic data as possible (referred to as Level A data), such as the state of decomposition and condition of the animal, the location of the

stranding, and a list of samples that were collected, if any. Some but not all of the stranded whales have shown evidence of emaciation, but more research is needed to determine the cause(s) of the UME.

It is not possible to predict how long the UME will continue. Although the population likely underwent similar events in the past, only one previous event has been designated since the 1992 amendment to the MMPA that established the UME declaration and investigation process. The 1999-2000 UME lasted for two years, after which the population recovered to its highest abundance level since monitoring began in the 1950s. NMFS regularly posts updates regarding this UME on its website at https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2020-gray-whale-unusual-mortality-event-along-west-coast-and.

3.4.3.2 Western North Pacific (WNP) Gray Whales

3.4.3.2.1 WNP Seasonal Distribution, Migration, and Movements

WNP gray whales are considered to be gray whales that spend all or part of their lives in the western North Pacific in the waters of Vietnam, China, Japan, Korea (Republic of Korea and/or Democratic People's Republic of Korea), or the Russian Far East, including southern and southeastern Kamchatka but not necessarily areas north of 55° N in eastern Kamchatka (NMFS 2023c; Weller et al. 2023). This definition is consistent with that used in the IUCN/IWC Western Gray Whale Conservation Management Plan and with how the WNP gray whale subpopulation has been evaluated by the IUCN (Cooke et al. 2018).

Gray whales once were extensively distributed from the northern part of the Sea of Okhotsk to the southern tip of the Republic of Korea (Bowen 1974). They were regularly encountered in the far northeastern corner of the Sea of Okhotsk by American whalers from the 1840s to 1870s (Reeves et al. 2008). The present-day range in the WNP is believed to be considerably more restricted (Brownell et al. 2010); key summer feeding grounds include areas off northeastern Sakhalin Island and southeastern Kamchatka Peninsula, Russia (Weller et al. 2002; Weller and Brownell 2012; Tyurneva et al. 2010, 2013). In these areas, gray whales have only been observed feeding on benthic prey (especially amphipods); however, there is also speculation that they may occasionally feed on sandlance in the vicinity of Piltun Lagoon (Fadeev 2011; Vladimirov et al. 2012). Other summer feeding grounds may include areas near the Kuril and Commander Islands, off the mainland coast of Kamchatka, and in the northern Sea of Okhotsk (Brownell et al. 2010).

Whales associated with the Sakhalin feeding area can be absent for all or part of a given feeding season (Bradford et al. 2008), indicating they use other areas during the summer and fall feeding period. Some of the whales identified and feeding in the coastal waters off Sakhalin, including

reproductive females and calves, have also been documented off the southern and eastern coast of Kamchatka (Tyurneva et al. 2010). Whales observed off Sakhalin have also been sighted off the northern Kuril Islands in the eastern Okhotsk Sea and Bering Island in the western Bering Sea (Weller et al. 2013). These animals that feed in the western North Pacific, including whales found off Sakhalin and southeastern Kamchatka, represent the only large feeding concentration of gray whales in the western North Pacific, and their numbers remain small (271 to 311 age 1+ years in 2016; Cooke et al. 2017).

Little is known about the migratory routes and wintering areas of WNP gray whales, but historic evidence indicates that the coastal waters of eastern Russia, the Korean Peninsula, and Japan were part of the migratory route and that areas in the South China Sea (possibly near Hainan Island, China) and Seto Inland Sea (Japan) were used as wintering or calving grounds (Omura 1984; Weller et al. 2002; Brownell et al. 2010; Weller et al. 2012). Omura (1984) suggested that two populations of WNP whales may once have migrated to coastal waters off Japan. One population was thought to travel along the eastern (Pacific) shore of Honshu during its southbound migration to a possible calving ground in the Seto Inland Sea (Omura 1984). The other was believed to migrate along the eastern shore of Korea then across the Korea Strait to southwest Honshu and northwest Kyushu (Omura 1984). Weller et al. (2002) noted that the current WNP north-south migratory route likely includes regions off the eastern shore of Sakhalin Island in the Okhotsk Sea and along the eastern shores of mainland Russia near Peter the Great Bay and along the Korean peninsula in the Sea of Japan (Andrews 1914; Brownell and Chun 1977; Berzin 1990). However, given the absence of gray whales off the coast of Korea in recent times (i.e., since 1977), Weller and Brownell (2012) suggested that WNP gray whales have abandoned the migration corridor along the Korean Peninsula or that the gray whale subpopulation using the Korean Peninsula is extinct.

WNP gray whale sightings off both coasts of Japan are uncommon but have increased slowly in recent years. From 1955 to July 2020, only 37 records of gray whales were reported (Nakamura et al. 2022). Most of the records were from the Pacific coast of Japan with only a few (n=9) reports from the Sea of Japan. The lack of frequent sightings off Japan may reflect true absence but may also reflect limited search effort (Weller et al. 2016). While still rare, the frequency with which gray whales are reported off Japan has increased in recent years, with 16 records, some of which included the same individual, reported in 2015 or later (Nakamura et al. 2017, 2019, 2022). A female gray whale that died in a Japanese set net off the Pacific coast of Honshu, Japan in 2007 was identified as a whale observed off Sakhalin Island (Weller et al. 2008). This photographic

match was the first to show that whales on the summer feeding grounds off Sakhalin are found 1,500 km (932 mi) south within a migratory corridor. In addition, Weller et al. (2016) determined the migration of one gray whale that moved back and forth from Sakhalin Island and the Pacific coast of Honshu, Japan during 2014 to 2016. This individual was first observed as a calf with its mother off Sakhalin Island during the summer of 2014, then observed off Japan from March through May of 2015, back in Sakhalin during the summer of 2015, and then off Japan in January through February of 2016. The March to May sightings correspond with the timing of ENP gray whale northbound migrations in the spring from Mexico wintering grounds to Bering Sea feeding grounds, while the January and February sightings correspond with the timing of the ENP gray whales' southbound migrations in the winter to Mexico. These records support a migratory link between the summer Sakhalin feeding grounds and the suspected wintering area(s) somewhere off the coast of Asia (Weller et al. 2016). Data reported from the U.S. Navy Surveillance Towed Array Sensor System (SURTASS) vessel in the East China Sea would further support this migratory link, with possible gray whale acoustic signatures detected in the East China Sea from September through March in 2011 (Gagnon 2016; IUCN 2020). The 55 Hertz sweeps detected by the towed acoustic array have included up to eleven individuals in a two-hour period, moving south in the fall and north in the spring, consistent with a seasonal migration pattern (Gagnon 2016).

Very few contemporary records of gray whales in other regions of the western North Pacific exist, with only two records from Chinese waters since 1996 (Zhao 1997; Zhu 2012). The U.S. Navy SURTASS vessel recorded a unique acoustic signature in the East China Sea in 2011 that was identified as a probable gray whale (Gagnon 2016; IWC 2017; IUCN 2020). From 2011 to 2016, the Integrated Undersea Surveillance System Marine Mammal Monitoring program regularly detected acoustic signatures from gray whales in the East China Sea when a SURTASS vessel was present from September through March (Gagnon 2016). No verified records of gray whales in Korean waters have been detected since 1977 (Park 1995; Kim et al. 2013), although the possible occurrence of a gray whale in Korean waters was reported in 2015 (Kim et al. 2018).

Tagging, photo-identification, and genetic studies show that some whales identified in the WNP off Russia have been observed in the ENP, including coastal waters of Canada, the United States, and Mexico (Weller et al. 2012; Mate et al. 2015; Urbán-Ramirez et al. 2019; Martinez-Aguilar et al. 2022a). In combination, these studies have documented 60 gray whales observed in both the WNP and ENP. Despite this geographic overlap, significant mtDNA and nDNA differences are found between whales in the WNP and those summering in the ENP (LeDuc et al. 2002; Lang et

al. 2011; Carretta et al. 2023). Genetic analyses have shown that four whales sampled off Sakhalin (Russia) have identical genetic profiles (microsatellite genotypes, mtDNA haplotypes, and sex) to whales sampled on the ENP migratory route (Lang 2010; Urbán-Ramirez et al. 2019). Using photo-identification, researchers have re-sighted whales (including a few known reproductive females) from Sakhalin in the vicinity of Vancouver Island (Canada) and Lagunas Ojo de Liebre and San Ignacio (Mexico) (Weller et al. 2011; Urbán-Ramirez et al. 2012; Urbán-Ramirez et al. 2019; Martinez-Aguilar et al. 2022a). Weller et al. (2012) noted two cases in which multiple whales from the Sakhalin feeding grounds were sighted in the Pacific Northwest, suggesting that these whales may associate with one another even when using migratory routes in the ENP. These researchers also noted that these Sakhalin whales were seen in an area of the ENP (i.e., Vancouver Island) where some whales tend to linger and feed during the northbound migration (Darling et al. 1998). Weller et al. (2012) also speculated that the long distance and potential open water crossing required for transit from the ENP to the WNP may make it advantageous for whales to spend time feeding in the Pacific Northwest prior to undertaking a westerly passage to Sakhalin.

Satellite tagging studies conducted between October 2010 and October 2012 further confirm use of areas in the ENP by whales identified from the WNP (Marine Mammal Institute 2012a[8]; Mate et al. 2011; Joling 2012; Mate et al. 2015). Two whales (Russia-U.S. ID #032 and #129) tagged off Russia migrated east across the North Pacific Ocean into areas once believed to be occupied solely by ENP whales.[9] Tags from both whales transmitted data from locations in or adjacent to the coastal portion of the Makah U&A (see NMFS 2019b), Figure 3 for a map of the tracks of the two whales through the Makah U&A). The 13-year-old male (#032, Flex) (first seen as a calf near Sakhalin in 1997) was tagged on October 4, 2010, off Piltun Lagoon, northeastern Sakhalin Island (Mate et al. 2011)[10]. In mid-January 2011 (approximately 4 months after being tagged), he traveled across the Pacific Ocean to the western and central Bering Sea, then proceeded through

[8] This research was conducted by A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences (IEE RAS) and Oregon State University Marine Mammal Institute in collaboration with the U.S. National Marine Fisheries Service, Kronotsky State Nature Biosphere Reserve, and the Kamchatka Branch of the Pacific Institute of Geography. The research was contracted through the International Whaling Commission (IWC) and International Union for Conservation of Nature (IUCN) with funding from Exxon Neftegas Ltd. and Sakhalin Energy Investment Company Ltd (Marine Mammal Institute 2012a).

[9] A third gray whale (Russia/U.S. ID #141, Agent) was also tagged off Sakhalin and tracked travelling east across the north Pacific before the tag stopped transmitting in early January 2012, approximately two-thirds of the way across the Gulf of Alaska (Joling 2012).

[10] Photo-identification studies reveal that Russia/U.S. ID #032 was also assigned identification number CRC ID #1045 by Cascadia Research Collective. This whale had been sighted off Sakhalin during July-September 2007, off Vancouver Island in April 2008, and then back off Sakhalin in July 2008 (Weller et al. 2012).

the eastern Aleutian Islands and across the Gulf of Alaska to areas overlapping with ENP gray whales, heading south 12 to 16 miles (approximately 20 to 25 km) off the Washington and Oregon coasts. He was last located by satellite 12 miles (20 km) off Siletz Bay, Oregon, on February 5, 2011, which overlapped with the last few weeks of the usual ENP gray whale southbound migration through this same area (Mate et al. 2011). Although it is not known if the whale eventually traveled farther south that year, researchers noted that they saw him on several occasions while conducting research in the Sea of Okhotsk during the summer of 2012 and that he "appeared to be in good body condition and, while scarred, the tag area [had] healed" (Marine Mammal Institute 2012a).

A second gray whale (#129, Varvara), was tagged near Sakhalin Island in September 2011; she was an 8.5-year old female at the time of tagging and had been seen intermittently off Sakhalin since first sighted as a calf in 2003 (Marine Mammal Institute 2012a). Like Flex, she was tracked across the North Pacific Ocean, the Gulf of Alaska, and south along the west coasts of the U.S. and Canada. In contrast, however, Varvara's tag continued to transmit for a much longer period of time (408 days) and revealed that she spent several weeks from late January to early March along the coast of Baja Mexico, in and adjacent to the gray whale wintering lagoons. Also, her tag continued to transmit after leaving Mexico, revealing a northbound track that roughly followed the southbound track along the British Columbia, Washington, Oregon, and California coasts. Unlike her southbound migration where she transited the Gulf of Alaska, she migrated north along the coast of Alaska, crossing the Aleutian Peninsula and following the sea ice of the North Pacific Ocean and eventually entering nearshore waters off Kamchatka in late April 2012 (Journey North 2012).

Based on transmissions from Varvara received within and adjacent to the Makah U&A, researchers estimated that the whale traveled through the coastal portion of the Makah U&A southbound January 8 to 15, 2012, and northbound March 11 to 18, 2012 (Journey North 2012; Marine Mammal Institute 2012b). She eventually returned to WNP feeding grounds in the Sea of Okhotsk and the satellite tag stopped transmitting off Sakhalin Island on October 12, 2012 (Journey North 2012; Marine Mammal Institute 2012a).

Based on the best available information regarding movements of whales between the WNP and ENP, including 1) photographic records from Russian, U.S., and Mexican catalogs; 2) satellite

telemetry data; and 3) genetic analyses of biopsied whales[11], it is possible to conclude the following:

- Sixty whales known to forage in the WNP have been recorded in the ENP. Sightings include males, females, and females with calves (in Mexico lagoons).
- Sightings of several WNP whales at the same time and location along the ENP migration corridor (and within the PCFG area) indicate that some WNP whales may travel in close proximity to one another.
- The earliest and latest sightings of WNP whales in the ENP (Alaska to Mexico) indicate that such whales could be present in the PCFG range from late December until at least early May.
- The lack of WNP whale sightings between early May and late December (Weller et al. 2012; Mate et al. 2015)—a period including the most active gray whale survey months within and adjacent to the Makah U&A (Calambokidis et al. 2019; Harris et al. 2022).

These conclusions raise questions about the proportion of WNP gray whales that remain in the western North Pacific year-round. Based on population modeling that incorporated data on known movements of WNP gray whales into the eastern North Pacific, Cooke et al. (2019) concluded that 45-80 percent of Sakhalin whales migrate to the eastern North Pacific in the winter. This finding indicates that at least 20 percent, and perhaps more, of the whales migrate elsewhere, presumably to wintering areas off the Asian coast. Thus, the number of WNP gray whales remaining in the western North Pacific year-round is likely small (possibly fewer than 50 whales, Cooke 2017), making these whales more vulnerable than previously thought (Weller and Brownell 2012).

3.4.3.2.2 WNP Population Structure

Despite the observed mixing of gray whales from the WNP and ENP, significant mtDNA and nuclear genetic differences have been identified between whales feeding in the WNP near Sakhalin Island and those summering in the ENP (LeDuc et al. 2002, Meschersky et al. 2015, Brüniche-Olsen et al. 2018a, Brüniche-Olsen et al. 2021, Lang et al. 2022) and support the continued recognition of WNP whales as a distinct genetic unit. Also, while it is clear that some

[11] The genetic matches were obtained by analysing tissue biopsies from whales sampled off Sakhalin and southern California and identifying those that had identical genotypes (Lang et al. 2011). While comparison of photographs and/or genetic profiles can be used to determine if a whale has visited the WNP and the ENP, presently it is not possible to use genetic analyses alone to determine which of the animals feeding off Sakhalin remain in the WNP year-round.

whales known to feed off Sakhalin Island during the summer/fall migrate to the ENP during the winter/spring (Subsection 3.4.3.2.1 WNP Seasonal Distribution, Migration, and Movements), observations of gray whales in the WNP off Japan, Korea, and China during the winter/spring (i.e., when Flex and Varvara were seen in the ENP) suggest that not all gray whales feeding at Sakhalin Island share a common wintering ground (Weller and Brownell 2012; Weller et al. 2012).

Analysis of mtDNA control region sequences have shown differences between WNP gray whales feeding off Sakhalin and whales sampled on eastern migratory routes and/or feeding grounds (F_{ST} = 0.086-0.093, p<0.001, LeDuc et al. 2002; Lang et al. 2022); these differences remained apparent when a much longer region of mtDNA was sequenced and compared (F_{ST} = 0.124-0.202, p<0.0001, Meschersky et al. 2015; F_{ST} = 0.024, p = 0.004, Brüniche-Olsen et al. 2021). The mtDNA results support strong matrilineally driven fidelity of WNP gray whales to the Sakhalin feeding ground, whereby the return of whales first brought to Sakhalin as calves by their mothers (and, if female, the subsequent return of their calves) causes the frequencies of mtDNA haplotypes carried by reproductive females to build over time. This evidence is consistent with the patterns identified in the photo-identification data, in which the return of whales first brought to Sakhalin as calves by their mothers has been documented.

Comparisons of nuclear loci, which are bi-parentally inherited and thus reflect patterns of gene flow, also revealed statistically significant differentiation in microsatellite allele frequencies (n=12 loci) when WNP gray whales were compared with ENP gray whales feeding north of the Aleutians (F_{ST}=0.016, p=0.001, Lang et al. 2022). A subsequent study that compared WNP gray whales with gray whales sampled on the Mexican wintering lagoons also identified significant levels of nuclear genetic differentiation (F_{ST} = 0.039, p=0.001) using the panel of 84 SNP loci (Brüniche-Olsen et al. 2018a).

In addition to the significant levels of nuclear genetic differentiation identified between WNP whales and whales sampled in the ENP, the contemporary effective size of the Sakhalin gray whales was estimated to be small (80 whales, 95% CI 61.9-107.7; Lang et al. 2022). If a substantial proportion of the whales feeding off Sakhalin were breeding at random with the much larger ENP stock of gray whales, estimates of contemporary effective size, which represents the number of breeding individuals contributing to the cohorts included in the sample set (Waples et al. 2014), would be markedly higher than that calculated for the Sakhalin feeding whales. Thus the small estimate of contemporary effective size is consistent with a scenario in which Sakhalin whales are largely interbreeding with each other (Lang et al. 2022).

While highly significant, the magnitude of nuclear genetic differentiation identified between WNP and ENP gray whales is relatively low (Lang et al. 2022; Brüniche-Olsen et al. 2018b). Currently, the best available information suggests that there could be some interbreeding between ENP and WNP gray whales, which is not surprising given the observed spatial overlap between some WNP and ENP gray whales on eastern migratory routes and wintering grounds. However, paternity analysis based on 13 microsatellite loci showed that 46-53 percent of sampled whales that were first identified as calves off Sakhalin could be assigned a putative father from among Sakhalin whales (Lang et al. 2010a). When combined with the significant levels of genetic differentiation identified between ENP and WNP gray whales, these findings indicate that WNP gray whales do not mate randomly with the much larger number of whales that comprise the ENP population, but rather are largely, but not exclusively, interbreeding with each other.

Recently, NMFS convened a Status Review Team (SRT) to determine whether, under the ESA, WNP gray whales qualify as a distinct population segment (DPS) under the joint NMFS-U.S. Fish and Wildlife Service policy on identifying Distinct Population Segments ("DPS Policy," 61 FR 4722; February 7, 1996). The SRT determined that three different gray whale units meet the DPS criteria of discreteness and significance: 1) WNP-only gray whales, who spend their entire lives in the WNP, 2) WNP-ENP gray whales, who feed in the WNP in the summer and migrate to the ENP, including Mexico, during the winter, and 3) WNP-only and WNP-ENP gray whales combined (Weller et al. 2023). Ultimately, the SRT recommended that option 3, the combined unit of WNP-only and WNP-ENP gray whales, be used to designate a single DPS, given that it is not possible to readily identify individual whales as part of the WNP-only unit or the WNP-ENP unit and thus the ability to evaluate the status of each unit separately is not scientifically practicable (Weller et al. 2023).

3.4.3.2.3 WNP Abundance and Trends

The current abundance of WNP gray whales (290 whales aged 1+ with a 90% confidence interval of 271-311, Cooke et al. 2017) is markedly smaller than that of ENP gray whales (14,526 whales, Eguchi et al. 2023a). A recent assessment using a stage-structured individual-based population model estimated that the number of whales, excluding calves, using the combined Sakhalin-southeastern Kamchatka area in 2016 was 320-410 whales, with the abundance increasing at annual rates of 2-5 percent during recent years (2006 to 2016) (Cooke 2018a). Approximately 130-170 of those whales were estimated to feed predominantly off Sakhalin Island (Cooke et al. 2017). Based on the positive growth rates and estimates that the number of mature WNP gray

whales now is greater than 50, the IUCN downlisted the WNP gray whale from Critically Endangered to Endangered status in 2018 (Cooke et al. 2018).

Before commercial whaling, at least 1,500 whales were thought to be part of the WNP population (Yablokov and Bogoslovskaya, 1984). While it is likely that the number of WNP gray whales before exploitation was smaller than the number of ENP gray whales, WNP gray whales did comprise a more significant portion of the species in the North Pacific in the past. Historical assessments by Yablokov and Bogoslovskaya (1984) and Berzin and Vladimirov (1981) suggest that as many as 10,000 WNP gray whales (pre-exploitation) may have dwindled to as few as 1,000 animals by 1910. Other assessments suggest the population could have been as high as 25,000 before commercial whaling (Cooke et al. 2019). By the 1970s, the population was considered extinct because it either was extinct or so low in abundance that whales were not observed (Bowen 1974). Mark-recapture analysis of photo-identification data collected on the Sakhalin Island feeding ground provided the first post-exploitation estimates of the abundance of WNP gray whales. It indicated that fewer than 100 whales used the feeding ground between 1997 and 2003 (Bradford et al. 2008).

3.4.3.2.4 WNP Status, Carrying Capacity, and Related Estimates

The WNP stock is currently listed as endangered under the U.S. Endangered Species Act and depleted under the MMPA. In response to a NMFS Task Force recommendation (Weller et al. 2013)[12], NMFS first released a draft stock assessment report for the WNP stock of gray whales in January 2015 (Carretta et al. 2015). As noted in the subsection above, the current population estimate for this stock is 290 non-calf animals, while the minimum population estimate (lower 5th percentile) is 271 animals (Cooke et al. 2017; Carretta et al. 2023). The stock assessment report does not address the carrying capacity for this stock, but the analysis by Moore and Weller (2013) results in PBR values ranging from 0.07 whales (using a recovery factor of 0.1) to 0.33 whales (using a recovery factor of 0.5), with uncertainty in these values being driven by uncertainty in the fraction of WNP animals migrating in ENP areas.

The IWC has not established a catch limit for WNP gray whales. In 2018, the IWC's Scientific Committee reviewed the analytical framework and management advice supporting the allocation of gray whale catch limits to aboriginal hunters (IWC 2018a). The Committee noted that the

[12] The recommendation was made in light of the MMPA's requirement that SARs be published for all stocks of marine mammals in U.S. waters in combination with the recent evidence that some whales identified in the WNP have been observed to migrate through U.S. waters to Mexico.

existing framework was designed to evaluate ENP gray whales but does not incorporate conservation considerations for WNP whales.

The limited sighting data available on WNP migrations and movements suggest that it is most likely that whales from this stock could be encountered in the vicinity of the Makah U&A during the hunting season proposed by the Tribe, perhaps with the exception of early May to late December. The IWC and a series of independent expert panels established by the IUCN have emphasized the urgent need for a comprehensive international strategy to eliminate or mitigate anthropogenic threats facing WNP gray whales throughout their range. The international Western Gray Whale Rangewide Workshop, convened by IUCN in Tokyo in 2008, summarized the state of knowledge regarding the population, identified information gaps, specified and ranked threats, and mapped out needed research and management actions. Its primary recommendation was to develop and implement a conservation plan for WNP gray whales, a draft of which was completed in August 2010 (Brownell et al. 2010) and the subject of a memorandum of cooperation signed by the U.S., the Russian Federation, and Japan (Memorandum of Cooperation 2014). In 2016, the memorandum was signed by Mexico and the Republic of Korea (IWC 2019a).

In 2023, NMFS published an ESA 5-year review summarizing population trends and threats to the WNP gray whale DPS (NMFS 2023c). Although the DPS has grown slowly over the past several decades, the population size remains small, in particular reproductive females, and thus remains highly vulnerable to extinction; as such, the SRT recommended that the WNP gray whale DPS remain listed as endangered (NMFS 2023c). Primary threats to the population include oil and gas exploration and fisheries bycatch and entanglement, although a wide range of threats, or potential threats, were analyzed including UMEs, disease, killer whale predation, scientific use, whale watching, commercial and subsistence harvest, and inadequacy of existing regulatory mechanisms (NMFS 2023c).

3.4.3.3 Eastern North Pacific (ENP) Gray Whales

3.4.3.3.1 ENP Population Structure

As noted previously, ENP gray whales are managed as a single stock by NMFS (Carretta et al. 2023) and the IWC (2022a) and are recognized as a separate subpopulation by the IUCN (Cooke 2018b) (see also Subsection 3.4.3.2.2, WNP Population Structure). There has been longstanding recognition that ENP and WNP gray whales are separate stocks (Rice and Wolman 1971), and genetic studies support this distinction (LeDuc et al. 2002; Lang et al. 2010; Lang et al. 2011; Meschersky et al. 2012; Lang et al. 2022). There is also some speculation that recently detected mixing between the WNP and ENP (refer to Subsection 3.4.3.2.1, WNP Seasonal Distribution,

Migration, and Movements) signifies a lack of gray whale population structure (Bickham et al. 2013). There is also evidence from a variety of sources (genetic, photographic, and telemetric) indicating possible substructure within the ENP population, in particular the possible existence of a PCFG stock of gray whales (Frasier et al. 2011; IWC 2011a; Weller et al. 2013; Lang et al. 2014). Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales discusses this evidence in detail.

Alter et al. (2012) investigated the pre-whaling diversity, population dynamics, and feeding ecology of gray whales using genetic and isotope analyses to compare modern gray whale samples to those from 150 to 3,500-year-old gray whale bones excavated from archaeological sites on and near the Makah reservation. Overall, their genetic analysis supported the hypothesis that gray whales experienced a recent major population decline. Results from their isotope analysis showed very slight differences between ancient and modern whale samples, suggesting the possibility of population substructure in the past in the vicinity of the Olympic Peninsula and Vancouver Island.

Genetic studies also suggest some substructuring may occur on the wintering grounds, with significant differences in mtDNA found between females (mothers with calves) using two of the primary calving lagoons and females sampled in other areas (Goerlitz et al. 2003). Other research, employing both mtDNA and microsatellites, identified significant departure from panmixia (random mating) between two of the lagoons using nuclear data, although no significant differences using mtDNA were observed (Alter et al. 2009).

The IWC Scientific Committee has conducted a series of annual (2014-2018) rangewide workshops on the status of North Pacific gray whales. The primary objective was not to determine a single 'best' stock structure hypothesis (unless definitively supported by existing data) but rather to identify plausible hypotheses consistent with the suite of available data. The goal is to create a foundation for developing range-wide conservation advice. The primary hypotheses deemed as most plausible considered three separate 'breeding stocks' or biological populations. Currently, the IWC recognizes two 'high priority' hypotheses for inclusion in the stock status modelling framework: (a) "Hypothesis 4a" which assumes that two breeding stocks exist and overwinter off Mexico, and (b) "Hypothesis 7a" which is characterized by maternal feeding ground fidelity, two migratory routes/wintering grounds used by Sakhalin whales, and non-random mating.

Under Hypothesis 4a, one breeding stock includes Northern Feeding Group (NFG) and PCFG whales, and the second breeding stock includes Western Feeding Group (WFG) whales that mate

largely with each other while migrating to Mexico. Whales show matrilineal fidelity to feeding grounds, one migratory route/wintering region used by Sakhalin whales, and non-random mating. Areas off Southern Kamchatka and the Northern Kuril Islands are used by some whales that belong to the breeding stock comprised of WFG whales and some whales that belong to the NFG. Although a third breeding stock (the western breeding stock) may once have existed, it is assumed to have been extirpated under Hypothesis 4a.

In comparison, Hypothesis 7a assumes that three breeding stocks exist: an Eastern Breeding Stock (EBS), a Western Breeding Stock (WBS), and an unnamed stock of WFG whales that largely breed with each other while on migration to Mexico. The EBS includes two feeding groups: PCFG and NFG. The WBS whales feed in the Northeastern Sakhalin Island sub-area, areas of the Okhotsk Sea, and the Southern Kamchakta and Northern Kuril Islands and then migrate to Vietnam-South China Sea sub-area to overwinter. Southern Kamchatka and the Northern Kuril Islands are used by the WFG (that are part of the unnamed breeding stock migrating to Mexico), the NFG, and the feeding whales that are part of the WBS (IWC 2021a).

Sex Ratio of ENP Whales

Lang et al. (2014) conducted genetic analyses on dozens of gray whale samples from the ENP, including whales from off Chukotka and from the PCFG. Females made up 59 percent of the whales sampled from the northern stratum (collected from whales north of the Aleutians). This same level of female bias was also found in the samples taken from off Chukotka and from the PCFG.

3.4.3.3.2 ENP Seasonal Distribution, Migration, and Movements

ENP gray whales generally migrate seasonally along the coast of North America between a summer range as far north as the Bering, Chukchi, and Beaufort Seas and a winter range as far south as the Baja California Peninsula and Gulf of California in northwestern Mexico (Rice et al. 1984; Urbán-Ramírez et al. 2003) (Figure 3-3). The general characteristics, timing, and migratory distance relative to shore for fall/winter southward and spring northward migrations are described more specifically below. In addition, while most ENP whales migrate north of the Aleutian Islands/Alaska Peninsula, a small number of whales remain south of the Alaska Peninsula to feed. The IWC refers to the southern assemblage of ENP whales observed between June 1 and November 30 from 41° N to 52° N in 2 or more years as the "Pacific Coast Feeding Group" (PCFG) (IWC 2012a). In addition to these PCFG whales, there are also 'straggler' or 'transient' gray whales (IWC 2012e; Calambokidis et al. 2014) that have only been seen feeding in the PCFG area in a single year (presumably using northern feeding grounds in other years). This

FEIS discusses whales seen in the PCFG area separately in Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales. The remainder of this subsection focuses on the larger group of ENP whales that migrate to summer/fall feeding areas north of areas used by the PCFG (i.e., north of 52° N, roughly northern Vancouver Island).

Summer/Fall Foraging

The bulk of the ENP population forages in a summer/fall range north of the Aleutian Islands in areas commonly referred to in the literature as the northern seas (Nerini 1984; Gardner and Chávez-Rosales 2000) and primary, principal, traditional, northern, or summer feeding grounds (e.g., Braham 1984; Nerini 1984; Swartz 1986; Darling et al. 1998; Moore et al. 2000; Dunham and Duffus 2002; Findlay and Vidal 2002). In addition, sizeable aggregations of gray whales (up to 400 animals) have been reported during the late spring and summer off southeast Alaska, especially near Kodiak Island (Moore et al. 2007; Gosho et al. 2011). These sightings are north of the PCFG's defined range and south of the primary summer range used by most ENP whales. Little is known about these southeast Alaska whales except that there appears to be some consistency in their occurrence and some have been sighted further south in the PCFG area (Moore et al. 2007; Gosho et al. 2011). The discussion that follows focuses on the northern foraging areas used by the vast majority of the ENP population.

The bulk of the ENP herd usually arrives in the Bering Strait by the end of May (Yablokov and Bogoslovskaya 1984). Hessing (1981) observed approximately 4,000 gray whales transiting the Aleutian Islands via Unimak Pass from May through mid-June (peaking on June 4), and Barrett-Lennard et al. (2011) reported sightings in this area during the month of May. The extent of ENP gray whale distribution and habitat use in the summer range is not well documented, and patterns are difficult to discern; much of the data come from historical whaling records or observational efforts that are not consistent or comparable (Berzin 1984; Clarke and Moore 2002). Sighting data from Soviets and Americans throughout 1958 to 1993 are summarized in Clarke and Moore (2002), but the information is of limited value because of the inconsistent methods by which the data were collected. Generally speaking, whales are distributed as far east as the Canadian Beaufort Sea (Rugh and Fraker 1981), as far west as the Eastern Siberian Sea along the coastal shelf of Siberia and near Wrangel Island (Berzin 1984; Reilly 1984; Miller et al. 1985; IWC 2006), along the north and south coasts of the Chukotkan Peninsula (Berzin 1984; Miller et al. 1985), at shoals in the northeastern Chukchi Sea near Barrow, Alaska (Moore et al. 2000), and in the northern Bering and southern Chukchi Seas in areas between the Bering Strait and St. Lawrence Island (Moore et al. 2003).

Sea ice cover influences gray whale distribution, especially during long periods of time, such as glacial advances during the Pleistocene, when global climate change likely eliminated major feeding areas (Pyenson and Lindberg 2011). However, the primary factor influencing distribution and habitat selection appears to be availability of prey (Moore 2000; Clarke and Moore 2002). During the summer months in the Alaska Beaufort Sea (i.e., western Beaufort Sea) and southern Chukchi Sea, gray whales selected coastal and shoal habitats (less than 115 feet [35 m] deep) with less than 20 percent ice cover (Moore et al. 2000). Scientists at the 2006 IWC meeting reported that six satellite-tagged individual whales were also monitored moving north to these regions in open ice leads (i.e., open water paths in the ice) during mid-June, but they moved through areas that had 30 to 40 percent ice cover at times (IWC 2006). In the fall months, whales have been observed feeding in more than 70 percent ice cover. Moore et al. (2000) concluded that gray whale habitat selection is not strongly related to ice conditions (ratios for numbers of whales at various depths were similar for both light and heavy ice years); instead, gray whale distribution is primarily linked to prey density. During years when strong surface winds result in the cross-shelf transport of upwelled, nutrient-rich waters, benthic prey species are probably more productive and densely aggregated in nearshore coastal and shoal habitats (Moore 2000). During years of moderate to low wind mixing and transport, gray whales select shelf and trough habitats further offshore, where currents are directed by bathymetric features (i.e., seafloor geology) and may provide migration cues to southbound whales (Moore et al. 2000). Perryman et al. (2011) observed that ice cover has not decreased consistently across seasons and that during the past 30 years, the earliest northbound migrants (pregnant females) are encountering ice distributions that have changed relatively little during that period.

The overall abundance of the gray whale population also probably influences distribution in the northern portion of the summer range (and elsewhere) because, as the gray whale population increases, the range may expand as individuals forage more widely for limited food resources (Moore et al. 2007). Rugh et al. (2001) proposed that the week's delay in southward migration timing after 1980 may have been due to a wider distribution of the population as their search for food covered increasingly greater areas, making the trip south longer. This effect of a larger population leading to a wider dispersal was also noted by other authors (Yablokov and Bogoslovskaya 1984; Stoker 2001).

Within-season movement of gray whales has been documented over the years, leading researchers to the conclusion that whales in the northern portion of the summer range exhibit constant and extensive local migrations between feeding areas; they do not stay in one area for

the entire season (Yablokov and Bogoslovskaya 1984; IWC 2006). Individual whale movement in the northern portion of the summer range has not been documented to the extent of individual whales in the southern portion of the summer range (photographic-identification is impractical in such a large and remote area), but scientists at the 2006 IWC meeting reported preliminary results from a satellite-tagging study. The tagging data show that four individual whales used the southern Chukchi Sea for more than 3 months, with the distribution of the individual whales overlapping by only 3 percent within this area (IWC 2006). In concluding its 2011 Implementation Review of gray whales, the Scientific Committee of the IWC noted that further work should be undertaken to investigate the possibility of population structure on the northern feeding grounds, especially in the region of the Chukotkan hunts (IWC 2011a). To that end, the Scientific Committee of the IWC held the first of at least two workshops to explore the most recent data and analyses available regarding North Pacific gray whale movements and stock structure (IWC 2014b; refer to Subsection 3.4.3.1.2, Global Distribution and Population Structure). Rangewide workshops were also held in 2017 (IWC 2017) and 2018 (IWC 2019b), and a recent paper documented some fine-scale site fidelity in northern feeding grounds (Filatova et al. 2022).

Long-term shifts in the summer range have also been described recently and are thought to be related to the operation of two major oceanic climate cycles: the Arctic Oscillation and the Pacific Decadal Oscillation. These two cycles generally occur in the North Pacific every 10 to 30 years, last 30 to 40 years, and have distinct warm and cool phases caused by changes in sea surface pressure and sea surface temperature. The operation of both the Arctic Oscillation and Pacific Decadal Oscillation appears to be causing a major ecosystem shift in the Bering Sea, a transitional area that is at a crossroads between the Pacific Ocean and the Arctic Ocean and is, therefore, influenced by both cycles (Bond 2006; Grebmeier et al. 2006).

The Bering Sea (northern Bering and southern Chukchi Sea) was once considered the primary gray whale feeding ground (Braham 1984; Moore et al. 1986; Kim and Oliver 1989; Moore et al. 2000). During the late 1970s to early 1980s, it was characterized by cold climate conditions with extensive seasonal ice cover and high benthic productivity (Grebmeier et al. 2006). Time-series studies from the Chirikov Basin (between St. Lawrence Island and the Bering Strait) show that in 1980, *Ampeliscid* amphipods were the primary prey items of gray whales, sampled at record-high densities from the 1970s to mid-1980s (Stoker 1981; Yabolokov and Bogoslovskaya 1984; Grebmeier et al. 1989; Highsmith and Coyle 1990). The amphipod prey base declined by 30 percent between 1986 and 1988 (Highsmith and Coyle 1992; Sirenko and Koltun 1992). This

reported decline in benthic biomass did not have an immediate observable effect on gray whale abundance. A subsequent gray whale mortality event in 1999/2000, coupled with observations of emaciated whales, led scientists to conduct aerial surveys of the Chirikov Basin in 2002 to compare distribution and relative abundance with the 1980s data (Moore et al. 2003). Sighting rates of gray whales in the Chirikov Basin were 3 to 17 times lower than they had been in the 1980s (Moore et al. 2003; Grebmeier et al. 2006). Benthic productivity of the prey base had declined precipitously, and only the southern Chukchi Sea supported dense aggregations of whales (Moore et al. 2007).

The Bering Sea is now characterized by warmer conditions with less sea ice cover and lower benthic productivity than in the 1970s (Grebmeier et al. 2006). Gray whales have responded by foraging in other areas (Moore et al. 2003; Moore 2005; Moore et al. 2007). Observers are now seeing larger feeding aggregations in different parts of the northern portion of the summer range, north of the Bering Strait in the south-central Chukchi Sea and just north of St. Lawrence Island in the northern Bering Sea (south of the Chirikov Basin), an area that was previously recorded as devoid of gray whale feeding (Clarke and Moore 2002; Moore et al. 2003). Scientists reported at the 2006 IWC Scientific Committee meeting that a large proportion of 17 satellite-tagged whales fed extensively in the Chukchi Sea; six whales retained their tags for more than 100 days, and all six spent most of their time in the Chukchi Sea (IWC 2006). Stafford et al. (2007) noted that gray whales were once rare visitors to the Beaufort Sea but their numbers have been increasing since the mid-1990s. In 2003/2004, these researchers deployed acoustic recorders in the Beaufort Sea and unexpectedly detected gray whale calls throughout the winter near Barrow, Alaska. Additional analysis revealed that there was sufficient ice-free space for gray whales to surface and breathe, so it is unlikely that calls came from animals that were entrapped in the ice (Stafford et al. 2007). These studies support the possibility that gray whales are altering their foraging habits in the Arctic. Observers have also documented feeding that has not been seen previously in the southern portion of the summer range, such as near Kodiak Island and in the Gulf of Alaska (near Sitka) (Moore et al. 2003, 2007; Gosho et al. 2011).

Fall/Winter Southward Migration

The onset of the southward migration is difficult to define (Rugh et al. 2001) and is typically associated with the primary breeding period. Timing may be influenced by several environmental variables, including the extent of ice coverage, availability of food resources, and photoperiod (Rugh et al. 2001; Clarke and Moore 2002; Swartz et al. 2006). It is also related to how widely the whales are distributed for foraging (Rugh et al. 2001). Most whales migrate out of northern seas

sometime around mid-October to November, but some have been seen swimming south near Point Barrow as early as mid-August, and some have been seen along the Chukotkan Peninsula as late as mid-December (Rugh et al. 2001). The southward migration is generally grouped into two phases by age, sex, and reproductive status (Rice and Wolman 1971). The first migrant phase consists of near-term pregnant females, followed by non-pregnant females and mature males. The second migrant phase consists of immature whales of both sexes (Swartz et al. 2000; Swartz et al. 2006). Poor weather conditions and widely scattered offshore distribution of gray whales make it difficult to survey whales migrating through the area (Green et al. 1995; Shelden et al. 2000; Rugh et al. 2001), but some studies are available. Shelden et al. (2000) reported observations of gray whales off the coast of Washington and in the Strait of Juan de Fuca near Port Angeles in early to mid-November. Observational studies also support the presence of southbound gray whales off the coast of Washington in December (Pike 1962; Darling 1984; Shelden et al. 2000; Calambokidis et al. 2009a) and January (Calambokidis et al. 2009a). Using data from surveys at other locations, along with measured travel speeds of migrating gray whales, Rugh et al. (2001) calculated January 5 as the peak of the southward migration past Tatoosh Island.

The most routine observations of the gray whale migration have been in California (Rugh et al. 2001). Data from shore-based stations have shown a 1-week shift in timing of median dates of southbound migrants (from January 8 to January 16) after 1980. This might have been due to an oceanographic regime shift in the northern portion of the summer range. The shift caused extreme ice retreats and may have expanded the distribution of gray whales on the feeding grounds and increased the distance of the southward migration (Miller et al. 1994; Hare and Mantua 2000; Rugh et al. 2001; Moore et al. 2003; Shelden et al. 2004; Moore 2005). Concurrent with these findings, southbound calf sightings have increased near San Diego (southern California) and Carmel (central California) since 1980; the 1-week delay in the southward migration has meant that calving has occurred farther north than the Baja lagoons during the southward migration (Shelden et al. 2004). Gray whales generally reach these wintering grounds starting in late December or early January and reach maximum densities in February. There is also recent evidence that not all gray whales migrate south for the winter. Mate et al. (2010) satellite tagged a whale that remained off the northern California and southern Oregon coasts throughout the winter.

Winter Breeding and Calving

Gray whales occupy a large winter range, extending along the west coast as far north as Point Conception and the Channel Islands in central California (near Santa Barbara) and south to Cabo

San Lucas (Reilly 1984; Jones and Swartz 2002; Urbán-Ramírez et al. 2003), where most investigators have concentrated their observations (Findlay and Vidal 2002). Findlay and Vidal (2002) also reported that some of the population migrates farther south, around the tip of the peninsula and into the Gulf of California. A few isolated sightings of gray whales over the years have also occurred in more southern localities along the Pacific coast of mainland Mexico and at the oceanic Revillagigedo Islands (Findlay and Vidal 2002). In contrast, there is evidence that some whales do not migrate as far south as Mexico (Herzig and Mate 1984; Swartz 1986; Swartz et al. 2006), and Shelden et al. (2004) hypothesized that females that give birth north of Mexico may instead congregate near California's Channel Islands until their calves are large enough to migrate north.

As in the summer range, gray whales in the winter range often aggregate in specific areas of the ocean, particularly near and within coastal lagoons and bays of Baja, including Lagunas Guerrero Negro, Ojo de Liebre (Scammon's Lagoon), San Ignacio, Bahia Magdalena, Bahia Almejas, and Santo Domingo Channel (Urbán-Ramírez et al. 2003). The whales segregate spatially and temporally, such that their distribution, gross movements, and timetable of lagoon occupation differ for each age-sex group (Jones and Swartz 1984; Urbán-Ramírez et al. 2003; Swartz et al. 2006). Females with calves concentrate within the interiors of lagoons or lagoon nurseries and shift to the lagoon inlets and coastal waters occupied by the single whales without calves (i.e., oestrus females and mature males) when those whales depart for the northward migration (Jones and Swartz 1984; Swartz et al. 2006). Although there is repeated use of some lagoons, whales move among and between lagoons and spend some amount of the winter in waters outside of lagoons (Urbán-Ramírez et al. 2003). Recent surveys indicate that more females are using Laguna San Ignacio as a winter aggregation area and that mother-calf pairs from other such areas are moving into this lagoon late in the winter breeding season, a pattern last seen in the late 70s and early 80s (Swartz et al. 2012).

The aggregating behavior of the whales and their within-season movement between different areas on the wintering grounds relate to both reproductive and feeding activities, although some literature reports that whales mostly fast throughout the winter and rely on reserves of body fat to carry them through the winter period. Most of the feeding in the wintering grounds appears to be pelagic, rather than benthic, although researchers have seen mud plumes indicative of benthic feeding (Nerini 1984). Pelagic prey species include sardines, bait fish, spawning squid, and crustaceans associated with eel grass mats (Nerini 1984). Feeding areas that foraging gray whales frequent, as documented by Nerini (1984), include San Ignacio Lagoon, Magdalena Bay, Punta

San Juanico, and Laguna de San Quentin in Baja Mexico, and La Jolla and Point Loma, California.

On a longer-term basis, evidence indicates that distribution and habitat use within the wintering range varies according to environmental conditions. As one example, Bryant et al. (1984) observed that whales apparently deserted the Laguna Guerrero Negro, the northernmost lagoon, during the late 1960s but reestablished during the 1970s, increasing steadily until an observed decline in 1982. They postulated that the whales recolonized the area after commercial shipping and dredging activities stopped in 1967, but they also noted that year-to-year fluctuations in relative abundance had previously been reported and observed that some individual whales enter lagoons in successive years whereas others return after longer intervals.

Recent studies have attributed shifts in the winter range to the El Niño Southern Oscillation, a multi-year climatic cycle occurring irregularly in the tropical Pacific every 2 to 7 years and lasting 6 to 18 months. When El Niño events occur, driven by low atmospheric pressure between Tahiti and Australia, sea surface temperatures warm and biological productivity drops near Baja. Whales shift farther north in their distribution, such as during the 1998 wintering season. When El Niños subside (and La Niñas occur), the sea surface temperatures are cooler near Baja (e.g., the 1989 and 1999 calving seasons), the biological productivity is higher, and whales shift south in their distribution (Gardner and Chávez-Rosales 2000; Sánchez-Pacheco et al. 2001; Urbán-Ramírez et al. 2003; Swartz et al. 2012). The observation of this shift led Gardner and Chávez-Rosales (2000) to conclude that environmental conditions may be more important factors in determining breeding locations than site fidelity.

Spring Northward Migration

In mid-February, as the southward migration comes to an end in California and Mexico, the northward migration begins. This overlap suggests that not all of the gray whale population winters near the Baja California Peninsula. Some whales may only go as far south as the coastal waters of California before they turn around to head north (Herzig and Mate 1984; Swartz 1986; Swartz et al. 2006; Mate et al. 2010). The northward migration to summer feeding areas occurs in two generally grouped phases according to age, sex, and reproductive condition (Poole 1984; Swartz 1986; Swartz et al. 2006). The first migrating phase occurs from mid- to late-February and comprises newly pregnant females, followed by adult males and non-pregnant females two weeks later, and lastly by immature whales of both sexes another week later (Swartz et al. 2006). As this first phase of the migration is underway, mothers with newborn calves move from interior lagoons to lagoon inlets and coastal waters previously occupied by the single whales (Swartz et al. 2006). These

mother and calf pairs compose the second migrating phase of whales and are the last to leave the wintering areas, departing between late March and May and generally arriving in their summer feeding range from May to June (Swartz et al. 2000; Swartz et al. 2006).

Poole (1984) reported the first phase of northbound migrants off the coast of central California from early February to early April. Gilmore (1960) reported similar dates (mid-February, peaking in March and April, and tapering off in early May) as whales pass San Diego. Herzig and Mate (1984) reported the first phase of northbound migrants passing through the waters off Oregon in mid-February through April, peaking in mid-March. Wilke and Fiscus (1961) observed over 200 gray whales (singles, pairs, and groups of 3 to 4 animals) off the central Washington coast on April 24 and 25, 1959. Similarly, Calambokidis et al. (2009a) sighted northbound gray whales along the central Washington coast (offshore of Grays Harbor) during February, March, and April. A study conducted at Unimak Pass, Alaska, reported a peak passage of northbound phase-one migrants in the last week of April, indicating an approximate lag of 4 to 5 weeks between Oregon and Alaska (Hessing 1981; Herzig and Mate 1984).

The mother-calf migrants in the second migrating phase travel more slowly than the whales in the first migrating phase to accommodate nursing and calves (NMFS 2001a), and they have been reported to follow the first phase by 7 to 9 weeks (Herzig and Mate 1984). The predominantly mother-calf pair migrants in the second phase of the northward migration have been sighted passing through the waters off central California from early April to late May (Poole 1984; Perryman et al. 2011) and passing by Oregon from late April to May, peaking in mid-May (Herzig and Mate 1984). During the Tribe's 2000 hunt in coastal waters of their U&A, Gearin and Gosho (2000) noted that most of the whales observed during the hunt (April 17 to May 29) were large individual whales and not pairs. Whales observed in the vicinity of the hunt did not appear to be milling or feeding but instead exhibited migratory behavior in terms of their dive duration and movements. Further north, Hessing (1981) observed mother-calf pairs passing Unimak Pass, Alaska, from May through mid-June, peaking on June 4.

Taking both migration phases into account, northbound whales of all ages and both sexes are present off the Washington coast from late February through June. There are no direct observations that establish the timing of either phase of the northward gray whale migration through the action area, nor are there any published estimates based on observations from other areas (as Rugh et al. [2001] calculated for the southward migration). Given the available observational data, it is reasonable to estimate that migrants in the first phase of the northward

migration would be in the action area from March through early May, and migrants in the second phase would be in the action area from roughly early May until June.

Migratory Distribution Relative to Shore

The migratory distribution of gray whales relative to shore (i.e., location, width, and extent of the migratory corridor) varies based on environmental conditions (such as bottom topography, climate, and water depth), migration season and phase, and use of the migratory corridor (such as feeding, breeding, or migrating). Generally, gray whales migrate closer to shore where the continental shelf is narrow, such as near Granite Canyon, California, and distribute farther offshore where the continental shelf is broader, such as near the Channel Islands, California (Shelden et al. 2004). There is also evidence that northbound whales travel closer to shore during spring than do southbound whales in fall and winter (Herzig and Mate 1984; Green et al. 1995; Calambokidis et al. 2009a). During the 1999 and 2000 Makah hunts (in April and May), gray whales were sighted or pursued an average of 1.0 mile (1.6 km) from shore (Gosho 1999; Gearin and Gosho 2000).

Off the coast of Oregon, where the continental shelf is relatively narrow, Herzig and Mate (1984) systematically documented the offshore distribution of both northward and southward migrations, including both phases of migrants, from November to May, 1978 to 1981. They determined that more than 50 percent of all whales in the first phase of the southward and northward migration passed between 1 and 2 miles (1.6 and 3.2 km) from shore in depths of 131 to 197 feet (40 to 60 meters). They also estimated that 90 percent of the second phase of northbound migrants, consisting predominantly of mother-calf pairs, passed less than 2,625 feet (800 m) from shore. Herzig and Mate (1984) noted that, as the northward migration progressed, pod size decreased and whales moved progressively closer to shore, traveling within 1 mile (1.6 km) from shore. Green et al. (1992) evaluated sightings data relative to depth and distance to shore and concluded that the gray whale migration corridor does change in concert with varying depths (i.e., whales were found greater distances offshore when shallow depths extend further offshore).

These nearshore patterns of migration for northbound whales are consistent with observations made off the coast of California from 1980 to 1982 (Poole 1984). Poole (1984) determined that the first phase of northbound migrants moved slightly farther offshore than the second phase; the first phase traveled within a straight-line corridor from one major point of land to another to avoid bights in the coastline, while the second phase (consisting of 90 percent mother-calf pairs) hugged the contours of the coastline. Sixty percent of the first phase of northbound migrants passed between 2 miles and 0.5 mile from shore (between 3.2 km and 800 m), 20 percent between

0.5 mile and 0.1 mile from shore (between 800 m and 200 m), and 13 percent within 0.1 mile (200 m) of shore. Ninety-nine percent of the second phase of northbound migrants passed within 0.1 mile of shore in 1980, and 96 percent passed within that distance in 1981. Poole (1984) and Braham (1984) noted potential biological advantages of nearshore migration, including the availability of productive food sources in shallow nearshore waters (such as eel grass meadows and swarms of mysid shrimp in kelp beds) and protective cover from predators provided by nearshore rocks, bottom topography, and kelp beds.

Further north, Green et al. (1992) conducted aerial surveys between April 1989 and September 1990[13] during which they sighted 57 gray whales (51 groups) off Washington and 225 gray whales (150 groups) off Oregon. All of the migrating whales observed off Washington were found greater than 3 miles (5 km) offshore, with a mean distance offshore for all southbound whales (Oregon and Washington) of 8.9 miles (14.3 km) compared to 5.0 miles (8.0 km) for northbound whales. At least two of the sightings occurred in the action area.

Pike (1962) used logbooks from the M/V *Pacific Ocean*, a fur seal research vessel operating during March to May of 1958 to 1960, to document gray whale northward migrations off the coast of Washington. Pike (1962) reported that most whales probably passed within 1.2 miles (1.9 km) of the coast during the spring northward migrations, noting that "many whales pass by close to shore where their presence is difficult to detect against the surf breaking along the rocky coast and boiling over Umatilla reef." These observations are similar to the results of Herzig and Mate (1984) and Poole (1984). Pike (1962) also described northbound whales farther offshore. Logbooks from the Umatilla Lightship, stationed 5.2 miles (8.4 km) from shore south of Cape Flattery at Umatilla Reef, reported many gray whales passing close to the lightship from March to May. Whales engaged in various behaviors such as playing, mating, circling, rolling, or feeding, often remaining in the area for up to 4 hours. Pike (1962) also noted sightings 5.8 miles (9.3 km) off Cape Flattery, and a sighting of two adults and one calf as far as 23 miles (37 km) off Cape Flattery. These sightings farther offshore along the Washington coast are consistent with those reported by the following researchers:

- Wilke and Fiscus (1961), who sighted over 200 gray whales in late April generally travelling north 6 to 17 miles (9 to 28 km) offshore, just south of the action area in waters over the relatively wide continental shelf between James and Destruction Islands

[13] Approximately 45 percent of these surveys occurred during December to May.

- Green et al. (1992), who reported a mean offshore distance of 5 miles (8 km) for northbound whales off Oregon and Washington
- Green et al. (1995), who documented phase-one northbound migrants off the coast of Washington from March 11 through 16, 1990, as far out as 12.4 miles (20 km) and averaging a distance of 7.3 miles (11.8 km)
- Calambokidis et al. (2009a), who sighted northbound whales during February to April that tended to be close to shore, with most about 6 miles (10 km) offshore

For the fall/winter southward migration, Herzig and Mate (1984) reported the farthest extent of southbound migrants off the coast of Oregon as 12.4 miles (20 km) from shore at depths less than 295.3 feet (90 m) (Herzig and Mate 1984). When Mate and Poff (1999) repeated the Oregon coast surveys of Herzig and Mate (1984) in 1999, they noted that whales were distributed farther offshore than described in the prior studies. Whereas Herzig and Mate (1984) had reported that 50 percent of both northbound and southbound migrants passed within 1 and 2 miles (1.6 and 3.2 km) from shore, Mate and Poff (1999) estimated that 60 percent of the southbound whales were 5 miles (8 km) or more offshore and 20 percent of the whales were within 3 miles (4.8 km) of shore. These results are consistent with Green et al. (1995), who documented two groups of whales at 14.3 miles (23 km) as the furthest southbound migrants sighted off the coast of Oregon during aerial surveys conducted from January 3 to 12, 1990, and five groups of whales at 26.7 miles (43 km) as the furthest southbound migrants off the coast of Washington. Calambokidis et al. (2009a) sighted gray whales in December and January off the central Washington coast travelling an average of 18 miles (29 km) offshore in depths of 413.4 feet (126 m).

Green et al. (1995) and Green et al. (1992) have noted a significant latitudinal variation between Oregon and Washington for offshore distances of both northbound and southbound migrations. Green et al. (1995) reported that southbound migrants averaged 15.7 miles (25.2 km) from shore off Washington and 7.4 miles (11.9 km) from shore off Oregon. Green et al. (1992) combined both northbound and southbound sightings and reported a statistically significant difference between migrants off Washington (average 11.5 miles [18.5 km] offshore) and migrants off Oregon (average 5.7 miles [9.2 km] offshore). Green et al. (1992) concluded that these differences indicate the width of the migration corridor changes in concert with changes in the shallower depth zones (i.e., the 131.2-foot [40-m] isobath, which is wider off the Washington coast). Green et al. (1995) hypothesized that the difference between offshore distances for northbound and southbound whales either supports the occurrence of a single, very broad

migratory corridor or the occurrence of alternate offshore routes. Like Poole (1984) had noted for the California Bight area, Green et al. (1995) concluded that some portions of the ENP gray whale population may take a more direct route between Washington and the central coast of Vancouver Island, rather than following the longer coastal route past Cape Flattery. Pike (1962) noted that the lighthouse keeper at Amphitrite Point (on the central coast of Vancouver north of Barkley Sound) reported seeing 1,000 northbound gray whales each spring but never seeing them traveling southbound. Shelden et al. (2000) neither confirmed nor rejected the hypothesis of a more direct offshore route but noted that distance offshore may not be a function of migration alone, because gray whales have been observed 31.1 miles (50 km) off the Vancouver Island coast and 28 to 56 miles (45 to 90 km) off the Washington coast during summer months when the whales are not migrating. Calambokidis et al. (2009a) also reported an unexpected cluster of gray whales 12 to 16 miles (20 to 25 km) off the central Washington coast during the summer.

More recently, Ford et al. (2013) tracked five northbound satellite-tagged gray whales (including three whales that had been sighted in the PCFG seasonal range), from Vancouver Island to southeastern Alaska. They concluded that the majority of whales use the more interior waters of Hecate Strait and Dixon Entrance as their migratory corridor between Vancouver Island and southeastern Alaska. This finding differs from the long-held belief that whales maintain a northwest trajectory along the outer coastline of Haida Gwaii (formerly the Queen Charlotte Islands) once they reach the northern tip of Vancouver Island (Ford et al. 2013). These authors also observed that most whales were within 6.2 miles (10 km) of Bonilla Island (adjacent to the British Columbia mainland), but a substantial portion (22 percent) migrated further offshore and it was likely that some animals passed too far to the west to detect from the island. Also, Calambokidis et al. (2014) noted that three whales tagged on May 31, 2012 and tracked for 3 to 7 days remained close to shore in localized areas and water depths consistent with gray whale feeding behavior. Two of these whales had previously been photo-identified in the PCFG range.

To summarize, northbound whales in the action area (or areas immediately adjacent to it in Washington coastal waters) tend to travel closer to shore than southbound whales. Although there is considerable variability in these sightings[14], the best available information indicates the following:

[14] Most of the sighting studies reported in this section come from ship- or plane-based surveys capable of covering large expanses of the coastal marine zone. For example, Green et al. (1992) flew aerial transects in the vicinity of the action area that extended from the coastline out to approximately 56 to 68 miles (90 to 110 km) offshore. Green et al.

- Northbound whales likely migrate within 23 miles (37 km) from shore (averaging 5 to 7 miles [8 to 11 km] offshore) and many whales travel close to shore where their presence can be difficult to detect (Pike 1962; Green et al. 1992; Green et al. 1995).
- Southbound whales have been reported migrating up to 27 miles (43 km) from shore (averaging 9 to 16 miles [14 to 26 km] offshore), with the possibility that some whales may travel far offshore so as to take a more direct route to and from the central coast of Vancouver Island (Pike 1962; Green et al. 1992; Green et al. 1995).

3.4.3.3.3 ENP Abundance and Trends

The ENP gray whale population recovered from numbers as low as 4,000 to 5,000 whales post exploitation (Henderson 1984) to a high of nearly 27,000 whales in 2016 (Durban et al. 2017), decreasing to just over 14,500 whales in 2023 (Eguchi et al. 2023a).[15] NMFS estimates gray whale population size based on systematic shore-based surveys conducted during the whales' southbound migration. Since 1967, NMFS has conducted shore-based counts of southbound gray whales near Carmel, California, at either Yankee Point or Granite Canyon stations (Rugh et al. 1999; Buckland and Breiwick 2002; Rugh et al. 2005; Rugh et al. 2008). NMFS selected these observation sites because the continental shelf and the corresponding gray whale migratory corridor are relatively narrow. Few whales migrate beyond the visual range (approximately 3.5 miles [5.6 km]) of observers on shore (Shelden and Laake 2002). Aerial surveys showed that 96 percent of southbound gray whales pass within 3 miles (4.8 km) of the shore (Sund and O'Connor 1974), and fewer than 2 percent of the whales migrate beyond the sighting range of observers (Shelden and Laake 2002). These methods and data have been reviewed and accepted by the IWC Scientific Committee and the IWC, the internationally recognized authority on large cetacean management.

Up until 2006, single observers conducted the southbound counts by working in 3-hour shifts throughout daylight hours from mid-December to mid or late-February (Rugh et al. 2005; Rugh et al. 2008). The observers worked independently, scanning the viewing area using binoculars with reticles (vertical marks in the optics) and magnetic compasses to track whale groups as they migrated past the station. When observers spotted gray whales, they hand-recorded the following data: 1) time of sighting, 2) horizontal bearing, 3) vertical angle, 4) pod size estimate, 5) calf sightings, 6) environmental conditions, and 7) any unusual behaviors (Rugh et al. 2005; Rugh et

(1995) questioned the feasibility of conducting accurate shore-based gray whale censuses along the Oregon and Washington coasts given the high proportion of whales sighted beyond a shore-based observer's range of view.

[15] All estimates and figures of ENP abundance are inclusive of the PCFG whales, which do not constitute a separate stock.

al. 2008). The horizontal bearing and vertical angle allowed for estimates of distance from shore. On most days during January, when whale counts are at their highest, paired, independent searches are conducted by having a second observer conduct counts nearby (in the same viewing area), but out of sight of the primary observer (i.e., the observers are stationed in separate observation sheds). These independent searches provided a test of the repeatability of the census effort. More detail about the survey protocols used is in Rugh et al. (1993), Shelden et al. (2004), Rugh et al. (2005), Rugh et al. (2008), and Durban et al. (2013).

Data were entered on a computer at the end of each day and field-checked. Following further quality reviews of the database, researchers compared sighting locations and counts from paired observers to establish the probability of missing whales within the viewing area. In the abundance analysis, correction factors were applied to data to account for 1) whales that passed during periods when observers were not present (before and after the census season, at night, or when visibility was poor); 2) whales within the viewing range of observers that were missed (i.e., one observer saw a whale, but the other did not); 3) differential sightability by observer, pod size, distance offshore, and various environmental conditions; 4) errors in pod size estimation; 5) covariance within the corrections because of variable sightability by pod size; and 6) differential travel rates between day and nighttime travel (Hobbs et al. 2004; Rugh et al. 2005; Rugh et al. 2008). Rugh et al. (2005) adjusted the correction factor for nighttime travel from 1.020 (SE equals 0.023), based on radio-tagged whales (Swartz et al. 1987), to 1.0875 (SE equals 0.0363), based on Perryman et al. (1999), where thermal imagery provided quantifiable evidence that whales pass the shore at a higher rate at nighttime.

In preparation for the 2009 IWC Implementation Review of aboriginal subsistence harvest catch limits for ENP gray whales, NMFS biologists at the National Marine Mammal Laboratory (NMML) re-examined the entire series of abundance estimates and considered new information regarding the best methods for expanding the sighting data to estimate population size. NMFS advised the IWC Scientific Committee that the Implementation Review should be delayed while NMML reviewed the entire series of abundance estimates. NMML researchers provided a workplan that elaborated on the revised methods they intended to apply in deriving estimates (including standardizing the various datasets and applying better pod size correction factors) (Breiwick et al. 2009). The researchers completed their review in December of 2009 and re-estimated abundance for all 23 surveys available at that time (Laake et al. 2012). Largely because of corrections for pod-size bias, the newly derived abundance estimates between 1967 and 1987 were generally larger than previous abundance estimates, while the opposite was the case for estimates between 1992 and 2006. As a result, Laake et al. (2012) noted that the revised estimates

yielded a substantially different trend than previously reported (Rugh et al. 2008), with the peak estimate being a decade earlier (1988 instead of 1998) and the predicted population trajectory remaining relatively flat since 1980.

NMFS researchers improved their survey methodology using a new counting technique starting during the 2006/2007 southbound migration (Durban et al. 2013). The new technique replaces the previous method of a single observer logging sightings on paper forms with an improved method using two observers and a computer to log and track individual pods. The two-observer method allows for a higher frequency of observations of each whale pod, because one observer is dedicated solely to observing pods and second observer focused on data recording and software tracking of pods. After comparing the old and new counting techniques during simultaneous (2006/2007 and 2007/2008) and independent (post-2006/2007) trials, Durban et al. (2013) concluded that the new approach yielded consistent and more precise estimates that were indicative of a stable population.

Table 3-5 lists abundance estimates of the gray whale population using the revised correction factors and techniques described in Laake (2012) and Durban et al. (2015). Population estimates are always subject to a certain level of uncertainty, and this is represented by the coefficient of variation (CV); a lower CV indicates a higher certainty that an estimate reflects the actual population size. Even though researchers provide point estimates, confidence statistics like the CV should be considered when reviewing abundance estimates and their precision. For example, the point estimate of the most recent abundance was 14,526 whales, but we can only be relatively certain that the true abundance in 2022/2023 was somewhere between 13,200 and 16,000 whales (using rounded figures for the 95 percent credible interval) (Eguchi et al. 2023a).

The pattern of population growth and decline represented in the time series of population abundance data for ENP gray whales suggests that large-scale fluctuations are not rare for this stock. The population has shown the ability to recover from declines, with increases seen after each of the previous declines. Following the 1999/2000 UME, the population increased to a high of more than 26,500 individuals. In 2017, Durban et al. noted that a recent 22 percent increase in ENP gray whale abundance over 2010/2011 levels was consistent with high observed and estimated calf production. The 2019/2020 estimation of calf production resulted in slightly higher estimates (by about 10 percent) than previously thought, largely due to how the updated model addressed uncertainty in unobserved periods (Stewart and Weller 2020). Increases in abundance observed prior to the 2019 UME supported hypotheses that gray whales may have been experiencing more favorable feeding

conditions in arctic waters due to a rise in ice-free habitat that might have resulted in increased primary productivity in the region (Perryman et al. 2002; Moore 2016)

The current UME coincides with the recent declines in abundance observed in the 2019/2020 (Stewart and Weller 2021a), 2021/2022 (Eguchi et al. 2022a) and 2022/2023 surveys (Eguchi et al. 2023a). As of September 26, 2023, a total of 688 stranded whales were recorded in Canada, Mexico, and the U.S. The number of strandings in this event are slightly higher compared to the 1999/2000 UME, resulting in a 46 percent decline from 2016 (highest recent abundance prior to the UME) to 2023 (Eguchi et al. 2023a).

Table 3-5. Gray whale population estimates from southbound sightings 1967/68 to 2022/23.

Year	Population Estimate	Statistical Interval[16]
1967/1968	13,426	10,952 - 15,900
1968/1969	14,548	12,267 - 16,829
1969/1970	14,553	12,186 - 16,920
1970/1971	12,771	10,743 - 14,799
1971/1972	11,079	9,060 - 13,098
1972/1973	17,365	14,642 - 20,088
1973/1974	17,375	14,582 - 20,168
1974/1975	15,290	12,773 - 17,807
1975/1976	17,564	14,603 - 20,525
1976/1977	18,377	15,495 - 21,259
1977/1978	19,538	16,168 - 22,908
1978/1979	15,384	12,972 - 17,796
1979/1980	19,763	16,548 - 22,978
1984/1985	23,499	19,400 - 27,598
1985/1986	22,921	19,237 - 26,605
1987/1988	26,916	23,856 - 29,976
1992/1993	15,762	13,661 - 17,863
1993/1994	20,103	17,936 - 22,270
1995/1996	20,944	18,440 - 23,448
1997/1998	21,135	18,318 - 23,952
2000/2001	16,369	14,412 - 18,326
2001/2002	16,033	13,865 - 18,201
2006/2007	19,126	16,464 - 21,788
Data above from Laake et al. (2012); Data below from Durban et al. (2013)		
2006/2007	20,750	18,860 - 23,320
2007/2008	17,820	16,150 - 19,920
2009/2010	21,210	19,420 - 23,250
2010/2011	20,990	19,230 - 22,900
Data below from Durban et al. (2017)		
2014/2015	28,790[17]	23,620 – 39,210
2015/2016	26,960	24,420 – 29,830

[16] Data reported in this column depict confidence intervals (CI) (1967/8-2006/7: Laake et al. 2012) and highest posterior density intervals (HDPI) (2007/8 onwards: Durban et al. 2013; 2015; 2017). Both are terms commonly used by researchers to describe the precision of a point estimate, depending on their method of statistical inference. For example, within a Bayesian statistical framework, HDPIs indicate that there is a relatively high probability (signaled by 95th percentile as an interval of certainty) that the true abundance estimate in 2010/2011 falls between 19,230 and 22,900 gray whales. In general, narrower intervals indicate more precise point estimates.

[17] While this value is the highest ever reported, it is not typically cited as such due to considerable uncertainty (i.e., large error bars) in the estimate compared to the subsequent year's more precise estimate of 26,960 (Durban et al. 2017).

Year	Population Estimate	Statistical Interval[16]
Data below from Stewart and Weller (2021a)		
2019/2020	20,580	18,700 – 22,870
Data below from Eguchi et al. (2022a and 2023a)		
2021/2022	16,650	15,170 – 18,335
2022/2023	14,526	13,195 – 16,040

Gray whale population estimates rely on the assumptions that all whales migrate as far south as Carmel, California when observers are studying the southward migration, and that most whales will pass offshore within view of the observers. It has not been demonstrated that the entire gray whale population migrates past Carmel every year (Laake et al. 1994; Rugh et al. 2005), illustrating the importance of obtaining a long time-series of estimates across years from which to determine the trend in population size. Observers conducted the last southbound count in 2022/2023 and plan to survey again in 2023/2024.

3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates

As noted previously, the ENP gray whale population was removed from the ESA list of endangered and threatened wildlife in 1994 (59 FR 21094, June 16, 1994) when NMFS determined that the species had recovered to near its estimated original population size (approximately 21,000 animals) (58 FR 3121, January 7, 1993) and was neither in danger of extinction throughout all or a significant portion of its range, nor likely to again become endangered within the foreseeable future. Since the ENP stock of gray whales was delisted, several analyses have addressed the status and productivity of the stock. In 1994, Wade reported values of K and MNPL for the ENP gray whale stock based on then-current abundance estimates reported between 1967 and 1994. He estimated that the ENP gray whale population was at 51 to 97 percent of its K and that the rate of net production at the MNPL was 0.033 (95 percent confidence interval from 0.023 to 0.044) (Wade 1994). With input from the IWC Scientific Committee, Wade (2002) updated his analysis with 1995/1996 census data, employed an age and sex structured model, and incorporated an additional factor to deal with unexplained variations in the time series of abundance data.

Later, Wade and Perryman (2002) incorporated the census data from 1997/1998, 2000/2001, and 2001/2002, as well as the calf production data from the northward migration (1994 to 2001), into a more complete analysis to increase the precision of the K estimate. They used a generalized logistic model, which included the added variance of Wade (2002) in the analysis. Based on these data, Wade and Perryman (2002) estimated that the ENP stock was at or near its carrying capacity of 22,000 whales (confidence of 95 percent and confidence intervals ranging from 19,000 to 35,000 whales). The IWC Scientific Committee reviewed the Wade (2002) and Wade and

Perryman (2002) assessments and agreed that management advice could be formulated from the results. Both assessments indicated that the population was above the maximum sustainable yield level and was likely close to or above its unexploited equilibrium level (IWC 2002).

In 2008, Rugh et al. assessed data between 1967 and 2007 and included additional correction factors (e.g., to correct for whales not seen by observers at night) to estimate a K of 23,686 whales. Moreover, they identified potential problems in the way that previous abundance estimates had been calculated (especially with respect to estimation of pod size). Subsequently, Laake et al. (2009; 2012) developed a more consistent approach to abundance estimation that used a better model for pod-size bias with weaker assumptions. Laake et al. (2009; 2012) applied their estimation approach to re-estimate abundance for all 23 shore-based surveys available at the time.

Punt and Wade (2012) re-assessed the ENP gray whale stock using the revised abundance estimates from Laake et al. (2009; 2012). From that assessment, Punt and Wade (2012) estimated the 2009 population (posterior mean of 20,366) to be at 85 percent of K (posterior mean of 25,808), and at 129 percent of MNPL, with a probability of 0.884 (i.e., an 88 percent chance) that the population is above MNPL. Those results were consistent across all the model runs, with previous assessments, and supported a finding that the population was within OSP. In 2010, the IWC Scientific Committee reviewed the analysis by Laake et al. (2009) and adopted the revised abundance estimates for use in the Committee's assessment of aboriginal subsistence whaling for gray whales (IWC 2011a). The Committee also reviewed the analysis of Punt and Wade (2012) and agreed that the results were within the bounds considered in the Committee's gray whale assessment.

As noted in Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements, sea ice cover and prey biomass heavily influence the life history of ENP gray whales (i.e. Moore 2000; Clark and Moore 2002; Pyenson and Lindberg 2011; Perryman et al. 2021; Moore et al. 2022; Joyce et al. 2023). Because gray whales maintain their body mass by foraging on large quantities of benthic crustaceans, they are sensitive to oceanographic and environmental fluctuations (Hoegh-Guldberg and Bruno 2010). Observations of changes to the timing of sea ice cover and retreat, as well as the structure of benthic infaunal communities in the Arctic as a result of rapidly changing oceanographic conditions may have translated to an impact on the carrying capacity for higher trophic organisms such as gray whales (Grebmeier et al. 2006; Grebmeier et al. 2010; Grebmeier et al. 2018; Huntington et al. 2020).

Recent work has established that gray whale carrying capacity may not only fluctuate with environmental conditions but may also experience extreme population booms and busts in response to a changing Arctic ecosystem. Stewart et al. (2023) constructed a demographic model of the ENP gray whale population using the long term datasets discussed previously, as well as detailed temporal data on sea ice cover and crustacean (prey) biomass in the Arctic summer feeding grounds. Stewart et al. (2023) estimated that the long-term average carrying capacity (K) was 22,062 (18,967 to 24,725), which was lower than the median of the annual carry capacity values (24,500, 95 percent CI 21,771 to 27,797). The authors found that gray whale population dynamics were strongly linked to prey access and biomass, meaning that in years with low prey biomass and low access to prey (i.e., high ice cover), gray whales experienced major mortality events. These factors were associated with the three major mortality events in the time series (including both the 1999-2000 and 2019-present UMEs) assessed in the paper (Stewart et al. 2023). While previous work has suggested that early sea ice retreat may benefit gray whales by increasing access to their prey base, Stewart et al. (2023) found that changing sea ice extent also affects benthic and pelagic communities in ways that may impact higher tropic species that inhabit these high latitude areas in the Arctic.

IWC Implementation Review of ENP Gray Whales

Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling, describes the IWC's principles and approaches to managing ASW. Under current IWC regulations, ASW of gray whales is only permitted for the Russian Federation and the United States. The Scientific Committee of the IWC has a standing working group (SWG) on the aboriginal whaling management procedure (AWMP) tasked with providing scientific advice on safe catch limits for aboriginal subsistence whaling operations that take into account scientific uncertainty and meet the IWC's management objectives. The key objectives (IWC 1995) guiding the SWG's evaluation are:

1. Ensure risks of extinction are not seriously increased (highest priority);
2. Enable harvests in perpetuity appropriate to cultural and nutritional requirements; and
3. Maintain stocks at highest net recruitment level, and if below that ensure they move towards it.

The goal of the AWMP evaluation is not to maximize whale catches but instead to determine whether the number of animals requested for aboriginal subsistence needs exceeds a safe catch limit for a particular stock of whales.

The SWG's advice involves using computer simulations to test various methods for determining catch limits; these methods are referred to as AWMPs. Simulations consist of replicated calculations of stock trajectories using plausible whaling scenarios and 100-year simulated management with each candidate AWMP (Givens 1999). These simulations take into account uncertainty in a large number of factors, including whale population structure, abundance and trends, historic and future catch levels, reproduction and survivorship, and environmental conditions. An AWMP comprises two components: an assessment and a strike limit algorithm (SLA). The assessment is a statistical procedure that attempts to estimate certain parameters or variables given the available data. The SLA is a rule that provides a safe catch limit/quota given the assessment estimates obtained (Givens 1999). The SLAs are intended for long-term use but are typically reviewed on a frequent basis (usually every 5 years in an Implementation Review) to take into account any new information. In addition, unscheduled Implementation Reviews can be initiated if new information, such as a major mortality event, creates a serious concern (IWC 2003).

In 2004, the Scientific Committee developed several candidate SLAs for gray whales that tested for a broad range of uncertainty in a variety of factors, including changes in maximum sustainable yield rate and level (MSYR and MSYL); model uncertainty; time-dependent changes in carrying capacity, natural mortality, and productivity; episodic events; stochasticity; survey bias and variability; and survey frequency and errors in the historic catch series[18] (IWC 2005b). The overall performance of candidate SLAs was judged by a combination of (1) an examination of the detailed conservation and need satisfaction statistics (per the AWMP objectives identified above) for each of the Evaluation Trials and Robustness Trials[19], and (2) human integration of these results in the context of the relative plausibility each SWG member assigns to the individual trials. The Scientific Committee presented the IWC with its recommended gray whale SLA in 2004, and this was endorsed by the Commission (IWC 2005a; IWC 2005b), which noted that "…this SLA meets the objectives of the Commission set out in 1994 and represents the best scientific advice that the Committee can offer the Commission with respect to the management of the eastern North Pacific stock of gray whales."[20] Although the Commission went on to approve a

[18] As a conservative approach, the SLA operates with the assumption that all struck whales die.
[19] Simulation trials are divided into those considered most likely (the base-case or "Evaluation" trials) and those considered less plausible, but for which performance should be adequate ("Robustness" trials) (Punt and Donovan 2007).
[20] In response to concerns about what might happen if no gray whale surveys occur for longer than a 10-year period, the Chair of the SWG explained that, consistent with IWC deliberations in 2002, "unless an

catch limit that was consistent with the joint Russian Federation/U.S. request (140 whales per year), the Scientific Committee determined that up to 463 ENP whales per year was a sustainable take for at least the medium term (approximately 30 years) and a level of take that is "likely to allow the population to remain above maximum sustained yield level" (IWC 2003).

The next scheduled Implementation Review (in 2009) was postponed because a number of key analyses were not ready in time. In the 2010 Implementation Review for ENP gray whales, the Scientific Committee concluded that the ENP population as a whole was in "a healthy state" and that the gray whale SLA could continue to be used to provide advice on the Russian (Chukotkan) hunt (IWC 2011a). That advice translated to aboriginal harvest levels in the IWC schedule at the time (IWC 2012a; NMFS 2012a) that set a 6-year[21] catch limit for 2013 through 2018 of 744 ENP gray whales, limited to 140 whales per year (reviewable annually by the IWC and its Scientific Committee).

In 2011, the IWC Scientific Committee affirmed that "the Gray Whale SLA remains the appropriate tool to provide management advice for eastern North Pacific gray whales apart from the PCFG animals that are part of the ongoing work of the SWG on the AWMP for an Implementation Review" (IWC 2012l). At that time, the Committee also began a new Implementation Review focusing on SLA trials to take into account possible catches of PCFG whales in a Makah hunt (refer to Subsection of 3.4.3.4.4, PCFG Status, Carrying Capacity (K), and Related Estimates, IWC Implementation Review of PCFG Whales) and also recognized the need for additional studies on possible hunt-related conservation implications for WNP gray whales. The IWC completed an Implementation Review for ENP gray whales (including the PCFG) in 2012 (IWC 2012e), and, the SWG confirmed that "the proposed [Makah] management plan meets the conservation objectives of the Commission provided that if struck and lost animals are not proposed to be counted toward the APL [i.e., an allowable PCFG bycatch level], then a photo-identification research programme to monitor the relative probability of harvesting PCFG whales in the Makah U&A is undertaken each year and the results presented to the Scientific

agreed abundance estimate was forthcoming, then the block limit for the following block would be half that for the present block, after which it would revert to zero" (IWC 2005a).

[21] In 2012 the IWC agreed to move from annual to biennial meetings. As a result, the IWC changed the 5-year blocks for ENP gray whale catch limits to 6-year blocks. In its report, the Committee noted that while the gray whale SLAs support setting catch limits for blocks of even numbers of years (up to 8 years), it would not be appropriate for catches to be left unchanged if new abundance estimates were not available after 10 years (IWC 2012a).

Committee for evaluation" (see Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales).

After a review of the Makah Management Plan in 2018 (IWC 2018d), the IWC concluded that levels of harvest and other human-caused mortality are sustainable and that the management plan meets the IWC's conservations objectives for the ENP stock. The most recent Implementation Review occurred in 2020 (IWC 2021b), and the Scientific Committee recommended that "Gray Whale SLA and the Makah Management Plan remain the appropriate basis for the provision of advice on the Chukotkan and proposed Makah hunts." In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events (Punt et al. 2023, IWC 2023a). By a bilateral agreement between the two countries (Fominykh and Wulff 2023)[22], the ENP gray whale catch limit is currently allocated as follows:

- Chukotka Natives: up to 135 whales per year
- Makah Tribe: up to 5 whales per year

NMFS Stock Assessments and Other Reports for ENP Gray Whales

For all marine mammal stocks, we regularly prepare stock assessment reports (SARs) (e.g., Carretta et al. 2023) and, as needed, other reports (e.g., Harris et al. 2022, Eguchi et al. 2023a) that include minimum abundance estimates, a calculation of the PBR for the stock, and an assessment of whether all human-caused mortality exceeds PBR. If the annual average human-caused mortality remains below PBR, a stock at OSP will remain there, and any stock below OSP will continue to grow and will achieve OSP (Wade and Angliss 1997; Wade 1998). As long as the mortality average over the 3-year period is less than PBR, it is considered sustainable within the framework of the PBR management strategy (Wade and Angliss 1997).

In the most recent SAR for ENP gray whales, Carretta et al. (2023) reported that, with an abundance estimate of 26,960 whales, the stock was within OSP (based on an estimated carrying capacity of 25,808 whales in 2009; Punt and Wade 2012). However, Carretta et al. (2023) recognized that the abundance will fluctuate as the population adjusts to natural- and human-caused factors affecting the carrying capacity of the environment (see Rugh et al. 2005; Rugh et al. 2008; Stewart et al. 2023). Populations close to or at the carrying capacity of the environment

[22] The agreements also include notification commitments and states that the two countries may hold discussions regarding the transfer of unused takes from one native group to the other.

are more susceptible to fluctuations in the environment (Moore et al. 2001). The correlation between gray whale calf production and environmental conditions in the Bering Sea (Perryman et al. 2002; 2021) may reflect this. Overall, the population nearly doubled in size over the first 20 years of monitoring and has fluctuated for the last 30 years, with a recent increase to nearly 27,000 whales (prior to the onset of the UME). For this reason, it can be predicted that the population will undergo fluctuations in the future that may be similar to the 2-year mortality event that occurred in 1999 to 2000 (Norman et al. 2000; Pérez-Cortés et al. 1999; Brownell et al. 2001; Gulland et al. 2005).

For purposes of this FEIS, we calculated several informational PBRs using the most recent abundance data and different recovery factors. Based on abundance estimates published since the latest stock assessment report (Carretta et al. 2023), i.e., Eguchi et al.'s (2023a) minimum abundance estimate of 13,190, and using the Rmax of 0.062 and a recovery factor of 1, as are used in the most recent SAR, the PBR value for the ENP population would be 409.

Given the uncertainty in the carrying capacity estimates for the ENP gray whale stock discussed above, we calculated an additional, informational estimate of PBR for ENP gray whales. According to the GAMMS, a recovery factor of 1 is to be used for stocks above MNPL in calculating PBR, while a recovery factor of 0.5 is to be used for stocks of unknown status. We calculated a potential estimate of PBR here for informational purposes using a recovery factor of 0.5. The informational PBR is 204 based on a minimum population size (Nmin) of 13,190 whales (Eguchi et al. 2023a) and one-half of the estimated Rmax of 0.062, calculated thus: 13,190 x 0.031 x 0.5 = 204. This PBR estimate is precautionary and likely to be underestimates given the currently available information.

The annual average human-caused mortality and serious injury between 2014 and 2018 was 131 gray whales (Carretta et al. 2023). The average human-caused mortality includes annual mortality associated with the Chukotka Native aboriginal harvest (119 whales), commercial fisheries (9.3 whales), vessel strikes (1.8 whales), marine debris (0.4 whales), and illegal hunts (0.2 whales).

The estimate of human-casued mortality is considerably lower than the informational PBR estimates of 409 and 204. These PBR estimates are also higher than the strike limit of 140 whales per year that the IWC Scientific Committee considered would not harm the stock (IWC 2018a). Table 3-6 summarizes estimated levels of PBR and annual human-caused mortality and serious injury reported in stock assessment reports from 1998 through 2021.

Table 3-6. ENP gray whale human-caused mortality estimates from NMFS Stock Assessment Reports (SARs) 1998 to 2022.

SAR Year	Publication Date – NMFS Citation	PBR	Estimated Annual Level of Human-caused Mortality and Serious Injury[1]
1998	December 1998 - NOAA Technical Memorandum NMFS-AFSC-97	432	Ship Strikes = 1 Commercial Fisheries = 4 Subsistence Harvest = 43 *Total = 48*
1999	December 1999 - NOAA Technical Memorandum NMFS-AFSC-110	432	Ship Strikes = 1 Commercial Fisheries = 4 Subsistence Harvest = 43 *Total = 48*
2000	December 2000 - NOAA Technical Memorandum NMFS-AFSC-119	649	Ship Strikes = 1 Commercial Fisheries = 6 Subsistence Harvest = 76 *Total = 83*
2001	December 2001 - NOAA Technical Memorandum NMFS-AFSC-124	575	Ship Strikes = 1 Commercial Fisheries = 6 Subsistence Harvest = 76 *Total = 83*
2002	December 2002 - NOAA Technical Memorandum NMFS-AFSC-133	575	Ship Strikes = 1 Commercial Fisheries = 9 Subsistence Harvest = 97 *Total = 107*
2003	August 2004 - NOAA Technical Memorandum NMFS-AFSC-144	575	Ship Strikes = 1 Commercial Fisheries = 9 Subsistence Harvest = 97 *Total = 107*
2005	December 2005 - NOAA Technical Memorandum NMFS-AFSC-161	442	Ship Strikes = 1 Commercial Fisheries = 7.4 Subsistence Harvest = 122 *Total = 130.4*
2006	January 2007 - NOAA Technical Memorandum NMFS-AFSC-168	417	Ship Strikes = 1.2 Commercial Fisheries = 6.7 Subsistence Harvest = 122 *Total = 129.9*
2007	February 2008 - NOAA Technical Memorandum NMFS-AFSC-180	417	Ship Strikes = 1.2 Commercial Fisheries = 6.7 Subsistence Harvest = 122 *Total = 129.9*
2008	April 2009 - NOAA Technical Memorandum NMFS-AFSC-193	417	Ship Strikes = 1.2 Commercial Fisheries = 6.7 Subsistence Harvest = 122 *Total = 129.9*
2009	February 2010 - NOAA Technical Memorandum NMFS-AFSC-206	417	Ship Strikes = 1.2 Commercial Fisheries = 6.7 Subsistence Harvest = 122 *Total = 129.9*

SAR Year	Publication Date – NMFS Citation	PBR	Estimated Annual Level of Human-caused Mortality and Serious Injury[1]
2010	May 2011 - NOAA Technical Memorandum NMFS-AFSC-223	360	Ship Strikes = 1.2 Commercial Fisheries = 3.3 Unlawful Hunt = 1[2] Subsistence Harvest = 121 *Total = 126.5*
2011	May 2011 - NOAA Technical Memorandum NMFS-AFSC-234	360	Ship Strikes = 1.2 Commercial Fisheries = 3.3 Unlawful Hunt = 1 Subsistence Harvest = 121 *Total = 126.5*
2012	January 2013 - NOAA Technical Memorandum NMFS-SWFSC-504[3]	558	Ship Strikes = 2.2 Commercial Fisheries = 3 Subsistence Harvest = 123 *Total = 128.2*
2013	August 2014 - NOAA Technical Memorandum NMFS-SWFSC-532	559	Ship Strikes = 2.2 Commercial Fisheries = 2.45 Subsistence Harvest = 123 *Total = 127*
2014	August 2015 - NOAA Technical Memorandum NMFS-SWFSC-549	624	Ship Strikes = 2.0 Commercial Fisheries = 4.45 Subsistence Harvest = 127 *Total = 133.5*
2015	May 2016 - NOAA Technical Memorandum NMFS-SWFSC-561	624	Ship Strikes = 2.0 Commercial Fisheries = 4.45 Subsistence Harvest = 127 *Total = 133.5*
2016	June 2017 - NOAA Technical Memorandum NMFS-SWFSC-577	624	Ship Strikes = 2.0 Commercial Fisheries = 4.45 Subsistence Harvest = 127 *Total = 133.5*
2017	June 2018 - NOAA Technical Memorandum NMFS-SWFSC-602	624	*ENP gray whale SAR not updated*
2018	June 2019 - NOAA Technical Memorandum NMFS-SWFSC-617	801	Ship Strikes = 0.8 Commercial Fisheries = 8.7 Subsistence Harvest = 128 *Total = 137.5*
2019	August 2020 - NOAA Technical Memorandum NMFS-SWFSC-629	801	*ENP gray whale SAR not updated*
2020	July 2021 - NOAA Technical Memorandum NMFS-SWFSC-646	801	Ship Strikes = 1.8 Commercial Fisheries = 9.3 Subsistence Harvest = 119 *Total = 130.1*

SAR Year	Publication Date – NMFS Citation	PBR	Estimated Annual Level of Human-caused Mortality and Serious Injury[1]
2021	July 2022 – NOAA Technical Memorandum NMFS-SWFSC-663	801	*ENP gray whale SAR not updated*
2022	July 2023 -- NOAA Technical Memorandim NMFS-SWFSC-684	801	*ENP gray whale SAR not updated*

1. These estimates are typically based on recent 5-year averages.
2. This is the first reporting in the SAR of the whale killed near Neah Bay in September 2007.
3. Beginning in 2012, responsibility for the gray whale SAR was transferred to the NMFS Southwest Fisheries Science Center.

Summary

The most recent SAR does not consider the recent changes in the environmental conditions of the Arctic. As described above, carrying capacity is the population level that can be supported in the ecosystem as determined by the natural elements, such as food, predation, temperature, ice cover, etc. Thus, it is possible that the changes in the Arctic's environmental conditions have altered the carrying capacity of the environment for ENP gray whales and, thus, the OSP range since Punt and Wade (2012) conducted their analysis. Populations at or near carrying capacity experience heightened competition for resources and decreased reproductive success. These populations are more susceptible to fluctuations in their environment. This may be the case for the ENP gray whale stock which appears to be fluctuating at or near carrying capacity (Carretta et al. 2023) (Figure 3-7). Evidence of this stock's resilience includes:

- Significant population increase from depressed levels in the 1960s;
- Rebound from a significant die-off in 1999/2000;
- Persistence and growth despite aboriginal subsistence harvest averaging more than 119 whales per year since 1985, including 108 to 143 whales harvested per year since the die-off in 1999/2000 (refer to Subsection 3.17.3.2, Worldwide Whaling);
- Flexible feeding adaptations that allow whales to switch between benthic and pelagic prey;
- Potential range expansion, including recent winter-time use of the Arctic and sightings of several gray whales in the Atlantic/Mediterranean and off western Africa.

In addition, current estimates of human-caused mortality are within the informational estimates of PBR calculated above. As described in Subsection 3.4.2.1.5, Implementing the PBR Approach,

maintaining human-caused mortality at or below the PBR level will support stocks within OSP in maintaining OSP, and for stocks below OSP, in achieving OSP.

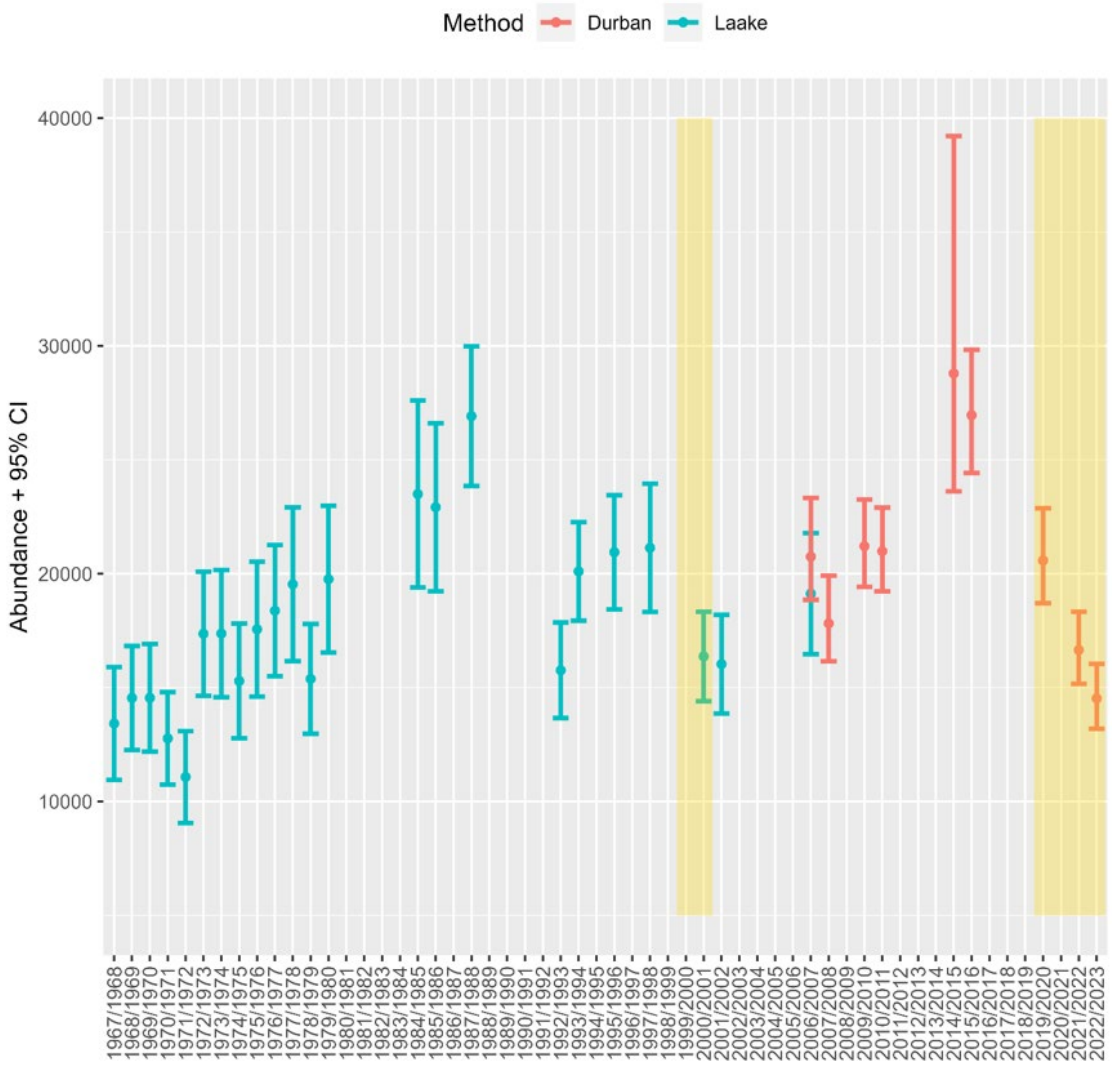


Figure 3-7. ENP gray whale abundance, 1967 to 2022/2023. Dual estimates for 2006 reflect the change in counting technique described in Durban et al. (2015). Figure from Eguchi et al. (2023a).

3.4.3.4 Pacific Coast Feeding Group (PCFG) of Gray Whales

Not all ENP gray whales make the full migration every year to feeding grounds north of the Alaska Peninsula/Aleutian Islands (Figure 3-3). Since the 1920s, gray whales have been documented feeding south of the Aleutians during the late spring, summer, and fall, past the times typically associated with the end of the spring northward migration and before the times typically associated with the onset of the fall southward migration. Between late spring and fall, gray whales have been observed off coastal Mexico (Patten and Samaras 1977); southern, central, and

northern California (Mallonée 1991; Calambokidis et al. 2004a); southern and central Oregon (Herzig and Mate 1984; Sumich 1984); northern Washington and northern Puget Sound; southwest and western Vancouver Island; British Columbia and north British Columbia (Darling 1984); and Sitka and Kodiak, Alaska (Calambokidis et al. 2002; Calambokidis et al. 2004a; Moore et al. 2007; Gosho et al. 2011). Feeding gray whales occurred off California even in the 1920s when population numbers were very low (Clapham et al. 1997; Moore et al. 2007).

In the literature, these observations have often been described as summer sightings (Gosho et al. 2001), and researchers have used the term 'summer' to refer to a longer period than is generally associated with the season, describing sightings off the Washington coast between June 1 and November 30 as summer feeding (e.g., Calambokidis et al. 2002; Calambokidis et al. 2004a). Whales seen during this period have been variously termed summer feeders, summer residents, summer population, seasonal residents, stragglers, the Washington feeding aggregation, the summer feeding aggregation, the southern feeding group, the Pacific Northwest feeding aggregation, the Pacific Coast Feeding Aggregation (PCFA)[23], and Pacific Coast Feeding Group (PCFG) (Pike 1962; Darling 1984; Quan 2000; NMFS 2001a; Calambokidis et al. 2002; Calambokidis et al. 2004a; Moore et al. 2007; Frasier et al. 2011; IWC 2010a).

In our 2008 draft EIS (NMFS 2008a), we noted that "[t]here is no evidence that the whales feeding in this portion of the summer range [the PCFG range] are genetically or demographically unique, and both NMFS and the IWC continue to treat ENP gray whales as a single stock for management purposes." Since then, various studies and reviews by NMFS, IWC, and other scientists have revealed genetic evidence relevant to demographic independence (Subsection 3.4.2.1.6, Stock Assessment Reports). The SAR has noted that the PCFG of gray whales may warrant consideration as a stock at some point. The following subsections describe the current state of knowledge about the whales in the PCFG range and specifically about PCFG whales that have been sighted in the area from Oregon to Southern Vancouver Island (OR-SVI) and in the Makah U&A, which is within the OR-SVI.

This FEIS focuses on those PCFG whales that have been sighted in the Makah U&A in response to the Ninth Circuit decision in *Anderson v. Evans* (2004). The court found that the geographic

[23] PCFA was the term used in the *Anderson v. Evans* case, the Tribe's waiver application, and the 2008 DEIS, but it is now superseded by the term PCFG. As defined by the Tribe, the PCFA is "any Eastern North Pacific gray whale found in the photo-identification database maintained by NOAA's National Marine Mammal Laboratory (NMML) which has been observed south of Alaska from June 1 through November 30 in any year."

scale of our inquiry in the 2001 EA at issue in that case was not sufficiently fine. The court concluded that we must consider not just effects to the PCFG whales but effects to whales observed in the Makah Tribe's U&A. The court referred to these whales as the "relatively small group of whales [that] comes into the area of the Tribe's hunt each summer,... about sixty percent of [which] are returning whales (although, again, not necessarily whales returning annually)" (*Anderson v. Evans* 2004). In holding that NMFS was required to prepare an EIS, the court focused on impacts to the "local area."

> *Even if the eastern Pacific gray whales overall or the smaller PCFA group of whales are not significantly impacted by the Makah Tribe's whaling, the summer whale population in the local Washington area may be significantly affected. Such local effects are a basis for a finding that there will be a significant impact from the Tribe's hunts. See 40 C.F.R. § 1508.27(a). Thus, if there are substantial questions about the impact on the number of whales who frequent the Strait of Juan de Fuca and the northern Washington Coast, an EIS must be prepared (Anderson v. Evans 2004).*

In addition to focusing on PCFG whales sighted in the Makah U&A, this FEIS considers PCFG whales sighted in the larger OR-SVI as the Tribe's application for a waiver proposed to use the abundance of those whales as the basis for estimating the allowable annual harvest of PCFG whales. They proposed this method due to the high degree of mixing of whales seen in the Makah U&A and in this larger area. In this FEIS, we define these entities as follows:

PCFG whales: Gray whales observed in at least 2 years between June 1 and November 30 in the PCFG area (between 41° N and 52° N) and entered into the Cascadia Research Collective's photo-identification catalog. For purposes of determining whether a harvested whale is a PCFG whale (i.e., counts against a bycatch or mortality limit), the Tribe's proposal under Alternative 2 would include cataloged whales seen in at least 1 year, while the other action alternatives would include cataloged whales seen in 2 or more years. Alternative 7, the preferred alternative, would assume any whale struck, struck and lost, or approached during the summer hunt time period to be a PCFG whale.

OR-SVI whales: PCFG whales observed in any survey area from southern Oregon to southern Vancouver Island (excluding areas in Puget Sound) from June 1 to November 30.

Makah U&A whales: PCFG whales observed in either the northern Washington survey area (from Cape Alava to Cape Flattery) or Strait of Juan de Fuca survey area (from Cape Flattery to Admiralty Inlet) from June 1 to November 30.

See Figure 3-9 for a map of the spatial areas mentioned above.

3.4.3.4.1 PCFG Population Structure

Although the 2008 DEIS referred to the Pacific Coast Feeding Aggregation, the currently accepted term is PCFG, originating from the IWC's 2010 Scientific Committee report (IWC 2010a) that states "the Committee agrees to refer to the animals that spend the spring, summer and autumn feeding in coastal waters of the Pacific coast of North America from California to southeast Alaska as the Pacific Coast Feeding Group or PCFG" (see also Subsection 3.4.3.1.2, Global Distribution and Population Structure). In that report the Committee also noted that research by Calambokidis et al. (2010)[24] had identified two groups of gray whales using the Pacific Northwest after June 1: (1) PCFG whales that return frequently and account for the majority of sightings and (2) a second group of apparent "stragglers" from the migration seen in only 1 year, generally for shorter periods and in more limited areas. Moreover, after reviewing results from photo-identification, telemetry, and genetic studies available in 2010 (i.e., Calambokidis et al. 2010; Mate et al. 2010; Frasier et al. 2011), the Committee agreed that the hypothesis of the PCFG being a demographically distinct feeding group was plausible and warranted further investigation (IWC 2010a). Subsequent IWC investigations have centered on developing and evaluating strike limit algorithms for hunting in the Pacific Northwest, with a primary emphasis on the PCFG (Subsection 3.4.3.4, PCFG Status, Carrying Capacity, and Related Estimates, IWC Implementation Review of PCFG Whales).

The IWC's general description of the PCFG was refined at a 2011 workshop (consisting of the IWC's standing working group on the development of the Aboriginal Whaling Management Procedure) focused on the proposed Makah hunt and the PCFG (IWC 2011b). A key analysis reviewed at that workshop was the photo-identification study by Calambokidis et al. (2010) which corroborated earlier observations (e.g., Calambokidis 2004a) that there is a concentration of gray whale sightings in survey areas ranging from Northern California ("NCA" at 41° N Latitude) and northern British Columbia ("NBC" at 52° N Latitude), and that whales seen after June 1 were more likely to be seen multiple times, in multiple years, and multiple survey areas than whales seen before June 1. The workshop also noted that genetic samples had been taken from across this range and few if any whales are still migrating north through the 41° N to 52° N

[24] This research is part of an ongoing collaborative effort among a number of research groups to compile and identify individual gray whales photographed in 15 survey areas from southern California to Kodiak, Alaska. The photo-identification data are cataloged in a database maintained by the non-governmental organization Cascadia Research Collective in Olympia, Washington.

region from June 1 to November 30 (IWC 2011b). The resultant PCFG definition was articulated in the IWC's 2011 Report of the Scientific Committee (IWC 2011c) as:

> *PCFG whales are defined as gray whales observed (i.e., photographed) in multiple years between 1 June and 30 November in the PCFG area (between 41° N and 52° N).*

The Committee's report goes on to note that "[n]ot all whales seen within the PCFG area at this time will be PCFG whales and some PCFG whales will be found outside of the PCFG area at various times during the year" (IWC 2011c). The most recent NMFS stock assessment report for gray whales (Carretta et al. 2023) concludes that "the PCFG appears to be a distinct feeding aggregation and may one day warrant consideration as a distinct stock."[25]

The current definition for the PCFG is somewhat more restrictive than the Tribe's description of the Pacific Coast Feeding Aggregation (PCFA) used in its waiver request that states, "for the purposes of this request, the PCFA is defined as any Eastern North Pacific gray whale found in the photo-identification database maintained by NOAA's National Marine Mammal Laboratory (NMML) which has been observed south of Alaska from June 1 through November 30 in any year." The main differences between the current PCFG definition and the definition in the Tribe's application are: (1) the photo-identification database/catalog is actually maintained by the Cascadia Research Collective, not NMML[26]; and (2) the Tribe's proposal would limit the incidental killing of a potentially larger group of whales, in that it would take into account animals sighted even *once* as well as animals sighted *south* of 41° N (Northern California) during June 1 to November 30.

PCFG Genetics and Recruitment

Early genetic studies of PCFG whales focused on evaluating recruitment patterns, with simulations indicating that genetic differences would be detected if the PCFG originated from a

[25] Although interior waters making up Puget Sound are within the PCFG latitudinal boundaries of 41° N to 52° N, whales sighted in Puget Sound were not included in the IWC analysis and are considered outside the range of the PCFG. Previous research has found that the few whales sighted in Puget Sound are typically seen only in the spring (especially in northern Puget Sound), are less likely to be seen in multiple years and regions, and likely represent migratory animals (Calambokidis et al. 2002; Calambokidis et al. 2003; Calambokidis et al. 2004a; Calambokidis 2008; Calambokidis et al. 2009a).

[26] NMML scientists do provide photographs that are included in the catalog.

single colonization event in the past 40 to 100 years without subsequent external recruitment[27] (Ramakrishnan and Taylor 2001). However, a subsequent analysis by Steeves et al. (2001) failed to detect differences when 16 samples collected from known PCFG whales using Clayoquot Sound, British Columbia, were compared with 41 samples collected from individuals presumably feeding farther north. Additional genetic analysis with an extended set of samples (n=45) collected from whales within the PCFG range indicated that genetic diversity and the number of mtDNA haplotypes were greater than expected (based on simulations) if recruitment into the PCFG were exclusively internal (Ramakrishnan et al. 2001). However, both simulation-based studies focused on evaluating only the hypothesis of founding by a single and recent colonization event and did not evaluate alternative scenarios, such as recruitment of whales from other areas into the PCFG (Ramakrishnan and Taylor 2001; Ramakrishnan et al. 2001).

Frasier et al. (2011) compared mtDNA sequence data from 40 individuals from the PCFG summer range with published sequences generated from 105 samples collected from ENP gray whales, most of which stranded along the migratory route between southern California and Chukotka, Russia (LeDuc et al. 2002). The mtDNA haplotype diversity found among samples of the PCFG was high and similar to the larger ENP samples, but significant differences in mtDNA haplotype distribution and in estimates of long-term effective population size were found. Based on these results, Frasier et al. (2011) concluded that the PCFG qualifies as a separate management unit under the criteria of Moritz (1994) and Palsbøll et al. (2007)[28]. The authors noted that PCFG whales likely mate with the rest of the ENP population and that their findings were the result of maternally-directed site fidelity of whales to different feeding grounds. In other words, calves (male or female) who accompanied their mothers to the feeding ground would return in subsequent years.

A subsequent study by Lang et al. (2014) assessed stock structure of whales that use feeding grounds in the ENP. Small but statistically significant mtDNA differentiation was found when samples from PCFG whales were compared to samples from whales feeding north of the Aleutians. No significant differences were found when these same comparisons were made using

[27] External recruitment refers to the addition of individuals to a group via animals that were previously located outside the group (i.e., immigrants). Internal recruitment refers to births.
[28] Moritz (1994) defined 'management units' as populations with significant divergence of allele frequencies at nuclear or mitochondrial loci, regardless of the phylogenetic distinctiveness of the alleles. Palsbøll et al. (2007) proposed that the identification of such units from population genetic data should be based upon the amount of genetic divergence at which populations become demographically independent instead of a criterion that focuses on rejecting a hypothesis of random mating.

nuclear data (12 microsatellite loci). Based on these results, the authors concluded that 1) use of some feeding areas is being influenced by internal recruitment (e.g., matrilineal fidelity), and 2) individuals from different feeding grounds may interbreed. The level of mtDNA differentiation identified, while statistically significant, was low, and the mtDNA haplotype diversity found within the PCFG was similar to that found in the northern feeding area strata. Lang et al. (2014) suggested that these findings could be indicative of relatively recent establishment of the PCFG but could also be consistent with a scenario in which external recruitment into the PCFG is occurring.

A study by D'Intino et al. (2012) compared whales sampled off Vancouver Island and representing the PCFG (n=82 animals) to whales sampled at the calving lagoon at San Ignacio (n=51 animals). They found no nuclear DNA evidence for population differentiation between these two areas, indicating that that the two sampled groups come from the same interbreeding population. They concluded that taken together, the available photo-identification and genetic data indicate seasonal subdivision of gray whales on summer feeding grounds but with no such substructuring during the mating season, where all individuals represent one gene pool, and that maternally-directed site fidelity to different feeding areas (such as the PCFG range) leads to mtDNA differentiation among feeding areas.

Researchers have documented differences in mtDNA that reflect strong site fidelity to summer feeding areas for humpback whales in the North Atlantic and North Pacific (Baker et al. 1990; Larsen et al. 1996). The documented mtDNA differences between humpbacks in different feeding areas indicate that calves learn to use specific feeding areas from their mothers, and they subsequently pass that knowledge to their offspring (a concept known as maternally directed fidelity or familial recruitment) (Palsbøll et al. 1995; Larsen et al. 1996; Palsbøll et al. 1997). Long-term re-sighting histories of individual humpback whales in the North Atlantic further demonstrate very high annual return rates to specific feeding grounds and minimal interchange among such regions (Clapham et al. 1993; Stevick et al. 2006). The apparent difference in site fidelity between humpback and gray whales (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements) may be due to the geographic structure of the migratory route between the summer and winter grounds. For humpback whales, the migratory routes to isolated feeding areas are direct and often cross deep ocean basins (Baker et al. 1990; Calambokidis et al. 1996; Clapham and Mead 1999; Calambokidis et al. 2002). In contrast, gray whales follow a coastal migratory route that passes PCFG feeding areas. Thus, even if mothers introduce calves to

a feeding area, there is a natural mechanism for all gray whales to adopt and/or revisit productive feeding areas (Calambokidis et al. 2004a).

Photo-identification studies also underscore the possible role of matrilineal fidelity in maintaining the PCFG as well as the significant variability in whale sightings in the area. Calambokidis and Perez (2017a) reviewed the most recent mother-calf data and concluded that a high percentage of surviving calves appear to become part of the PCFG[29]. Between 1993 and 2015, they documented 102 calves accompanying 62 different, probable mothers identified as PCFG whales, with a high proportion of these mother/calf pairs seen from 2012 to 2015 (11 to 18 each year). The increase in sightings may be due to an increase in births in those years, an increase in survey effort focused on identifying calf/mother pairs, or some combination thereof. Still, these calf data likely represent a minimum estimate because: 1) most surveys took place after the mean date of weaning (1 August), so some calves may not have been identified as such because they had already weaned from their mothers, and 2) larger calves may not be identified as calves even when they are with mothers (human error). Calambokidis and Perez (2017a) went on to analyze the re-sighting history of calves and found that 65 percent were seen in a year subsequent to the year they were calves. The 35 percent not seen in a subsequent year could result from the calf dying, the calf not returning to the area or not re-sighted during its return, or the calf not being recognized by photo-identification because of changes in its markings.

Calambokidis and Perez (2017b) also studied photographs of migrating gray whales to determine if PCFG whales remain associated during migration, in addition to the time they spend together in their summer feeding grounds. Using photographs from marine naturalists in Southern California from 2013 through 2015, they were able to identify 26 PCFG whales—15 females and 11 males— on 21 occasions (including two re-encounters of the same group of whales on the same day). In nine of those 21 sightings (42 percent), multiple PCFG animals were present in the group. Of the nine groups containing multiple PCFG whales, six groups contained multiple animals of known sex, four of which contained both males and females. These associations were present during both the northbound and southbound migrations. Calambokidis and Perez (2017b) concluded that these associations during migration increase the probability of PCFG association

[29] Whales are identified as calves when they are accompanied by their mother; thus, once the calf is weaned, it may not be recognized as a calf and this may, in turn, affect calf estimates.

in the wintering grounds andincreases the chances for breeding within the PCFG, even in the presence of non-PCFG animals.

The IWC Subcommittee on Gray Whales reviewed these data in the Fourth Rangewide Workshop on the Status of North Pacific Gray Whales in 2017 (IWC 2017). It determined that although the associations observed by Calambokidis and Perez (2017b) may provide an opportunity for breeding to occur within the PCFG, the co-occurrence of PCFG whales during migration does not necessarily mean that they breed together. Furthermore, genetic analyses of PCFG whales and ENP whales sampled outside the PCFG range (i.e. on more northern feeding grounds and in the breeding lagoon) suggest that the sampled whales represent one breeding population subdivided based on maternally-directed feeding site fidelity. That is, the genetic data indicates that individuals from different feeding areas interbreed. Further, these studies have not ruled out the possibility that interbreeding between non- PCFG and PCFG animals is random (D'Intino et al. 2013; Lang et al. 2014; IWC 2017).

There is also evidence that whales with a demonstrated tendency to return to particular feeding grounds may behave differently as young animals or as mothers with calves. Weller et al. (2013) noted that many of the whales identified as calves off Sakhalin Island in the WNP are not re-sighted for many years subsequent to their birth year, but eventually they are again re-sighted in the area. This suggests that young animals may use other areas to feed during their first several years. Calambokidis et al. (2014) noted cases where females that had been regularly sighted in the PCFG area were subsequently sighted as mothers with a calf but outside the PCFG area. Both of these examples highlight the difficulty in assessing whether new whales are external or internal recruits.

While the studies summarized above suggest that internal recruitment (e.g., via matrilineal fidelity) is important in structuring feeding ground use, other evidence suggests that external recruitment via immigration into the PCFG may be occurring. Lang and Martien (2012) used simulations to examine how much immigration into the PCFG could occur to produce results consistent with the empirical genetic (mtDNA) analyses. The results suggested that the plausible range of immigration is greater than 1 and fewer than 10 animals per year on top of a 2-year pulse of immigration (of 20 animals each year in 2000 and 2001, consistent with the findings by Calambokidis et al. (2014) that a higher than usual number of animals recruited into the PCFG in the years following the 1999 to 2000 gray whale UME [Subsection 3.4.3.1.7, Strandings]). Annual immigration of 4 animals (with the 2-year pulse of immigration) produced simulated results that were most consistent with the empirical data. From 2002-2015, the PCFG increased

from 197 to 243 animals, which amounts to an annual average increase of 3.5 whales annually over 13 years (Calambokidis et al. 2017).

Calambokidis et al. (2014) analyzed PCFG sighting data and noted that new whales (i.e., not previously seen) have continued to appear annually and many of these new whales have subsequently returned and been re-sighted as "recruits." It has also been observed that whales with a longer minimum tenure in the first year they were sighted have higher probability of return (i.e., do not permanently emigrate) (Calambokidis et al. 2004a; Weller et al. 2013; Calambokidis et al. 2014). This relationship supports a hypothesis that whales are more likely to return if they find a suitable prey base during their first year in the range of the PCFG during June 1 to November 30.

Weller et al. (2013) reviewed sighting data for non-calf animals from 1998 to 2009 and found that the recruits:transients ratio in a given year was about 50:50, which is very similar to the 49:51 ratio seen in the more recent and larger data set (1996 to 2011) analyzed by Calambokidis et al. (2014). Calambokidis et al. (2014) also found that during surveys in the PCFG range from 1999 to 2011 (when photo-identification efforts expanded to cover all survey regions), an average of 34 new whales (ranging from 8 to 69) were seen each year. During that time, an average of 14.3 whales (ranging from 1 to 30) were recruited each year, and most of these (12.5 on average) were not identified as calves. Calambokidis et al. (2014) also applied various methods to estimate the abundance of PCFG whales (Subsection 3.4.3.4.3, PCFG Abundance and Trends). They observed that abundance estimates had been fairly stable since 2002, indicating that recruitment was being offset by losses (either whales dying or permanently emigrating).

In the most recent report on PCFG abundance, Harris et al. (2022) report that an average of 34 new whales (ranging from 8 to 71) were seen each year in the PCFG survey area from 1999 to 2020, and an average of 14 whales were seen again in a subsequent year (excluding 2020 as no recent data were available yet). This is consistent with the earlier studies.

Sex Ratio of PCFG Whales

Genetic studies by Frasier et al. (2011), D'Intino et al. (2013), and Lang et al. (2014) sampled dozens of whales (40 to 71 animals) in the PCFG range and found that females made up 58 to 60 percent of the samples (collected from 1994 to 2010). More recent analysis of 194 PCFG individuals biopsied between 1996 and 2015 revealed that 103 (53 percent) are female and 91 (47 percent) are male (Aimee Lang, pers. comm., Southwest Fisheries Science Center Biologist, February 26, 2020). Earlier studies (Steeves et al. 2001; Ramikrishnan et al. 2001) found a slight

male bias, but Lang et al. (2014) noted that results from those earlier studies may have been influenced by small sample sizes (Steeves et al. 2001 analyzed just 16 samples from known PCFG animals) or the laboratory assays used by Ramikrishnan et al. (2001). Based on this information, we estimate a sex ratio within the PCFG of approximately 50:50 males to females.

NMFS 2012 Workshop on Gray Whale Stock Identification

In the summer of 2012, NMFS convened a workshop with eight agency scientists (i.e., a Task Force) to conduct an objective scientific evaluation of gray whale stock structure as defined under the MMPA and implemented through NMFS' 2005 GAMMS (NMFS 2005b)[30]. Specifically, the Task Force was convened to provide advice on the primary question: Is the PCFG a 'population stock' under the MMPA and GAMMS? This question has management implications, including how future NMFS stock assessment reports address gray whale stock structure in the North Pacific, and how to interpret any new information in the context of the Makah Tribe's waiver request.

After reviewing the best existing scientific information available from photo-identification, genetics, tagging, and other studies within the context of the 2005 GAMMS, the Task Force concluded that there remains a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the PCFG. Consequently, the Task Force was unable to provide definitive advice as to whether the PCFG is a population stock under the MMPA and the GAMMS. Members of the Task Force ranged in their opinions from strongly agreeing to strongly disagreeing about whether the PCFG should be recognized as a separate stock. The Task Force emphasized that the PCFG is relatively small in number and uses a largely different ecosystem from that of the main ENP gray whale stock.

Key Task Force arguments *for* the PCFG being a demographically independent unit included:

- The PCFG is a feeding group that does not rely on the dynamics of a sub-arctic ecosystem, and this uniqueness may provide important flexibility to the species as a whole given potential challenges in a changing sub-arctic ecosystem.
- Persistent return of individual whales to specific feeding areas strongly suggests that site fidelity is key to maintaining gray whales as a functioning element of this ecosystem.

[30] The Task Force agreed to use the 2005 GAMMS during its deliberations because the 2011 draft GAMMS had not been formally approved. The Task Force also noted that the GAMMS 2005 definition for "demographic isolation" is essentially the same as the GAMMS 2011 definition for "demographic independence" in that neither implies true "isolation" within the context of the MMPA.

- Some genetic analyses (using mtDNA haplotype data) have shown low but significant differences between the PCFG and the larger ENP population, providing indirect evidence of internal recruitment and matrilineally-directed site fidelity to feeding grounds.
- Evidence of internal/calf recruitment that may actually be an underestimate because of survey limitations.

Key Task Force arguments *against* the PCFG being a demographically independent unit included:

- Various lines of evidence (e.g., genetic, photo-identification) indicate considerable and ongoing external recruitment into the PCFG; however, there is considerable uncertainty as to whether external recruitment exceeds internal recruitment.
- Other genetic analyses using mtDNA and nuclear DNA data have not shown significant differences between the PCFG and the larger ENP population.
- A sizable number—approximately 10 percent of the whales that occur in the PCFG area each summer/fall—are transients that otherwise feed north of the Aleutians and serve as a substantial and continuous source of potential recruitment into the PCFG.
- The annual coastal migration route of most ENP gray whales includes the habitat used by the PCFG, making it likely that external recruitment would fill any voids caused by whales being removed from the PCFG.

The Task Force also noted that while the status of the PCFG as a population stock was not resolved, continued research on these whales should be undertaken with particular attention dedicated to collecting data relevant to the question of stock identification.

We have not identified the PCFG as a population stock under the MMPA, nor are we aware of any existing studies concluding that the PCFG meets the criteria of a separate stock under the MMPA, but have stated that it may warrant consideration as a separate stock in the future (Carretta et al. 2023). If we were to determine that the PCFG did warrant consideration as a stock under the MMPA then we could take the step of classifying it as a 'prospective stock,' which would entail soliciting public comment and additional scientific information specifically addressing the prospective stock structure. The GAMMS (NMFS 2023b) note that prospective stocks are expected to become separate stocks in a timely manner unless additional evidence were produced to contradict the prospective stock structure.

3.4.3.4.2 PCFG Seasonal Distribution, Migration, and Movements

In a general sense, gray whales using the PCFG area exhibit a migratory pattern similar to that of whales in the larger ENP stock (Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration, and Movements). The following subsections summarize the current knowledge about how PCFG whales use these southern feeding grounds.

Unique Markings of Individual Whales and History of Survey Efforts

In the early 1970s, scientists discovered they could identify individual whales by dorsal area shape, scars, and coloration patterns that are visible above the surface of the water when the whales arch to dive (Darling 1984). Photographing and identifying individual whales, noting the location and time of sighting, and comparing photographs within and between years has allowed scientists to study abundance, distribution, movements, and survival of whales using the southern portion of the ENP gray whale summer range. Over time, researchers have established summer survey areas either because the area is one where whales were likely to be found feeding or because the area is one where a management activity occurs (for example, a counting station along the migration route or an area where a hunt is proposed). The following discussion focuses on survey areas because that is how data are collected, reported, and analyzed. Although a researcher's designation of a survey area will not necessarily correspond to areas that are biologically meaningful to individual whales or groups of whales, they are nevertheless useful for analyzing local effects.

From 1972 to 1981, researchers conducted photo-identification studies in survey areas off the west coast of Vancouver Island, British Columbia (Hatler and Darling 1974; Darling 1984). Both effort and survey areas varied between years. Survey effort ranged from less than 5 days in 1972 to 54 days in 1976. Five discrete areas were surveyed. Surveys began in the 24.9-mile [40-km] stretch of coast around Wickaninnish Bay near Tofino on the central west coast of Vancouver Island (surveyed from 1972 to 1981). Later surveys extended north to include three more discrete survey areas (Estevan Point, between Clayoquot Sound and Nootka Sound, surveyed from 1976 to 1981; Cape Scott, surveyed in 1977 and 1979; and Calvert Island, surveyed in 1977 and 1979), then survey efforts expanded south to include the West Coast Trail survey area (surveyed from 1979 to 1981). In 1976 and 1977, the greatest number of whales identified in any one summer was 34 (some individuals were re-sighted from prior years), corresponding to maximum effort and including 1 year when four of the five survey areas were surveyed (excluding West Coast Trail, which was added later in 1979). Flights to locate whales missed by the boat-based surveys were carried out weekly in 1976 and sporadically in other years. Sixty-three percent of the

identified whales were seen in more than one summer, and 37 percent were identified in only one summer (i.e., they were never re-sighted in a subsequent year). One whale was seen in 7 consecutive years and others were seen across spans of time as long as eight summers but were not seen in every summer.

On the basis of these data, Darling (1984) surmised that 35 to 50 whales were present during 1972 to 1981 off the coast of Vancouver Island in any one summer but they were not all the same whales each year. During 1975 to 1981, Darling (1984) identified 93 total individual whales that were present in this study area for at least 1 year. Darling (1984) noted that other researchers surveying in areas off of Oregon thought there were approximately 75 total individual whales identified each year of their effort, so he surmised that there were at least 100 gray whales in the British Columbia-Washington-Oregon area in any one summer.

Within-season and between-year movement of identified and re-sighted whales was also recorded. Some identified whales remained in the same survey area throughout the summer; for example, two whales remained in the Wickaninnish Bay survey area for at least 80 days. Other whales traveled considerable distances in search of food; for example, a whale identified in the Wickaninnish Bay survey area reappeared in the Estevan Point survey area 47.9 miles (77 km) away. Between years, identified whales reappeared at least 93.3 miles (150 km) away from where they were in a prior year.

From 1984 to 1993, researchers from Cascadia Research Collective conducted photo-identification studies of eight discrete survey areas in the inland waters of southern, central, and northern Puget Sound and Hood Canal; the Strait of Juan de Fuca; and the outer Washington coast, including Grays Harbor (Calambokidis et al. 1994). Survey efforts varied between summers and areas, ranging from 16 days in 1990 to 50 days in 1991. Calambokidis et al. (1994) developed a catalog of photo-identified whales; 76 individual photo-identified whales were in the catalog by 1993. Of these 76 photo-identified whales, only 17 whales (22.3 percent) were re-sighted in more than 1 year, either in the same area or a different area, including British Columbia. Between-year re-sightings of photo-identified whales were most common in the northern Puget Sound survey area, where five of seven identified whales were re-sighted in subsequent years.[31] They were least common in the southern and central Puget Sound and Hood Canal survey areas, where 1 of 18 identified whales was re-sighted in subsequent years.

[31] Sightings of gray whales in northern Puget Sound indicate that this area is used briefly each year as a spring-time feeding area for a small regular group of gray whales (Calambokidis et al. 2009a).

Individually identified whales were re-sighted an average of 47 days later, and the longest time between first and last sightings in a season was 112 days.

These photo-identification efforts collectively demonstrate that some of the gray whales feeding in the southern portion of the ENP summer range remain for extended periods and that some of the whales return to the same general feeding areas in later years, though not necessarily every year (Darling 1984; Calambokidis et al. 1994). The studies also demonstrate that many of the gray whales photo-identified were not re-sighted in subsequent years, that new individuals were photographed every year, and that some whales inhabited different areas in different years (Darling 1984; Calambokidis et al. 1994). These observations were important because they suggested a lack of strong site fidelity (returning to the same previously occupied breeding or feeding location), which can indicate that a particular group of animals is different from the rest of the population in a biologically meaningful way (i.e., genetic or behavioral differences). Such differences can indicate stock structure and demographic independence, which have management implications. Animals with strong site fidelity may be unlikely to move or select new habitats if their traditional habitat becomes less favorable (Switzer 1993; Quan 2000).

In response to the Makah Tribe's request to resume their traditional hunt of gray whales, we initiated photo-identification studies of gray whales off the coast of Washington in 1996 to better understand distribution (including site fidelity and habitat use) and abundance (Gearin and DeMaster 1997; Gosho et al. 1999; Gosho et al. 2001). This was a response to federal conservation and management obligations pursuant to the ESA monitoring plan following the 1994 delisting and also to our federal trust obligations triggered by the Makah Tribe's request to hunt gray whales (Gearin and DeMaster 1997). We were investigating whether the proposed level of harvest would impact whales sighted in the hunt area. We focused our survey efforts in the Strait of Juan de Fuca (from Tatoosh Island to Sekiu), the northern Washington coast (Tatoosh Island to Carroll Island), and southern Vancouver Island. We noted that the survey area had limitations and indicated that effort should be extended beyond these three areas south to Grays Harbor (the area surveyed by Calambokidis et al. 1999) and north to west Vancouver Island (the area surveyed by Darling 1984) to increase the probability of sighting gray whales in Washington and British Columbia waters (Gosho et al. 1999).

From 1998 to the present, we have funded and collaborated with Cascadia Research Collective, the Makah Tribe, and other researchers to conduct photo-identification surveys of gray whales, primarily in the range of the PCFG. This collaboration has allowed researchers to combine resources and results and cover broader survey areas within the southern portion of the ENP

summer range, from southern California to Kodiak Island (Figures 3-9 and 3-10). Effort within survey areas varied, and the number of days in which whales were seen from 1996 to 2012 (June to November) were highest in the survey areas along southern Vancouver Island and just north of Vancouver Island (Calambokidis et al. 2002; Calambokidis et al. 2004a; Calambokidis et al. 2014).

Individual Survey Areas (Area Code) North to South	Combined Survey Areas		
	Makah U&A[29]	OR-SVI	PCFG
Coastal Waters			
Kodiak Alaska (KAK)			
Southeast Alaska (SEAK)			
Northern British Columbia (NBC)			
Western Vancouver Island (WVI)			
Southern Vancouver Island (SVI)			
Strait of Juan de Fuca (SJF)			
Northern Washington Coast (NWA)			
Grays Harbor (GH+)			
Oregon Coast (OR)			
Southern Oregon (SOR)			
Northern California (NCA)			
Central California (CCA)			
Inland Waters			
North Puget Sound (NPS)			
Puget Sound & Hood Canal (PS)			

Figure 3-8. Individual areas surveyed by gray whale researchers. Highlighted cells identify three groupings of survey areas (representing the the Makah U&A, OR-SVI, and PCFG range) analyzed in this EIS.

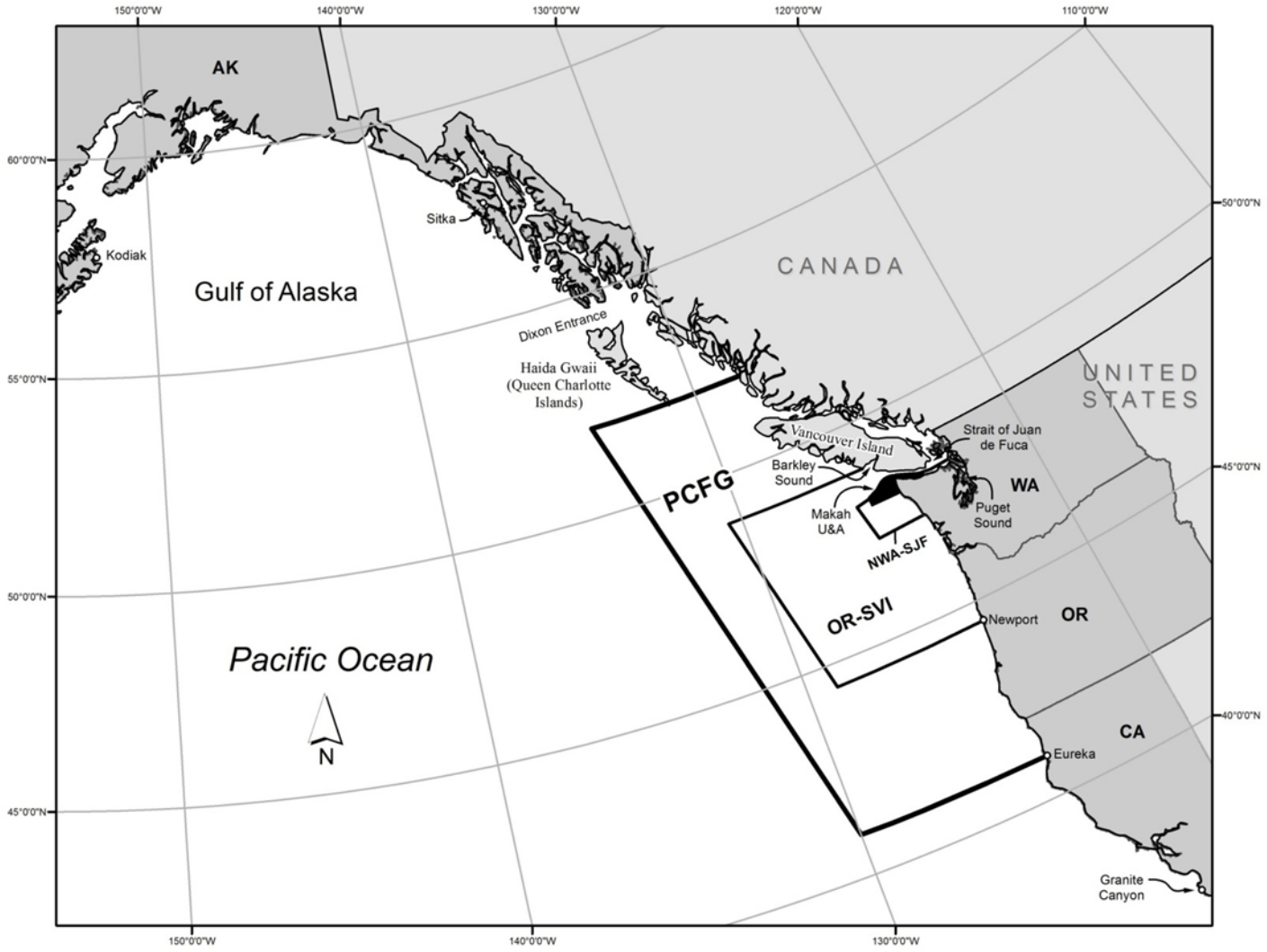


Figure 3-9. Spatial scales associated with the action area; PCFG, OR-SVI, and NWA-SJF (including the Makah U&A) survey areas.

Scientists have continued to research the PCFG and have obtained photographic identifications of 2,125 unique[32] whales from 1996-2020 that have been identified from southern California to Kodiak, Alaska. From photographs taken during the 22-year period from 1999 (when photo-ID effort expanded to cover all survey regions) to 2020, scientists identified 168 unique whales per year on average (ranging from 120 to 232) (Table 3-8). Prior to 2020, a cumulative total of 888 unique whales[33] were identified at least once in the PCFG seasonal range (i.e., June 1 to November 30 between northern California and northern British Columbia) (Figure 3-10a). Of those 888 whales, approximately 47 percent were identified at least twice in the PCFG seasonal range (Harris et al. 2022) (Figure 3-10b). As noted previously, whales seen within the PCFG range have also been sighted elsewhere. While some individuals return to the same general feeding area in some years, photo-identification studies have captured the large-scale movements and variability in the distribution of gray whales within seasons and between years.

[32] A 'unique whale' or 'identified whale' is an individual gray whale that has been identified from photographs and cataloged using a code unique to that animal (e.g., whale #1045 in the Cascadia Research Collective catalog would be coded "CRC 1045").

[33] The Cascadia Research Collective's database includes gray whale sightings from as far back as 1977. However, the data analyzed here focuses on the 888 identified whales sighted during the 1996 to 2019 time period during which there were more consistent and collaborative surveys, and some analyses focus on a subset of those years (1999 to 2019) to account for re-sightings and improved population modeling characteristics (see Harris et al. 2022).

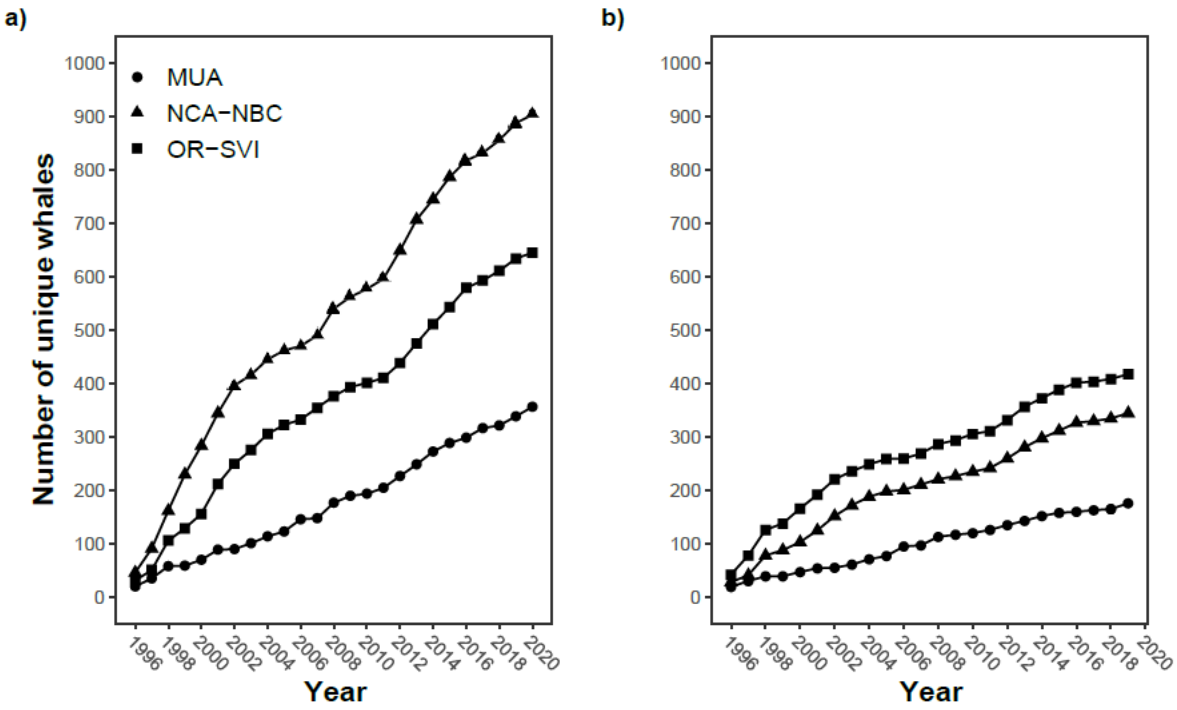


Figure 3-10. Cumulative number of unique gray whales photo-identified between 1 June and 30 November in at least one year (a) or more than one year (those meeting the definition of a PCFG) (b) in the Makah U&A, PCFG (NCA-NBC), and OR-SVI survey regions from 1996 to 2020 (figure from Harris et al. 2022).

Use of PCFG Survey Areas by Individual Whales

Of the 904 whales identified in the PCFG seasonal range from 1996-2020, 888 animals were first seen prior to 2020 (and so had the opportunity to be seen at least twice) (Harris et al. 2022). Approximately 53 percent of these animals (471 whales) have never been re-sighted, which demonstrates that many of the newly seen whales did not return in a subsequent year. However, a number of whales have been sighted during the summer in the PCFG range in each consecutive year after their first sighting. For example, as reported by Calambokidis et al. (2019), 6.4 percent (53 whales) of the 822 whales seen before 2017 were seen in every summer after their initial identification, including 4 whales that were seen in all 22 years from 1996-2017. Fifty-two percent were seen in only one year, and the remaining 41 percent (337 whales) were seen more than once but not in every year.

Many whales have an intermittent sighting history, some of which may be explained by sightings in areas adjacent to the PCFG range. For example, some whales were seen in Kodiak and southeast Alaska in years that they were not seen in the PCFG range (Calambokidis et al. 2014; Calambokidis et al. 2019). Of the 26 whales identified in southeast Alaska and the 153 whales identified in Kodiak, Alaska (in Calambokidis et al. 2019), 15 whales (57.7 percent) and 24

whales (15.7 percent), respectively, have been seen farther south in the PCFG range. For example, whale ID#130 was only seen in southeast Alaska in 1999 but was seen in all other years in the PCFG range. Likewise, whale ID#232 was only seen in Kodiak in 2002 but was seen along Vancouver Island in 2000, 2001, and 2003 and then wasn't seen again until 2011 and may have been somewhere in Alaska waters. Whale ID#152 was photo-identified in Kodiak in 2002, 2005, and 2010, but was seen in the PCFG range as early as 1995 in the Cape Caution, British Columbia area, and in 1992 in the Clayoquot Sound, British Columbia survey area. It has not been seen in the PCFG range since 1999 when it was seen along the west coast of Vancouver Island. Another example is Whale ID#68, seen in northern Washington during 1996 and 1997 and in southeast Alaska in 1998 and 1999 but not subsequently. Gosho et al. (2011) suspected that the movements within and between Kodiak and the PCFG areas to the south are likely driven by food availability and noted that the areas off Ugak Bay are thought to be the deepest foraging locations for gray whales south of the Bering Sea. While these are only a few examples of whale movements, they illustrate the extensive inter-year movement of whales, which partially explains the gaps in the observations for some whales and the disappearance of others from the PCFG. It is clear that many whales, both PCFG and non-PCFG whales, are only in the PCFG area temporarily and some whales (non-PCFG whales) only use it in a single year.

Whales seen in the PCFG range exhibited a wide range of movement across and within years. The 151 whales seen in 9 or more years (Calambokidis et al. 2019) provide a useful example. None of those whales was seen exclusively in a single survey region, and 68.2 percent were seen in at least four of the nine survey areas from 1996 to 2017. However, whales did regularly visit the same regions across years, with 95.4 percent seen in at least one of the regions during 6 or more of the years they were seen. Of the 151 whales, 58.3 percent were seen in a particular region two-thirds or more of the years they were seen. Southern Vancouver Island (SVI) was the region with the maximum number of years seen for 66 of the 151 whales, which in part reflects the larger amount of survey effort in SVI (Calambokidis et al. 2004a; Calambokidis et al. 2014; Calambokidis et al. 2019). Thus, some whales regularly visit particular regions, but they use other regions as well. Calambokidis et al. (2004a) and Calambokidis et al. (2014) also showed that whales seen in more years appeared in more regions.

Within-season movement of photo-identified and re-sighted whales in the summer feeding period can be extensive (Calambokidis et al. 2014; Calambokidis et al. 2017; Calambokidis et al. 2019). For each survey area examined, movements were greatest between adjacent areas with less movement to distant areas (Calambokidis et al. 1999; Calambokidis et al. 2004a; Calambokidis et

al. 2014; Calambokidis et al. 2017; Calambokidis et al. 2019). This pattern demonstrates that whales do focus on specific areas within the summer season, but they will move in search of food, most likely to neighboring areas. For example, over a 22 year span (1996 to 2017), 52.8 percent of whales with six or more sighting days had a primary range of >60 nautical miles (one degree of latitude) (Calambokidis et al. 2019), suggesting a lack of site fidelity among most PCFG whales. There have been examples of large-scale movements within a year. One whale, originally photo-identified in a southeastern Alaska survey area around September 1999, was re-sighted far south about a month later in a northern California survey area (Calambokidis et al. 2004a). Another whale moved in the opposite direction; researchers originally identified it off southern Vancouver Island during June-July 2003, it swam at least 1,104 nautical miles (2,045 km) in 34 days or less and reappeared off Kodiak on August 9, 2003 (Calambokidis et al. 2004a). Within-season and between-year movements of gray whales likely relate to changes in productivity and prey availability. Darling et al. (1998), for example, noted a long-term change in the use of the Wickaninnish Bay survey area off the central west coast of Vancouver Island, British Columbia. From 1966 to 1977, whales were consistently present from May to September, but use of the habitat during summer was becoming less consistent by 1977. Since 1989, gray whales have been observed feeding mostly on pelagic prey (e.g., crab larvae and swarming amphipods), although occasional bouts of benthic feeding also occurred throughout this time, such as in April 1996 (Darling et al. 1998). Scordino et al. (2014a) reported fewer gray whale sightings in the Makah U&A in June (compared to later in the summer and fall) and noted that those observations, along with available information on movements of satellite-tagged PCFG whales, suggests the possibility that whales who feed in the PCFG range may feed further north (e.g., off Alaska) in the spring and early summer before heading south to the PCFG feeding grounds later in the year.

Similar findings of variable whale movements were reported by Scordino et al. (2011a) during research surveys conducted by the NMML and the Makah Tribe within the Makah U&A during summer and fall 1993 to 2009. Researchers assessed the site fidelity of individual whales by examining minimum residency time and annual capture histories from photographs. These researchers observed that, on average, individual whales using the Makah U&A are observed for a small portion of the June to November feeding season. Most gray whales were seen in only 1 year, and individuals sighted in multiple years averaged periods of 2.2 years between sightings in the Makah U&A. The sighting histories of individual whales did not suggest that gray whales exclusively use the Makah U&A during the summer/fall feeding season. Scordino et al. (2011a) concluded that their results suggest that most gray whales sighted in the Makah U&A do not have

strong fidelity to this area. Calambokidis et al. (2019) found that of the whales sighted in regions from NCA to NBC, from 45.1 to 63.5 percent of whales, depending on the region, seen in at least 1 year were seen at some point within the Makah U&A; 52.6 to 82.5 percent of the whales seen in at least *2 years* were seen at some point within the Makah U&A.

In summary, sightings and photo-identification data show a continuum of gray whale distribution in the PCFG area during the summer and fall feeding periods from at least the southernmost survey area in northern California to northern British Columbia, and possibly further north to Southeast Alaska (near Sitka) and Kodiak Island (Calambokidis et al. 2003; Calambokidis 2004a; Moore et al. 2007; Gosho et al. 2011; Calambokidis et al. 2014; Calambokidis et al. 2017; Calambokidis et al. 2019; Harris et al. 2022) and south to central and southern California. Although some gray whales return to the same general feeding area in at least some later years, photo-identification data have demonstrated large-scale movements and variability in gray whale distribution and habitat use within season and between years. These movements and variability are likely due to shifts in prey availability, the opportunistic and diverse nature of the species' feeding ecology (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem), and the ability of gray whales to respond rapidly to changes in prey and to explore alternate feeding areas throughout their range (Darling et al. 1998; Dunham and Duffus 2001; Moore et al. 2003; Moore 2005; Moore et al. 2007). This flexibility, coupled with the location of the PCFG area in the midst of the migration route for the entire ENP herd, provides an obvious and natural mechanism for new whales to join the PCFG. However, the evidence for maternally directed site fidelity and the regular, annual return of specific whales to the PCFG underscores the complexity of recruitment processes supporting this feeding aggregation of gray whales.

Proportion of PCFG Whales Sighted in the Makah U&A During the Tribe's Proposed Hunt Period (December 1 to May 31)

In addition to surveying for and photographing whales during the summer feeding period, researchers have also surveyed for and photographed whales during the winter and spring migration period. Although there are far fewer sightings in the coastal portion of the Makah U&A (NWA; see Figure 3-8) during the migration period than during the summer feeding period, there are sufficient data to allow us to estimate the likelihood that Makah hunters would encounter a PCFG whale during a winter or spring hunt in the NWA. The proposed hunt may occur in the NWA after November 30 and prior to June 1. Based on the analysis of Calambokidis et al. (2019), a hunt conducted in spring (March to May) potentially could take whales from the PCFG (although those chances are less in the NWA than in the Strait of Juan de Fuca portion of the

Makah U&A). There have been 359 whale sightings[34] in the NWA prior to June 1 (i.e., December 1 to May 31), of which 27.3 percent (98) were whales that were seen in the PCFG range at some time after June 1, 26.2 percent (94) were of whales that were seen in OR-SVI areas at some time after June 1, and 23.4 percent (84) were of whales that were seen in the Makah U&A area at some time after June 1. In comparison, there were 99 whale sightings in the Strait of Juan de Fuca (SJF) area prior to June 1 (i.e., December 1 to May 31), of which 60 percent (55) were of whales that were seen in the PCFG range after June 1 at some time, emphasizing the importance of restricting a hunt to coastal waters of the Makah U&A (i.e., the NWA) to limit the take of whales from the PCFG. Scordino et al. (2013) also analyzed the proportion of PCFG whales sighted in the SJF and NWA survey areas from December through May (the proposed winter/spring hunting season) and found that 31 percent of sightings in the NWA were PCFG whales. Weather conditions are less favorable for surveys during December through February, and the few whales sighted (less than 5 whales during the 1996-2011 timeframe (Scordino et al. 2013)) prevent making informed estimates of the proportion of PCFG whales present during the winter months.

Distribution of PCFG Whales Relative to Shore

Various studies have assessed gray whale distribution relative to shore during the typical winter/spring migration periods of the ENP gray whale population, and those are included in Subsection 3.4.3.3.1, ENP Seasonal Distribution, Migration, and Movements. General descriptions of coastal sightings in the PCFG range can be found in many of those studies and related reports (e.g., Pike 1962; Patten and Samaras 1977; Calambokidis et al. 1997); specific sighting locations relative to shore are not always reported. Relatedly, opportunistic sightings from whale watching operations (charter boat, air services, and shore-based sites/programs) operating throughout the PCFG range are not typically reported in the published literature. The "Whale Watching Spoken Here" program in Oregon (Oregon Parks and Recreation Department 2013) is one exception. This program posts sightings data online and notes that "summer feeding whales [approximately 200-400 animals] are very close to shore." The following examples from studies published during the past 30 years use maps or cite specific locations/distances from shore to report on gray whale sightings in the PCFG range during the summer/fall:

- Hatler and Darling (1974) combined shipboard sightings and reports of earlier studies (1965 to 1973) to document sightings of gray whales (including mother-calf pairs) during

[34] These "sightings" include whales seen on multiple days.

the summer in the vicinity of Wickaninnish Bay, Vancouver Island, B.C. All sightings mapped in this study during the non-migration period were within 1.5 miles (2.4 km) of shore.

- Sumich (1984) used aerial and shore-based observations to document over 1,200 gray whale sightings (including calves) during the summer and within 0.3 miles (0.5 km) of the Oregon coast.
- Darling (1984) used direct observations and photo-identifications to document summer resident animals arriving off Vancouver Island as early as April 8 and departing the area as late as December 14. From 1975 to 1981, he sighted from 10 to 34 whales per year feeding during the summer along the coast of Vancouver Island and noted that all were seen within 0.6 miles (1 km) of the shore (most within 328 feet [100 m]), with some seen repeatedly feeding in protected waterways near Tofino, British Columbia.
- Mallonée (1991) reported 50 sightings of summering whales during shore-based observations off the northern California coast (1986 to 1988), noting that some whales could be seen milling in small, restricted areas approximately 0.03 to 0.3 miles (0.05 to 0.5 km) from rocky headlands, in the middle of bays, and at the mouth of the Klamath River.
- Brueggeman et al. (1992) used aerial and shipboard surveys to document 28 gray whale sightings during the summer and fall off the Washington and Oregon coasts, noting that all but one of the summer sightings occurred within bays or within 0.6 miles (1 km) of the coast.
- Calambokidis et al. (1997) observed gray whales over 31 miles (50 km) off the Vancouver Island coast and 28 to 56 miles (45 to 90 km) off the Washington coast during summer aerial surveys in 1997 (as cited in Shelden et al. 2000).
- Dunham and Duffus (2001) reported on dozens of sightings of gray whales foraging within 0.3 miles (0.5 km) of shore from June to September (1996 to 1997) in Clayoquot Sound, Vancouver Island, British Columbia.
- Calambokidis et al. (2004b) documented the presence of 7 gray whales in 5 locations off the Washington coast, averaging 3.1 miles (5 km) from shore in 66 feet (20 m) of water during shipboard surveys conducted in the Olympic Coast National Marine Sanctuary during the summer (1996 through 1998).
- Calambokidis et al. (2009a) observed unusual clusterings of gray whales during shipboard surveys from June to September, 2007, in two areas: one in and around the entrance to Grays Harbor, Washington, and another 12 to 16 miles (20 to 25 km) offshore

in waters nearly 200 feet (60 m) deep. The offshore sightings consisted almost exclusively of animals previously identified during the summer in other areas of the Pacific Northwest.

- Scordino et al. (2011a) sighted 189 unique gray whales during summer/fall boat-based surveys conducted between 1993 and 2009 in the Makah U&A. Most gray whale sightings occurred in waters between 26 and 49 feet (8 and 15 m) deep in areas that are characterized by rocky substrate and kelp forests. These researchers speculated that the availability of a prey species (mysid shrimp) may greatly influence gray whale sightings in the area. They also noted that gray whales in the Makah U&A appear to shift from using coastal ocean areas (i.e., the proposed hunt area) in the summer to Strait of Juan de Fuca areas in the fall.

Sighting data collected by Cascadia Research Collective, NMML, and the Makah Tribe in the PCFG range (and the Makah U&A area within the PCFG range) indicate that the vast majority of whales in the proposed hunt area are located within 3.1 miles (5 km) of shore (Scordino et al. 2013; P. Gearin, NOAA Fisheries Research Biologist, pers. comm., May 5, 2014). The concentration of whales close to shore during the summer is not surprising given that PCFG gray whales are actively feeding and would tend to be found in shallower waters with close access to benthic prey as well as mysid shrimp concentrations (Dunham and Duffus 2001; Dunham and Duffus 2002). However, most of the survey effort is also concentrated in nearshore areas and it is possible that surveyors do not see whales that are further offshore. As noted previously, Green et al. (1995) questioned the feasibility of conducting accurate shore-based gray whale censuses along the Oregon and Washington coasts given the high proportion of whales sighted beyond a shore-based observer's range of view.[35] Feeding season boat-based surveys in the Makah U&A are typically conducted within 1.2 miles (2.0 km) of shore because gray whales that summer in the area often congregate around 33 feet (10 m) of depth (Scordino et al. 2014a). These authors also documented whales feeding in deeper waters (98 to 115 feet/30 to 35 m) and gray whales are reported to feed in waters as deep as 164 to 200 feet (50 to 60 m) deep (Jones and Swartz 1984); in the coastal portion of the Makah U&A, such depths extend offshore as far as 9 miles (15 km). Migratory season surveys in the Makah U&A are generally conducted within 3.1 miles (5 km) of

[35] Shelden and Laake (2002) estimated that 3.5 miles (5.6 km) was the expected outer viewing limit of shore-based observers at a gray whale counting station near Granite Canyon, CA. Similarly, Sumich (1984) considered 3.1 miles (5 km) as the practical maximum distance that gray whales could be reliably seen with binoculars under ideal conditions.

shore but since 2009 have extended as far offshore as 5 to 6.2 miles (8 to 10 km) (Scordino et al. 2013).

In summary, gray whales found in the PCFG range (including the Makah U&A) during the summer/fall are most likely to be found in relatively shallow coastal waters, usually within 3.1 miles (5 km) of shore. Seasonal and year-to-year variability in prey or ocean conditions likely have a great influence on the species' distribution. Gray whales using waters far offshore are probably much less common (e.g., because of the greater diving depths required to pursue benthic prey) and largely undetected given existing survey methods.

3.4.3.4.3 PCFG Abundance and Trends

From the preceding sections it is apparent that the PCFG does not exhibit traits of a completely closed population whose abundance fluctuates solely based on births and deaths of member animals and not on migration into or out of the population. Instead, it appears to have complicated dynamics that likely includes whales with the following characteristics:

- Whales that use the PCFG range[36] based on learning "local knowledge" from their mothers.
- Whales that use the PCFG range on an almost annual basis.
- Whales that use the PCFG range intermittently over the years.
- Whales that used the PCFG range once but never returned (i.e., transients).
- Whales that use the PCFG range for long periods of time in a given season.
- Whales that use the PCFG range for short periods of time in a given season.
- Whales that use large expanses of the PCFG range in a given season.
- Whales that use small expanses of the PCFG range in a given season.
- Whales that travel in and out of the PCFG range in a given season.
- Whales that use the PCFG range but are not sighted (e.g., they occur in areas not surveyed or are otherwise missed by surveyors).

A particular whale may exhibit several of these characteristics during its lifetime. It is also likely that, in any given year, the assemblage of whales found in the PCFG range exhibit all of these characteristics, thereby underscoring the difficulty in deriving an accurate abundance estimates for the PCFG. Nearly 20 years ago, Darling (1984) made a rough estimate that in addition to 35 to

[36] In this list, "PCFG range" refers to the area bounded by 41° N to 52° N (i.e., from survey areas NCA to NBC) and "season" refers to the period June 1 to November 30.

50 whales off Vancouver Island, "[a]pproximately 75 whales summer off Oregon each year (B.R. Mate [Oregon State University], pers. comm., 1979), so it is likely there are at least 100 in the British Columbia-Washington-Oregon area." Since then, it has become possible to develop more refined estimates using mathematical models referred to as 'mark-recapture' estimators based on the photo-identification data collected annually in the range of the PCFG during June 1 to November 30. Since 1977, these data presently identify 888 gray whales that have been seen at least once in the range of the PCFG during June 1 to November 30 and assigned unique identification numbers in the Cascadia catalog. Of these, approximately half have been seen two or more times and therefore fit the definition for the PCFG (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).

Calambokidis et al. (2004a) first proposed that it was more appropriate to use open population models than closed population models to estimate abundance of gray whales in the PCFG and OR-SVI survey areas. Because new whales are entering a given area each year (gains through immigration and recruitment) and some new whales never return (losses through emigration and death), closed population models produce biased estimates that make them less suitable for the dynamics exhibited by PCFG whales.

More recent modeling has confirmed this conclusion. Calambokidis et al. (2012) used a variety of open- and closed-population estimators to calculate the annual abundance of PCFG whales. They concluded that the traditional Lincoln-Petersen estimator based on a closed population was positively biased because of transient whales passing through each year. The bias was greatest during the early part of the time series with greater numbers of transients in 1999 to 2001 during and after the 1999 to 2000 stranding event. The other estimators attempted to cope with the transient whales to estimate the abundance of whales excluding the transients. The trends from those estimators all showed an increase from 1998. Calambokidis et al. (2012) concluded that the modified Jolly-Seber model (referred to as 'JS1') was the least biased and best estimator for the PCFG. The JS1 estimator for each year is composed of an estimate of the number of previously seen (marked) whales that remain (alive and have not permanently emigrated) in the population plus an estimate of the number of newly seen whales that are expected to return based on their estimated first-year apparent survival, which is dominated by emigration as a result of transience. In the first year of the study (e.g., 1998 in Calambokidis et al. 2012), there are no previously seen whales so the initial estimate will be biased low. With simulation and an analysis that included some data from 1996 and 1997, Laake (2012) concluded that most of the bias was in the 1998 estimate.

Table 3-7 and Figure 3-11 display the abundance estimates from the most recent analysis by the Cascadia Research Collective and NMFS' Alaska Fisheries Science Center (Harris et al. 2022). The models indicate that the PCFG grew significantly from 39 animals identified in 1996 to 212 animals in 2020. The overall PCFG population has been stable over the last 20 years, declining slightly in recent years from a peak in 2015 (Harris et al. 2022) (Figure 3-11).

However, abundance in both 1996 and 1997 are likely even lower than estimated because the photographic effort was not as expansive as after that period; thus, the increase from 1996 to 1998 is inflated. As noted previously, each year's estimate includes a mix of whales that have either been previously seen using the area or have been seen using it for the first time and are expected to return and use it again. For comparison with the model-derived estimates, the most recent photo-identification data on gray whales (Harris et al. 2022) in the PCFG seasonal range show that the number of uniquely identified whales sighted in a given year has ranged from 45 whales in 1996 to a high of 232 whales in 2013, and 163 whales in 2020.[37]

Table 3-7. Model-averaged abundance estimates (N) and minimum abundance estimates (Nmin) for PCFG gray whales based on sightings in the PCFG, OR-SVI, and Makah U&A survey regions (Harris et al. 2022).

Year	PCFG (NCA-NBC)		OR-SVI		Makah U&A	
	N	Nmin	N	Nmin	N	Nmin
1996	39	37	25	23	17.7	16.6
1997	81	73	46	41	32.4	28.6
1998	133	122	94	87	43.5	35.5
1999	145	133	82	76	42.8	31.0
2000	147	136	86	79	36.0	21.9
2001	182	171	156	147	54.4	43.7
2002	210	191	128	120	46.1	30.9
2003	209	196	169	159	55.1	42.0
2004	224	208	159	150	58.2	44.9
2005	208	184	170	160	64.2	54.0
2006	195	178	152	143	74.0	66.2
2007	185	163	173	162	79.7	62.4
2008	217	202	199	188	90.8	83.2
2009	208	191	165	156	94.6	83.6
2010	201	186	144	135	98.7	79.1

[37] Calambokidis et al. periodically update their analyses via reports that use the most recent sighting data available as well as corrections (e.g., because of identification errors) to data reported in previous years' reports. For example, Calambokidis et al. (2012) reported 130 PCFG whales sighted in 1998 while Calambokidis et al. (2014) corrected that value to 132 whales.

2011	213	200	140	131	94.5	79.5
2012	229	215	181	171	105.7	94.2
2013	249	235	194	185	108.8	96.4
2014	245	230	210	199	115.8	101.0
2015	257	242	225	215	131.5	109.9
2016	244	224	240	229	131.5	105.8
2017	224	206	197	187	121.4	103.4
2018	211	191	201	190	104.4	76.4
2019	228	209	231	219	116.6	100.3
2020	212	198	199	190	119.4	104.4

Source: Table 6 in Harris et al. (2022)
N = Population size estimate; Nmin = Minimum population size estimate

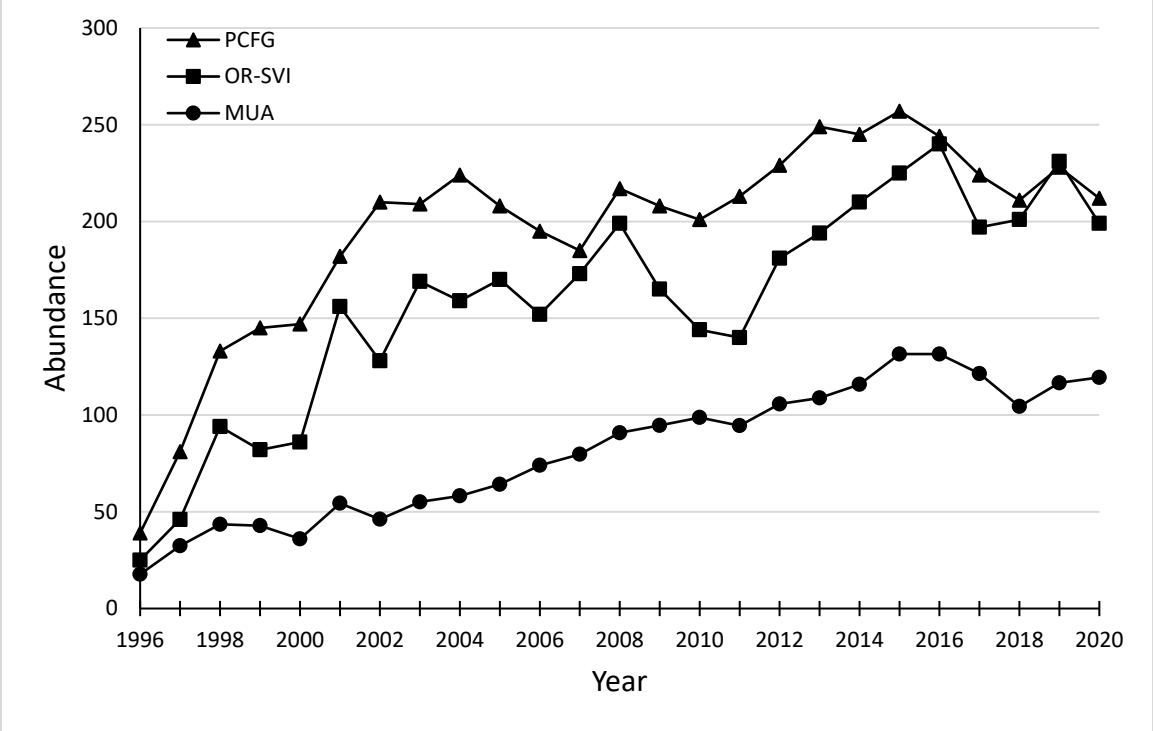


Figure 3-11. Model-averaged abundance estimates for PCFG gray whales based on sightings in the PCFG, OR-SVI, and Makah U&A survey regions from 1996 to 2020 (data from Harris et al. 2022).

The granularity of the data analyzed by Harris et al. (2022) provides insight into the abundance of gray whales utilizing the whole PCFG range and smaller areas within it. Tables 3-4 through 3-6 summarize the trends throughout the range and within the Oregon to Southern Vancouver Island (OR-SVI) region and the Makah U&A. From June 1 to November 30 for the primary sampling

period of 1996 to 2020, 904 unique ENP gray whales were seen in the PCFG range; their related sighting data is shown in Table 3-8. Approximately 71 percent (645 of the 904 whales seen) were seen within the smaller OR-SVI region (Table 3-9), and about 39 percent (356 of the 904 whales seen) were seen within the even smaller Makah U&A region (Table 3-10). These tables also show the annual average number of whales identified, which was 158, 112, and 39 in the PCFG, OR-SVI, and Makah U&A survey regions, respectively. However, those numbers do not represent the total numbers of whales that use each of these survey regions because not all whales present in a survey region in a year are seen, not all whales return to the same survey region each year, and not all of the whales return to the PCFG region each year. The annual average number of newly seen whales (excluding years prior to 1999, when the photo-identification effort expanded to cover all survey areas) was 34, 25, and 14 for the PCFG, OR-SVI, and Makah U&A survey regions, respectively. The annual average number of newly seen whales that were seen again in a subsequent year, excluding 1996 to 1998 and 2020, was 14, 13, and 7 for PCFG, OR-SVI, and Makah U&A survey regions, respectively. Thus, a substantial number of new whales were seen each year, and 40, 51, and 49 percent of those were seen again in a subsequent year in the PCFG, OR-SVI, and Makah U&A survey regions, respectively.

The plots shown in Figure 3-10a and 10b display the cumulative number of unique whales identified by Harris et al. (2022) for the PCFG, OR-SVI, and Makah U&A survey regions. The plots (typically called “discovery curves”) demonstrate that the PCFG is not a closed population because all of these curves continue to climb due to new individuals seen each year (31 non-calf whales per year on average from 1999-2020 in the PCFG range) and at a rate that exceeds the number of new calves seen each year (approximately 5 per year from 1999-2020 in the PCFG range). As noted in Subsection 3.4.3.4.1, PCFG Population Structure, calf estimates could possibly be higher because some of the new whales may have entered the PCFG earlier as a calf and were not seen or identified as such, or used other feeding areas during their first several years. Regardless, the large disparity between calf and non-calf sightings makes it most plausible that the majority of non-calf animals sighted in a given year are immigrants to the PCFG (and subregions within). The same pattern is true for whales that are sighted in more than one year (Figure 3-10b).

Table 3-8. Classification of whales seen within the PCFG (Northern California to Northern British Columbia) from June 1 to November 30 from 1996 to 2020.

Year	Total Seen[38]	Newly Seen[39]	Newly Seen and Seen Again[40]
1996	45	45	41
1997	69	45	36
1998	132	71	48
1999	151	68	12
2000	140	54	28
2001	172	61	26
2002	203	52	29
2003	157	20	15
2004	178	29	13
2005	134	17	10
2006	126	8	1
2007	120	20	9
2008	174	50	18
2009	152	22	7
2010	144	15	12
2011	163	19	5
2012	208	53	21
2013	232	58	25
2014	201	38	16
2015	211	42	16
2016	186	31	13
2017	152	14	2
2018	146	24	5
2019	185	32	9
2020	163	16	n/a
Total	3,944	904	417
Average[41]	157.8	33.8	13.9

Source: Table 3 in Harris et al. (2022).

[38] "Total Seen" is the number of unique whales seen/identified in each year.
[39] "Newly Seen" is the number of whales seen that year that had not been seen prior to that year (but within the 1996 to 2020 period).
[40] "Newly Seen and Seen Again" is the number of whales that were seen in at least one more year within the PCFG range during June 1 to November 30 subsequent to the first year they were seen.

[41] Averages for "Newly Seen" and "Newly Seen and Seen Again" exclude 1996 to 1998 because photo-identification effort expanded to cover all survey areas in 1999. Averages for "Newly Seen and Seen Again" also exclude 2020 as it is not possible to determine if whales seen in 2020 were seen in a subsequent year as that data are not yet available.

Table 3-9. Classification of whales seen within the OR-SVI (Oregon to Southern Vancouver Island) survey region from June 1 to November 30 from 1996 to 2020.

Year	Total Seen[42]	Newly Seen[43]	Newly Seen and Seen Again[44]
1996	30	30	27
1997	36	20	13
1998	86	55	37
1999	71	23	10
2000	70	27	15
2001	128	56	22
2002	103	38	27
2003	110	26	20
2004	117	30	16
2005	107	17	10
2006	96	10	3
2007	114	22	10
2008	123	22	10
2009	118	17	6
2010	93	8	8
2011	89	9	7
2012	127	28	18
2013	147	37	21
2014	152	36	17
2015	161	32	14
2016	176	36	15
2017	130	14	3
2018	128	18	5
2019	150	23	10
2020	141	11	n/a
Total	2,803	645	344
Average[45]	112.1	24.5	12.7

Source: Table 4 in Harris et al. (2022).

[42] "Total Seen" is the number of unique whales seen/identified in each year.
[43] "Newly Seen" is the number of whales seen that year that had not been seen prior to that year (but within the 1996 to 2020 period).
[44] "Newly Seen and Seen Again" is the number of whales that were seen in at least one more year within the PCFG range during June 1 to November 30 subsequent to the first year they were seen.

Table 3-10. Classification of whales seen within the Makah U&A survey region from June 1 to November 30 from 1996 to 2020.

Year	Total Seen[46]	Newly Seen[47]	Newly Seen and Seen Again[48]
1996	19	19	18
1997	27	15	11
1998	37	23	9
1999	11	1	0
2000	14	11	8
2001	32	19	7
2002	8	1	1
2003	22	11	6
2004	25	13	10
2005	33	9	6
2006	58	23	18
2007	20	2	2
2008	75	29	16
2009	57	13	4
2010	26	4	3
2011	39	11	6
2012	67	22	9
2013	66	22	8
2014	63	24	9
2015	47	16	6
2016	34	10	2
2017	53	18	3
2018	17	5	2
2019	55	17	11
2020	64	18	n/a
Total	969	356	175
Average[49]	38.8	13.6	6.5

Source: Table 5 in Harris et al. (2022).

[45] Averages for "Newly Seen" and "Newly Seen and Seen Again" exclude 1996 to 1998 because photo-identification effort expanded to cover all survey areas in 1999. Averages for "Newly Seen and Seen Again" also exclude 2020 as it is not possible to determine if whales seen in 2020 were seen in a subsequent year as that data are not yet available.
[46] "Total Seen" is the number of unique whales seen/identified in each year.
[47] "Newly Seen" is the number of whales seen that year that had not been seen prior to that year (but within the 1996 to 2020 period).
[48] "Newly Seen and Seen Again" is the number of whales that were seen in at least one more year within the PCFG range during June 1 to November 30 subsequent to the first year they were seen.
[49] Averages for "Newly Seen" and "Newly Seen and Seen Again" exclude 1996 to 1998 because photo-identification effort expanded to cover all survey areas in 1999. Averages for "Newly Seen and Seen Again" also exclude 2020 as it is not possible to determine if whales seen in 2020 were seen in a subsequent year as that data are not yet available.

Estimating Numbers of Whales for Subregions Within the PCFG Range

OR-SVI. Darling (1984) estimated 35 to 50 gray whales for Vancouver Island and 100 whales for the Pacific Northwest. In deriving the estimates, he defined abundance as the number of gray whales found in the study sites in any particular year. Calambokidis et al. (2004a) proposed that the appropriate method of estimating abundance was to consider the total number of identified whales observed in a given area and that the area most appropriate for managing a Makah gray whale hunt was the survey areas from Oregon to Southern Vancouver Island (OR-SVI). To reach this conclusion, they focused on whales identified in the survey areas corresponding to the entire Makah U&A (which is encompassed in the northern Washington coast and Strait of Juan de Fuca survey areas). Calambokidis et al. (2004a) examined the degree to which whales sighted in these survey areas were also sighted in the OR-SVI and PCFG survey areas (Figure 3-9). Of the whales seen in the PCFG survey area during the 6 years of their study, 30 percent were also seen in the entire Makah U&A (within the northern Washington coast and Strait of Juan de Fuca survey areas; Figure 3-9). In contrast, more than half the whales seen in the OR-SVI survey area during the study were also seen in the entire Makah U&A. Based on the relatively high rate of interchange between the OR-SVI and the entire Makah U&A compared to the rate of interchange between the PCFG and the entire Makah U&A, Calambokidis et al. (2004a) concluded that "it is both logical and reasonable to use OR-SVI as the region for abundance estimation in setting quotas for a harvest of whales from the [Makah U&A] region."

The Makah Tribe's proposal includes a provision that would limit unintentional harvests of PCFG whales by setting a harvest limit. Under the proposal, the limit would be set using a formula based on the subset of PCFG whales that exhibit site fidelity to survey areas from Oregon to Southern Vancouver Island (OR-SVI). The basis for selecting this region was the recommendation by Calambokidis et al. (2004a) that the OR-SVI was a logical and reasonable management area for considering impacts from gray whale harvests in the Makah U&A (see above). Support for this recommendation is also found in the report by Calambokidis et al. (2014) that analyzed sighting data for whales seen relatively frequently (i.e., seen on at least 6 different days) in the PCFG range from June 1 through November 30. Based on the observed clustering of those sightings, these researchers concluded that "it makes little sense to compute an estimate of abundance for any region that spans less than a degree of latitude" (approximately 69 miles [111 km]). The OR-SVI region spans approximately 4 degrees of latitude.

In addition to the conservative approach of a harvest limit based on a smaller area/number of whales than the entire PCFG, the formula relies on a *minimum* abundance estimate (rather than the higher average) of whales using this area. Calambokidis et al. (2014) calculated estimates for OR-SVI whales using the estimators described in Subsection 3.4.3.4.3, PCFG Abundance Trends. The JS1 estimator produced abundance estimates for OR-SVI that were expectedly lower than PCFG values but followed a trajectory very similar to that of the PCFG estimates, a pattern that holds true with more recent data as well (Harris et al. 2022). The current OR-SVI estimates increase from approximately 25 animals in 1996 to 240 animals in 2016, with the most recent estimate somewhat lower at approximately 199 whales in 2020 (Table 3-7). Based on the data in Harris et al. (2022), minimum population estimates for the OR-SVI are, on average, about 6 percent lower than the abundance estimates, with the most recent (2020) Nmin estimated at 190 animals (Table 3-7). The most recent photo-identification data on gray whales (Harris et al. 2022) in the OR-SVI from June 1 through November 30 show that the number of uniquely identified whales sighted in a given year has averaged 112, ranging from 30 (in 1996) to 176 (in 2016); the most recent number identified was 141 whales in 2020 (Table 3-9).

Makah U&A. As noted in Subsection 1.1.2, Makah Tribe's Proposed Hunt Location, the action area includes the Makah U&A which is within the NWA and SJF survey areas. Although all of the alternatives restrict hunting to the coastal portion of the Tribe's U&A (i.e., only within the NWA survey area), our analyses of all alternatives considers whales that use both the NWA and SJF portions of the Tribe's U&A. This is because of the close proximity of the NWA and SJF and evidence that whales using one area frequently occur in the other. Therefore, a decrease in whales using the NWA could also result in a decrease in whales using the SJF. The NWA-SJF (including the Makah U&A) survey area spans less than 1 degree of latitude, and Calambokidis et al. (2014) conditioned their estimates by noting that "this area is quite small relative to the observed movements of whales within the PCFG."

The JS1 estimator produced estimates for the number of PCFG whales sighted in the Makah U&A survey region between June 1 and November 30 that were expectedly lower than PCFG and OR-SVI values and followed an increasing trajectory that was similar to, but flatter than, the trends for PCFG and OR-SVI estimates. The Makah U&A abundance estimates increased from approximately 18 animals in 1996 to 132 animals in 2015-2016, with the most recent estimates somewhat lower at approximately 119 whales in 2020 (Table 3-7). Based on the data in Harris et al. (2022), minimum population estimates for the Makah U&A are typically about 18 percent lower than the average estimates, with the most recent (2020) Nmin estimated at 104 animals

(Table 3-7). The most recent photo-identification data on gray whales (Harris et al. 2022) in the Makah U&A from June 1 to November 30 show that the number of uniquely identified whales sighted in a given year has averaged 39 and ranged from 8 (in 2002) to 75 (in 2008) (Table 3-10).

3.4.3.4.4 PCFG Status, Carrying Capacity, and Related Estimates

It is difficult to compare the past and present status of the PCFG given that we know little about these whales historically. Scordino et al. (2011b) reviewed the available literature regarding the PCFG and concluded that it is unclear whether the PCFG existed prior to the 20th century. Alter et al. (2012) conducted genetic analyses of modern and ancient gray whale bones, including archaeological samples from the Makah U&A/PCFG range. Overall, their analysis supported the hypothesis that gray whales experienced a major population decline and the possibility that there was population substructure in the past in the vicinity of the Olympic Peninsula and Vancouver Island. However, these authors noted that it was premature to draw firm conclusions about such structure given the small sample sizes and small differences observed.

During the past century, the ENP gray whale population—including the PCFG—has rebounded from as few as 1,500 animals (Butterworth et al. 2002) to over 20,000 whales in recent years and was removed from the federal ESA list of endangered and threatened wildlife in 1994 (59 FR 21094, June 16, 1994). In 2010, WDFW was petitioned to list the "Eastern North Pacific – Southern Group" of gray whales as endangered under Washington Administrative Code 232-12-297 (WAC). WDFW denied the petition, noting that gray whales are presently listed by the state as a sensitive species, but that the WAC does not allow for listing populations or subpopulations of species or subspecies (Anderson 2010).

Currently, the IWC has concluded that it is plausible that the PCFG is a demographically distinct feeding group (IWC 2010a) and has assessed the potential harvest-related impacts on this group of whales from the Tribe's proposed hunt as set forth in Alternative 2 (refer to IWC Implementation Review of PCFG Gray Whales, below)[50]. Similarly, we have determined that the PCFG may warrant consideration as a separate stock in the future, and in our most recent stock assessment report calculated a separate, informational PBR level for the PCFG to assess whether levels of human-caused mortality are likely to cause local depletion of this group (Carretta et al. 2023). This calculation used a minimum population size (Nmin) of 227 animals, times one half

[50] Although the IWC has not identified the PCFG as a stock, the Scientific Committee (IWC 2012a) noted that its Implementation Review of eastern North Pacific gray whales (with an emphasis on the PCFG) was "based on treating PCFG as a separate management stock" (which may not be equivalent to a stock as defined under the MMPA).

the maximum theoretical net population growth rate (Rmax; ½ x 6.2 percent = 3.1 percent), times a recovery factor of 0.5, resulting in a PBR of 3.5 animals per year (Carretta et al. 2023) (Table 3-11). Estimates of human-caused mortality in the PCFG between 2014 and 2018 averaged 1.7 whales per year (Carretta et al. 2023). Applying the same recovery factor and Rmax value but using the most recent Nmin estimate of 198 animals (Harris et al. 2022), yields a similar PBR of 3.1 animals per year.

Punt and Moore (2013) attempted to determine the OSP level for the PCFG using an existing population dynamics model employed by the IWC. After running 13 model variants, they concluded that "it was not possible to draw a definitive conclusion as to whether the PCFG is within OSP." They noted that the equivocal outcome of their analysis largely stems from the relatively flat, stable abundance data available for the PCFG. One possible explanation for their finding is that the PCFG is at or near its carrying capacity and, thus, above MNPL and within OSP. Given different potential rates of intrinsic population growth, it is possible the PCFG area could support more whales and that current numbers are regulated by a combination of bycatch mortality and emigration that offsets internal production (recruitment of calves born to known PCFG females) and immigration. Punt and Moore (2013) suggested that obtaining better estimates of a number of model parameters could potentially improve assessments of whether the PCFG is within OSP.

IWC Implementation Review of PCFG Gray Whales

Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates—IWC Implementation Review of ENP Gray Whales, provides an overview of the IWC's goals, objectives, and process for conducting an Implementation Review (i.e., a periodic evaluation of catch limits) for ENP gray whales, of which the PCFG are a part.

Over a decade ago during the IWC's development of a gray whale strike limit algorithm (SLA), there was discussion of stock structure at several meetings. While the possibility of a summer feeding aggregation along the Pacific coast between California and southeast Alaska was discussed, the Scientific Committee agreed in 2000 that a single ENP stock scenario was the most appropriate (IWC 2001). In 2010, the Committee was presented with findings from new genetic (Frasier et al. 2010), photo-identification (Calambokidis et al. 2010), and telemetry studies (Mate et al. 2010) and reached the conclusion that "[d]espite some differences in interpretation and recognizing that further analyses could be carried out, the [Standing Working Group] agreed that the hypothesis of demographically distinct southern feeding group [PCFG] is plausible and warranted further investigation" (IWC 2010a). At the 2010 annual meeting (IWC 2011a), the

Committee also determined that the just-completed 2010 Implementation Review had shown that the ENP population as a whole was in a healthy state and that the gray whale SLA could continue to be used to provide advice on the Russian (Chukotkan) hunt (refer to Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates—IWC Implementation Review of ENP Gray Whales). It further concluded that information reviewed on possible stock structure and the Makah hunt proposal (as set forth in Alternative 2) warranted a new Implementation Review to evaluate the performance of gray whale SLAs with a primary focus on the PCFG. That new review included various analyses and intersessional meetings in 2011 and 2012 wherein IWC scientists focused on building and evaluating an operating model and its associated trial structure.

At its 2012 meeting, the Committee announced that it had completed its new Implementation Review and had evaluated several variants of the proposed Makah hunt (IWC 2012e). These variants differed in the way that the Implementation Review handled bycatch of PCFG whales. Variants: (1) relied on an Allowable PCFG Limit (APL)[51] using the formula proposed by the Tribe in its application to NMFS (Makah Tribe 2005), (2) incorporated a fixed bycatch limit, or (3) explored no limit on bycatch of PCFG whales (the hunt is only stopped if the total strike limit is reached, or the number of struck-and-lost animals reaches its limit, or the landing limit is reached).[52] The trials tested within these variants were based on three hypotheses: 1) Hypothesis P (Pulse) assumed that there is no bias in the PCFG abundance estimates (but dropped the first year of estimates (1998)) and incorporated a pulse of immigration (1999-2000); 2) Hypothesis B (Bias) assumed a strong time-varying bias (dropped to zero in 2002) in the abundance estimate but no pulse of immigration; and 3) Hypothesis I (Intermediate) assumed a moderate time-varying bias in the abundance estimates and a pulse of 10 immigrants into the PCFG in both 1999 and 2000. These hypotheses were evaluated to account for difficulties in producing simulated abundance trajectories that fit the abundance estimates without incorporating a pulse or survey bias into their model. For these trials the IWC Scientific Committee agreed, based on the analysis by Laake (2011), that a reasonable estimate of annual immigration was up to six animals (IWC

[51] The APL is synonymous with the Allowable Bycatch Limit (ABL) proposed by the Tribe.

[52] The variants also differed from the Tribe's waiver application by including a presumption that some struck and lost whales would be PCFG whales. This condition was added for purposes of the Implementation Review modeling and articulated as follows: "A whale that is struck and lost between May 1 and May 31 will be presumed to be a member of the PCFG and will count toward the ABL for that calendar year unless photographs of the whale, when compared with the NMML-funded photo-identification catalogue maintained by Cascadia Research Collective, demonstrate that it is not a member of the PCFG" (IWC 2012e).

2012a; IWC 2012e). The Committee also included a robustness trial in which the future catch was strongly female biased (0.2 males:0.8 females).

The Committee noted that weather conditions and the availability of whales would make it likely that most hunting would occur in May but that data were insufficient to assess the number of strikes by month. Therefore, it was not possible to make a reliable estimate of the proportion of struck-and-lost whales that would count towards the APL. Given this uncertainty about how the planned hunt would respond to failing to take into account struck-and-lost PCFG whales, the Tribe had proposed two SLA variants spanning the options as to when the hunt might occur which were analyzed. These were:

- SLA variant 1: struck-and-lost whales do not count towards the APL; i.e., there is no management response to PCFG whales that are struck but not landed. This variant corresponds to the proposed hunt occurring entirely during December through April.
- SLA variant 2: all struck-and-lost whales count towards the APL irrespective of hunting month; i.e., the number of whales counted towards the APL may exceed the actual number of PCFG whales struck because some animals may not actually have been PCFG whales.

The Committee noted that SLA variants 1 and 2 were potentially satisfactory and performed well in nearly all 72 Evaluation Trials, and SLA variants 1 and 2 performed acceptably for all Robustness Trials. Variant 2 performed acceptably for all trials while Variant 1 performed acceptably for all trials except one, where it was deemed to have marginal performance. That trial assumes that the relative probability of harvesting a PCFG whale during December through May is double the observed proportion of PCFG whales in the available photo-identification studies during the corresponding time period. Specifically, the Committee stated that:

> "(1) SLA variant 2 performed acceptably and met the Commission's conservation objectives for conservation while allowing limited hunting;
>
> (2) SLA variant 1 performed acceptably for nearly all the trials and could be considered to meet the Commission's conservation objectives provided that it is accompanied by a photo-identification programme to monitor the relative probability of harvesting PCFG whales in the Makah U&A, and the results presented to the Scientific Committee for evaluation each year.

> The Committee endorses these conclusions and commends them to the Commission. It also agrees that the Implementation Review is completed."

The Committee also noted that while the SLA variants performed adequately for the trials in which the sex ratio of future catches is female-biased (0.2:0.8), the sex ratio of the hunt should be monitored and considered in future Implementation Reviews.

The IWC trials produce final statistics related to conservation status and catches, in particular an output termed the "final depletion level" which is defined by the IWC as the final population level as a percent of K.[53] For example, a trial that yields a final depletion level less than 0.6 (that is, 60 percent of K) would not be in accord with IWC conservation objectives. The Committee noted the poor performance/excessive depletion of some trials that included an assumption of low (1 to 2 percent) Maximum Sustainable Yield Rates (MSYR). However, they noted that such low rates were probably unrealistic given the evidence that the ENP population as a whole had recovered from severe historical depletion as a result of whaling and more recently rebounded from the 1999 to 2000 unusual mortality event. Therefore, the Committee concluded that the relatively poor results from these low-MSYR trials was not a reason to preclude the conclusion that both SLA variants had overall satisfactory conservation performance.

In the course of testing trials, the modeling conducted to assess SLAs generates thousands of estimates of K. The range of Ks fell between 161 and 1,000 animals and members of the SWG considered these values to be plausible for the sake of trial testing (A. Punt, Director, School of Aquatic and Fishery Science, University of Washington, pers. comm., May 15, 2013). However, the goal was not to pinpoint a specific value for K but instead to test a range of possible Ks (and numerous other parameters) to see how the final depletion levels were affected. Trial results that yielded depletion levels below 60 percent of a randomly chosen K estimate would be viewed as not meeting the IWC's conservation objectives.

Although these two variants were deemed acceptable, the Committee also noted that they did not correspond exactly to the hunt proposal submitted by the Makah Tribe (as set forth in Alternative

[53] Weller et al. (2013) note that this is related to, but can be slightly different from, the MMPA definition of "depletion," which is defined to be a population level below the Maximum Net Productivity Level (MNPL). In determining whether a stock is depleted under the MMPA, MNPL is generally assumed to either be a range from 50 to 70 percent of K, or a single value such as 50 percent or 60 percent of K. The only practical difference occurs when a range is used in MMPA determinations, where one calculates the probability a population is below MNPL over a range of percentages of K. If a single value is used for MNPL (e.g., 60 percent), then the IWC final depletion level is identical.

2) to the IWC and expressed concern that the actual conservation outcome of the proposed hunt was not tested. Essentially, the aspect of the proposed hunt that had not been evaluated was the interaction between the actual number of strikes-per-month during the December through May hunting season, and the assumption of whether a struck and lost whale belongs to the PCFG. The Committee agreed that the Standing Working Group of the AWMP should develop and test an exact variant intersessionally, in order to evaluate the results at the 2013 Annual Meeting.[54]

To address this issue, Brandon and Scordino (2012) submitted additional variants for testing that represented logical bounds on variants 1 and 2. Because there is no reliable way to predict the exact number (or model the probability) of strikes that may occur during a given month, they instead proposed to evaluate six additional variants representing each possible outcome of the number of strikes by month (during the December to May hunt period proposed by the Tribe):

A. Allow only one strike prior to May.
B. Allow two strikes prior to May.
C. Allow three strikes prior to May.
D. Allow four strikes prior to May.
E. Allow five strikes prior to May.
F. Allow six strikes prior to May.

At a December 2012 intersessional workshop (IWC 2012f), participants endorsed the testing of these new variants. After reviewing the results of these tests, the Scientific Committee noted that none of the new final depletion levels fell outside the bounds of those previously reviewed by the Committee and agreed that the proposed Makah hunt (as set forth in Alternative 2) had been fully examined within the SLA framework (IWC 2013a). Moreover, the Committee confirmed that the proposed management plan meets the IWC conservation objectives provided that if struck-and-lost whales are not proposed to be counted toward the APL, then a photo-identification research program to monitor the relative probability of harvesting PCFG whales in the Makah U&A is undertaken each year and the results presented to the Scientific Committee for evaluation. Only

[54] The IWC analysis used a 2010 OR-SVI minimum population estimate (Nmin) of 143 whales (as reported by Laake in the IWC 2012 AWMP Workshop Report), a recovery factor of 1.0, and a maximum net productivity rate (Rmax) of 4 percent. The Nmin estimate for OR-SVI whales is expected to vary (the current estimate is 152 animals (Calambokidis et al. 2014)), while values for Rmax and the recovery factor are fixed based on information submitted by the Makah Tribe to the IWC during the 2012 workshop focusing on PCFG gray whale Implementation Review. The 4 percent Rmax value used in that review was lower than the 4.7 percent used in the Tribe's application. We reviewed the differing values with the Tribe and determined that Alternative 2 (the Tribe's proposal) should be assessed using an Rmax of 4 percent in keeping with the analysis and findings of the IWC's Scientific Committee.

variant 2 meets the Commission's conservation objectives without the photo-identification research requirement. The Committee also noted that work was underway to further support such a research program via a photo-identification catalog managed by NMML.

In the 2020 Implementation Review, the Scientific Committee received updated abundance estimates for the PCFG through 2017, extending the time series that had been previously considered. The Scientific Committee agreed that the additional years of data did not alter their existing advice "with respect to the suitability of the either the Gray Whale SLA or the Makah Management Plan for the provision of advice on the Chukotkan and proposed Makah hunts" (IWC 2021b). In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events (Punt et al. 2023, IWC 2023a).

Table 3-11. Population estimates and limits for WNP, ENP, and PCFG gray whales.

Parameter	**WNP Stock**	**ENP Stock**	**PCFG**
Recent Abundance	290 whales (271-311) (Cooke 2017; Cooke et al. 2018)	14,526 whales (Eguchi et al. 2023a)	212 whales (Harris et al. 2022)
Minimum Population Estimate (N_{min})	271 whales (Cooke et al. 2017)	13,190 whales (Eguchi et al. 2023a)	198 whales (Harris et al. 2022)
Recent Trend	Increasing at 2-5 percent per year (Carretta et al. 2023)	Decreasing (Eguchi et al. 2023a)	Stable (Harris et al. 2022)
Recruitment	Average of 7 calves/year for 1997-2019; calf production index for 2019 = 6.9 percent (Burdin et al. 2019)	Calf production indices for 1993/94-2021/22 range between 1.3-6.8 percent (Eguchi et al. 2022b)	Average of 11.5 non-calf whales previously-seen-and-seen-again/year [range 1-28] + 3.4 calves seen/year [range 0-11] (Calambokidis et al. 2019)
Within OSP?	Not assessed (stock is listed as depleted under the MMPA)	No (based on Punt and Wade 2012); Yes (based on data in Stewart et al. 2023)[55]	Unknown (Punt and Moore 2013)
Recovery Factor (F_R)	0.1 (Carretta et al. 2023)	1.0 (Carretta et al. 2023)	0.5 (Carretta et al. 2023)
Maximum Net Productivity Rate (R_{MAX})	0.062 (Carretta et al. 2023)	0.062 (Carretta et al. 2023)	0.062 (Carretta et al. 2023)

[55] Punt and Wade (2012) estimated the 2009 population to be at 85 percent of carrying capacity (K) (posterior mean of 25,808) and at 129 percent of MNPL (see Subsections 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates). Based on data in Punt and Wade (2012), MNPL was approximately 16,000 whales at that time. This and the most recent abundance of gray whales (14,526) (Eguchi et al. 2023a) suggest the stock is below MNPL. However, more recent analyses suggests that the carrying capacity of the ENP stock has changed. Stewart et al. (2023) estimate K at 22,062. In the absence of direct measurements, a model-derived value of 60 percent can be used to estimate MNPL. Using this approach, the data in Stewart et al. (2023) suggests that MNPL, which is the lower bound of OSP, would be 13,237 animals. This suggests the ENP stock is currently within OSP.

Potential Biological Removal Level (PBR)	0.12 whales/year (Carretta et al. 2023)	409 whales/year (or less) (derived from sources above; see Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates)	3.1 whales/year (Harris et al. 2022)
IWC Catch Limits (2019-2025)	n/a	Up to 140 whales/year (980 max over 7 years) (IWC 2022a; Fominykh and Wulff 2023)	n/a
Human-caused Mortality and Serious Injury – Minimum Estimates			
Recent Subsistence/Native Harvest	Unknown; not targeted by native hunters	125.6 whales/year by Chukotkan hunters[56] [range 107-137 whales/year from 2017-2021] (IWC Annual Reports)	n/a (Carretta et al. 2023)
Commercial Fisheries	Unknown; 28 of 150 photo-identified whales had entanglement-related scars[57] (Bradford et al. 2009)	9.3 whales/year (Carretta et al. 2023)	1.1 whales/year (Carretta et al. 2023)
Ship Strikes	Unknown; 3 of 150 photo-identified whales had collision-related scars (Bradford et al. 2009)	1.8 whales/year (Carretta et al. 2023)	0.6 whales/year (Carretta et al. 2023)
Total	***Unknown***	***131 whales/year***	***1.7 whales/year***

3.4.3.5 Welfare of Individual Whales

The MMPA and WCA provisions discussed in Subsection 3.4.2, Regulatory Overview, describe considerations relevant to the welfare of individual whales in an aboriginal subsistence hunt. Any permit issued by NMFS under the MMPA must include a finding that the taking is humane, defined as inflicting the least possible degree of pain and suffering practicable (16 USC 1362(4); 50 CFR 216.3). The IWC has focused on reducing the length of time to death of a whale (i.e., reducing the amount of time between the strike and the death of a whale) to improve the humaneness of whaling (IWC 2004c; IWC 2007a; IWC 2012g). The IWC definition of humane killing is "[d]eath brought about without pain, stress, or distress perceptible to the animal. . . . Any humane killing technique aims first to render an animal insensitive to pain as swiftly as technically possible. In practice this cannot be instantaneous in a scientific sense" (IWC Resolution 2004-3). Aboriginal subsistence whalers are urged to do everything possible to reduce any avoidable suffering caused to whales in hunts (IWC Resolution 1997-1), and governments are

[56] All whales killed by Chukotkan hunters are assumed to be from the ENP stock.

[57] Scars are not necessarily indicative of serious injury; non-serious injury may result in scars as well.

encouraged to provide appropriate technical assistance (IWC Resolution 1999-1). The IWC criteria for determining the time to death and insensibility in hunted whales in the field are as follows: 1) relaxed lower jaw, 2) no flipper movement, or 3) sinking without active movement.

Pain has been defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (International Association for the Study of Pain 1979). Researchers have proposed assessing pain in animals by measuring physiological changes (such as pulse rate, blood pressure, or blood cortisol levels, etc.) and behavioral indicators (such as vocalization, avoidance, shaking, etc.) (Keefe et al. 1991).

Any hunting under the WCA must not be conducted in a wasteful manner. Two issues relevant to humaneness are also relevant to wastefulness: killing only as many whales as are needed for subsistence and subsistence uses (50 CFR 216.3), and ensuring that hunters quickly kill and land struck whales, rather than striking and losing them. The concept of waste includes issues beyond welfare of individual whales, such as ensuring that hunters quickly tow killed whales to shore and butcher them rapidly to avoid spoilage.

3.4.3.5.1 Review of Hunting Methods

The method of the hunt includes total whaling operations and practices, including vessels and weapons. Primary weapons are those used initially to strike and secure the whale. Some primary weapons are also capable of killing the whale. If the primary weapon does not also kill the whale, a secondary weapon is used. The secondary weapon may be the same as the primary weapon, but used additional times. Hunting weapons are also discussed in conjunction with public safety in Subsection 3.15.3.5.2, Weapons Associated with the Hunt. This section discusses weapons in conjunction with the welfare of individual whales.

The Makah Tribe's proposed action includes hunting whales using a traditional wood canoe (with harpooner and crew) accompanied by a motorized chase boat (with a rifleman and an observer), with one of these vessels also carrying the whaling captain. Because the maximum speed of a gray whale may exceed that of a paddled canoe, the Makah whalers must stealthily approach a whale by either approaching a slow moving whale quietly or positioning their canoe in the expected path of a surfacing whale. This FEIS also examines an alternative of an all-motorized hunt, in which the Makah hunters who are striking the whale are also in a motorized vessel instead of a traditional wood canoe. In either event, after a Makah hunter struck a whale with the hand-thrown toggle point harpoon attached to a line and floats, a rifleman in the chase vessel would kill the whale by using a .50 caliber or larger rifle aimed at the central nervous system (Subsection 3.15.3.5.2, Weapons Associated with the Hunt).

This FEIS examines alternative weapons for hunting gray whales by Makah subsistence hunters. These include the use of a hand-thrown darting gun as the primary weapon for striking whales and explosive projectiles delivered by either a second darting gun or a shoulder gun as the secondary weapon for killing whales (and it may be desirable to attach additional floats using a toggle-point harpoon to keep a struck whale from sinking). Both the weapons proposed by the Makah Tribe and the alternative weapons examined are used in other subsistence whale hunts, as well as in commercial hunts.[58] Information from these hunts may be relevant to assessing the impacts of the proposed weapons on the welfare of individual whales compared to alternative weapons.

Alaska Natives hunt bowhead whales in the Bering, Chukchi, and Beaufort Seas using hand-thrown darting guns as their primary weapons to strike whales, securing them with lines and floats. The darting gun delivers an explosive grenade, which may also kill the whale. The secondary weapon in this hunt is also an explosive grenade, delivered either by another hand-thrown darting gun or a shoulder gun. The darting gun can deliver either a black powder or a penthrite projectile, the latter being preferred because black powder can taint the taste of the whale meat (Associated Press 2005). Although the penthrite grenades are expensive and some hunters are reluctant to use them, the chairperson of the Alaska Eskimo Whaling Commission (AEWC) has most recently reported that their use and success is increasing (IWC 2011d; IWC 2012h).

Aboriginal subsistence hunters (Chukotka Natives) in Russia hunt gray whales using hand-thrown toggle-point harpoons to strike whales and either smaller caliber rifles (for whales up to 33 feet [10 m]), hand-thrown darting guns (for whales over 33 feet [10 m]), or both to kill whales (IWC 2007a). (The use of larger caliber weapons by civilian personnel was prohibited in the Russian Federation under national legislation [IWC 1997]). Chukotka Natives have experience with penthrite grenades, but their use is not widespread.

Aboriginal subsistence hunters in West Greenland use deck-mounted harpoon cannons that also deliver penthrite grenades as the weapon for both striking and killing fin whales (Greenland Home Rule Government and Greenland Hunter's Organization 2006; IWC 2007a). They also use this weapon for striking minke whales. If the whale is not killed by the first strike, they use a high caliber rifle as the killing weapon (either a 7.62 mm with full metal jacket bullets, or a .375

[58] A report from an IWC workshop on euthanasia protocols (IWC 2014c) recommended high-caliber ballistics and explosives for baleen whales.

caliber rifle with round-nosed bullets). In east and west Greenland north of Disko Bay, a collective subsistence hunt occurs for minke whales in which the hunters use hand-thrown harpoons (without explosive charges) to strike the whales and a 7.62 mm or .375 caliber rifle as the killing weapon.

Commercial hunters in Norway use deck-mounted harpoon guns that also deliver penthrite grenades as the primary weapon for striking minke whales (Øen 2006; IWC 2007a). If the penthrite grenade does not kill the whales, hunters use rifles as a backup (secondary) killing method, including 9.3 mm, and .375 and .458 caliber rifles with full metal jacket bullets or round-nosed ammunition. The deck-mounted cannons used in the Greenland and Norwegian hunts are not comparable to the two methods examined in this FEIS (the darting gun and shoulder gun). Information about the use of rifles as secondary killing weapons in these hunts, however, may be relevant to analyzing impacts of the Makah Tribe's proposed killing weapon.

3.4.3.5.2 Whale Response to Being Pursued

The Makah Tribe's proposed action includes approaching and pursuing whales using a combination of traditional and modern methods, including the use of canoes accompanied by one or more chase boats with an outboard motor (Subsection 2.3.2, Alternative 2, Tribe's Proposed Action). In addition, this FEIS also examines the alternative of an all-motorized hunt, with no canoe. Based on its experience during the 1999 to 2000 hunts, the Tribe estimates there could be approximately 10 approaches and 4 unsuccessful harpoon attempts for every whale struck. An unsuccessful harpoon attempt means the whale would not be struck (that is, would not have a harpoon embedded and would not show evidence of potentially lethal injury). The Tribe also estimates that the number of whales subject to approaches with no harpoon attempts in any calendar year would not exceed 140.

At the 2003 IWC Workshop on Whale Killing Methods, the United Kingdom presented a paper raising concerns that whales experience stress as a result of being pursued and can exhibit stress-related symptoms such as impaired immune defense, reduced fecundity, failure to grow, and a disease called exertional myopathy (IWC 2004c). This has not been documented in gray whales (but see Lemos et al. (2022), described in Subsection 3.4.3.6.5, Offshore Activities and Underwater Noise), and there are no data at present to evaluate what level of activities may induce this in gray whales. The response of gray whales to pursuit from whale-watching vessels (and vessel presence in general, such as those accompanying any potential whale hunt) is discussed in Subsection 3.4.3.6.6, Vessel Interactions. No data are available specifically regarding the response of gray whales to non-motorized vessels (i.e., human-powered vessels

such as kayaks), but non-motorized vessels generally are addressed, along with motorized vessels, in whale-watching guidelines and regulations globally (Carlson 2004).

During the unauthorized hunt in 2007, the Makah Tribe's biologist reported on the distribution and behavior of gray whales that had been sighted in the vicinity of the whale that had been harpooned, shot, and eventually killed (Scordino 2007b). Anecdotal reports noted that other gray whales could be seen spouting in the area during the hunt and seemed unaffected by the hunt or Coast Guard and fishing boats in the area. Three days after the hunt, the Tribe's biologist sighted two gray whales within 0.6 miles (1 km) of where the killed whale had been harpooned, and noted that these whales exhibited "normal feeding behaviors and showed no escape behavior or agitation when approached by the vessel for photographs."

3.4.3.5.3 Whale Response to Being Struck

It has been reported since at least the 1800s that gray whales (also called 'devil fish') could be dangerous prey when hunted, commonly crashing into whaling boats with their heads (Henderson 1984) (refer to Subsection 3.15.3.3 Behavior of the Gray Whale). The Russian Federation reported that of the 129 whales harvested during the 2007 Chukotkan gray whale hunt, 49 animals (39 percent) "were highly aggressive, and threatened or even attacked hunting boats, so it could definitely be said that every third whale was dangerous for whalers" (IWC 2007b). Subsequent reports from this hunt continue to cite such aggressive behaviors in 32 to 42 percent of gray whales taken (IWC 2009a; 2010b; 2012i).

Under the Makah proposal, the harpooner would strike the whale with a stainless steel toggle-point harpoon with a line and floats attached (for the definition of and evidence for a strike, refer to Subsection 2.3.2.2, Gray Whale Hunt Details). The harpoon point is intended to penetrate the whale's skin (blubber), toggle open, and secure the whale. The harpoon can penetrate and successfully secure the whale in numerous locations on the whale's body, although harpoons may dislodge from whales. Whether the harpoon holds or dislodges depends on, among other factors, the force at impact, the angle of the strike, and the surface characteristics (hard underlying connective tissue, barnacles, etc.). Hunters will often use additional harpoons to attach floats to keep the whale afloat. During the 1999 hunt, Makah whalers struck the whale with three harpoons, the third of which was thrown moments after the rifle shot that rendered the whale motionless (Gosho 1999). Whale responses to being struck with a toggle-point harpoon may include increased swimming speed, diving (Øen 1995), thrashing, and ramming boats (Henderson 1984). A harpoon damages only the organ it hits, and its impact is likely too low to damage the central nervous system (Knudsen and Øen 2003); thus, it may not immediately cause the whale's

death. However, whales may subsequently die as a result of a harpoon strike (Angliss and Lodge 2002).

Whale responses to being struck by a hunting or training harpoon throw could be similar to responses to tagging or biopsy darting for scientific research purposes. Specific gray whale reactions to scientific research tagging include fluke-slapping and rapid swimming, brief startles or flinches, but the whales returned to normal behavior shortly after tagging (Harvey and Mate 1984). The response of gray whales to biopsy darts has not been described, but other mysticetes are observed having brief, sometimes dramatic, changes in behavior, or sometimes no reaction at all (Clapham and Mattila 1993; Gauthier and Sears 1999).

This FEIS examines the use of a hand-thrown darting gun as an alternative method of striking and securing whales, although it is unlikely to be used by the Tribe (Subsection 3.15.3.5.2, Weapons Associated with the Hunt). The darting gun delivers an explosive grenade that detonates inside the whale and kills via shock waves and shrapnel. A grenade delivered by a hand-thrown darting gun may kill the whale, but a secondary method of killing is often required (Øen 1995; O'Hara et al. 1999). Hand-thrown darting guns are aimed at the cervical (neck) and thoracic (chest) region, rather than the head, as the skull is not easily penetrated by the grenade (Butterworth and Brakes 2006; IWC 2007a). Whale responses to being struck with a grenade from a hand-thrown darting gun include death, insensibility, and stunning (Knudsen and Øen 2003), as well as diving (Øen 1995), thrashing, and ramming boats (Bockstoce 1986).

Øen (2006) reported on improvements to hunting and killing methods for minke whales in Norway, in particular, refinements of the penthrite grenade. He noted that the instantaneous death rate in these hunts had increased from 17 percent in 1981 to 1983 to 80 percent in 2000 to 2002 in large part because of improved grenades and hunter training. Data regarding the number of bullets or harpoons used to kill whales do not necessarily indicate the proportion of whales killed by the first strike as hunters are encouraged to re-shoot whales if there is any doubt the whale is still alive (Knudsen 2005; IWC 2007a). In the Alaska Native bowhead whale hunt, Øen (1995) reported that the shoulder gun is used almost routinely after the darting gun has been fired. The Alaska Native data reported to the IWC do not include the number of whales killed by the first strike, possibly because of this routine firing of additional grenades and because of the difficulty in determining whether a struck whale is dead (IWC 2004c). Øen (1995) conducted field studies with penthrite grenades in the Alaska bowhead hunt in 1988 and reported that seven of the eight whales struck with penthrite grenades died from the first grenade thrown; the eighth whale required three grenades. More recently, the United States reported to the IWC that most of the

Alaskan villages now have access to the new penthrite grenades and that these often result in instant kills (IWC 2011d). The Russian data reported to the IWC also do not include the proportion of whales killed by the first strike from a darting gun. The data from the Greenland and Norwegian hunts, which use large vessels and deck-mounted harpoon guns and cannons, cannot be readily compared to the Makah (or Alaska Native) hunts, which use small vessels and light weapons.

3.4.3.5.4 Method of Killing and Time to Death

Rifle as the Killing Weapon

Hunters killing a whale with a rifle aim for the whale's central nervous system (especially the brain), with the intent of causing immediate death or unconsciousness (Knudsen and Øen 2003). The accuracy of the first shot is important for the following reason:

> [H]unting with rifle or shotguns involves an inevitable risk of only wounding the animal, as the projectiles are fired from a distance and the animals often present a moving target. The area of impact of the first round will always be decisive with regard to how quickly the animal collapses and dies (Knudsen 2005).

The Makah propose to use a .50 caliber rifle to kill any whale struck and secured with the toggle-point harpoon. In 1999, shots from a larger .577 caliber rifle used by the Tribe produced a time to death of 8 minutes from the time the harpoon struck the whale until the final rifle shot rendered the whale motionless (Gosho 1999) [59]. Gosho (1999) reported that the killed gray whale was a female approximately 30.5 feet (9.3 m) in length. The necropsy performed after the hunt indicated that the first shot that entered the whale hit the skull and stunned it, while the second shot that entered the whale penetrated its brain and likely killed it instantly (Gosho 1999; IWC 2004c). During the unauthorized hunt in 2007, at least 16 shots struck that whale and it took approximately 9 hours to die (Scordino 2007a,b). It is not known what caliber rifle was used to shoot the whale, which was estimated to be about 40 feet (12.2 m) long (Mapes 2007), but the Makah marine biologist reported that the hunters were in possession of both a .460 and a .577 rifle. He also noted that the whale would have died much sooner if—in addition to other factors[60]—the primary rifle (.577) had not been lost overboard (Scordino 2007a,b).

[59] A total of four rifle shots were fired over the span of five minutes; the first two shots either missed or were ineffective but the final two shots hit near the blowhole.

[60] Other reasons contributing to the whale's prolonged death likely included insufficient ammunition; inadequate hunter training; poor shot placement; slow communication time between U.S. and tribal officials; and the Coast Guard's rapid response time and curtailment of the unauthorized hunt (Scordino 2007a, 2007b).

Three separate reports (Ingling 1999; Beattie 2001; Graves et al. 2004) examined past Makah proposals and concluded that a .50 caliber rifle (or greater) is the appropriate caliber of rifle to use, after testing it alongside smaller caliber weapons. Ingling (1999) concluded that for large game, larger bullets are more effective in producing penetration deep enough to reach a vital organ or disabling site in the animal and thus require more power (i.e., heavier guns). In addition, rifles that are at least .50 caliber provide a better margin of error in targeting compared to smaller caliber rifles. Graves et al. (2004) concluded that the .50 caliber rifle was the best weapon choice and added that "small caliber rifles simply will not do the job" of quickly dispatching whales with large size and thick bones.

Graves et al. (2004) recommended that Makah hunters use a .50 caliber cartridge with an Arizona Ammunition Match grade 750-grain bullet, noting that it is one of the most common cartridges used in .50 caliber competitions and by specialized units of the U.S. Government. They computed that the maximum range[61] for this cartridge is 4.97 miles (8 km), a distance similar to that reported in the U.S. Army field manual for the .50 BMG (4.23 miles/7.44 km) and other reports citing maximum ranges from 4.04 to 5.0 miles (6.50 to 7.40 km) (U.S. House of Representatives 1999; Kline 2001; Barrett Firearms 2011; McRae, C.K., U.S. Army, pers. Comm. April 10, 2013). For comparison, the .577's lower ballistic coefficient (i.e., relative ability to overcome air resistance) and greater rate of drop would be expected to result in a shorter range than that calculated for the .50 caliber cartridge recommended by Graves et al. (2004).

Although the .577 caliber rifle used in the 1999 hunt was effective at quickly killing an adult gray whale, Graves et al. (2004) and Graves and Hazelton (2004) rejected this rifle because of the difficulty of obtaining ammunition. It is unclear if the .577 rifle lost during the illegal hunt in 2007 can be replaced, as well as whether suitable ammunition will be produced in the future (i.e., the manufacturer went out of business, and the business was acquired by new owners who no longer produce bolt-action rifles) (Graves and Hazelton 2004; Broadsword Group 2013). Therefore, it is most likely that the Makah hunters will use the recommended .50 caliber weapon, but it is possible that a larger caliber weapon will be used.

[61] The maximum range is the greatest possible distance that a bullet can reach, assuming the rifle is held at an optimum elevation angle and accounting for environmental variables (e.g., sea-level conditions, temperature, etc.). However, the Makah's proposal cites public safety measures that would authorize the discharge of firearms when whaling only when the shooter 1) was within 30 feet (9.1 m) of the target area of a whale; 2) had a field of view that was clear of all persons, vessels, and other objects that could result in injury or loss of human life; and 3) had a minimum visibility of 500 yards (457.2 m) in any direction.

Dr. Allan Ingling noted that the whale hunting rifles are probably the single most important items on which the success or failure of the hunt depends and underscored that rifles must be tested for their effectiveness before they are used in a hunt (A. Ingling, Doctor of Veterinary Medicine, pers. comm., August 2, 2010). He observed that the .577 had a clearly demonstrated ability to humanely dispatch a gray whale but also identified a range of possible calibers from .458 to .700.[62] Dr. Ingling also expressed reservations about a .50 caliber that was heavy (some models weigh 30 lbs (14 kg) or more), had a single-shot capacity, and a muzzle break[63] creating dangerous blast and noise issues in the restricted space of a boat. In his 1999 report, Ingling noted that "the weight of the [tested] .50 BMG, 20 lbs. (9 kg) versus the weight of the .577, 14 lbs. (6.4 kg), and more importantly, the 3-shot magazine of the .577 clearly makes the .577 the more suitable weapon for humanely dispatching gray whales." Gun manufacturers continue to modify the .50 caliber. There are currently models available that are as light or lighter than the .50 caliber rifle tested by Ingling (1999), have multi-round magazines, and modern muzzle break or silencer systems that may reduce blast and noise concerns (e.g., Anzio Ironworks 2013; MICOR 2013). Therefore, we consider the Tribe's proposed .50 caliber rifle, with its readily available supply of ammunition, the weapon that Makah hunters would most likely use.

This FEIS does not examine the use of a different, smaller caliber rifle as the killing weapon (Subsection 2.4.6.2, Kill Whales with Smaller Caliber Rifles, explains why this alternative was considered but eliminated from detailed study). In the Russian Federation, the Chukotka Natives hunt gray whales using smaller caliber rifles as well as hand-thrown darting guns. The Russian Federation reported that during the 2002 harvest, approximately 28 percent of whales struck were killed with various rifles ranging in size from .22 to .32 caliber. Hunters used from 3 to 100 bullets per whale in 2002 and an average of 54 bullets per gray whale killed (down from 64 bullets per whale in 2000; IWC 2004c). Mean time to death for both the rifle and darting gun was 32 minutes for gray whales, with a maximum time to death of 56 minutes (IWC 2004c). For the 2008 hunt, the Russian Federation reported that the maximum number of shots per gray whale killed was 140 and the mean and maximum time to death was 31 minutes and 95 minutes, respectively (IWC 2009b). During the 2011 hunt, Chukotkan hunters again used darting guns and rifles, averaging 92 bullets per gray whale killed (with a reported maximum of 250 bullets) and a

[62] "The only other record of a .577 being used to kill a whale was in April 2010, when a team of biologists and veterinarians (including Dr. Ingling) used three shots from a .577 in combination with drug injections to euthanize a 30-foot (9.1 m) long humpback whale that had stranded in heavy surf in East Hampton, New York" (NMFS 2010).

[63] A device fitted to the end of the barrel that reduces gun recoil by re-directing gases that propel the bullet.

mean time to death of 37 minutes and a maximum time to death of 125 minutes (IWC 2012j). During the 2016 hunt, Chukotkan hunters used the same hunting methods (darting gun and .30 caliber rifle), averaging 68 shots per gray whale killed (with a reported maximum of 252 shots) and a mean time to death of 24 minutes (reported maximum of 135 minutes) (IWC 2018e). During the 2017 hunt and using the same hunting methods as in 2016, Chukotkan hunters averaged 80 shots per gray whale killed (with a reported maximum of 280 shots) and a mean time to death of 29 minutes (reported maximum of 185 minutes (IWC 2018e). The average time to death has decreased since 2001, when the average was 55 minutes (IWC 2018f).

Minke whales are also hunted with rifles; however, these whales are substantially smaller than adult gray whales. In the Greenland collective minke whale hunt, the animals are usually first wounded with shots from a rifle (typically .30 caliber), then secured with hand-thrown harpoons before finally being killed with rifles (Greenland Home Rule Government and Greenland Hunter's Organization 2006).[64] The rifle used in 2005 was identified as a .30 caliber; the number of bullets used was not reported. The average time to death reported for 44 whales killed in the 2005 hunt was 21 minutes, with a maximum time to death of 90 minutes. This report noted that time to death might be shortened if a larger caliber rifle were used, but this could also increase the number of struck and lost animals that die and sink before they can be secured with harpoon lines and floats. In the 2010 and 2011 collective hunts, a rifle of unknown caliber (but larger than .30) was used as the primary weapon in east Greenland minke hunts. Nine whales were killed in 2010, and six of these were assessed for time to death (IWC 2011e). The average time to death was the same as in 2005 (21 minutes) while the maximum time was shorter at 30 minutes. In 2011, 9 out of 10 whales were assessed, with an average time to death of 29 minutes and a maximum time of 90 minutes (IWC 2012m).

In the Norwegian commercial hunt for minke whales, Knudsen and Øen (2003) concluded that the .357 and .458 caliber rifles and ammunition used "are highly capable of causing permanent brain damage of sufficient severity to account for an instantaneous or rapid loss of consciousness." According to Knudsen (2005), "[a] whale that is shot in or near the brain with the rifle will also normally turn over immediately and the flippers and jaw will relax." In the Norwegian hunt, almost all whales (95.5 percent) are killed with the first strike by a penthrite grenade (Øen 2006), and the time to death is not separately reported for whales killed with

[64] When possible, the harpoon is used to secure the whale before wounding it.

bullets. For whales killed with a rifle after the grenade failed to kill the whale, the mean number of bullets used was 2.6 (in the 1998/1999 season), 2.2 (in the 2000/2001 season), and 2.2 (in the 2001/2002 season) (Knudsen 2005).

Explosive Grenade as the Killing Weapon

In addition to the Makah Tribe's proposal to kill whales using a .50 caliber rifle, this FEIS examines use of an explosive projectile to kill the whale, delivered by either a hand-thrown darting gun or a shoulder gun (Subsection 2.3.2.2, Gray Whale Hunt Details), though it is uncertain whether grenades would be readily available for a Makah Tribe gray whale hunt (Subsection 3.15.3.5.2, Weapons Associated with the Hunt). The cervical and cranial thoracic regions of a whale are the critical target areas for explosive projectiles. Penetration into these regions results in detonation next to the skull and vertebrae, or within the thoracic cavity (O'Hara et al. 1999). How effective the grenade is in killing the whale quickly will depend on where the whale is hit and whether the projectile penetrates to a suitable depth (O'Hara et al. 1999).

Two types of grenades are currently available and in use (e.g., by Alaska Native hunters)—slow-burning black powder grenades and fast-burning penthrite grenades. Both types have a time-delay fuse designed to detonate the grenade after penetrating the whale. Detonation releases fragments, or shrapnel, causing hemorrhaging and damage to internal organs (O'Hara et al. 1999). The blast from a black powder grenade also emits shock waves that can cause concussion-related injuries to the brain or internal organs (O'Hara et al. 1999). The blast from a penthrite grenade emits a much higher energy shock wave, which is more likely to cause concussion-related injuries further from the blast site, including injuries to the whale's brain or internal organs. These injuries may cause insensibility or immediate death (Øen 1995; O'Hara et al. 1999). If the grenade does not hit a target area, it has a higher probability of killing the whale than a black powder grenade because it can cause damage farther from the point of detonation (O'Hara et al. 1999; Smith 2007).

In 1988 through 1992, Øen (1995) conducted field trials using penthrite projectiles in the Alaska Native bowhead hunts and comparing them to black powder projectiles used from 1984 to 1986. Data for black powder grenades were the most reliable for 1988 because the information was systematically collected. Results showed reduced time to death for penthrite as compared to black powder (Øen 1995). In 1988, five of the eight bowhead whales (63 percent) died in less than 5 minutes (Øen 1995). The grenades were modified subsequent to the initial penthrite field trials, and data in 1997 and 1998 indicated that time to death was 50 percent of the time to death for black powder grenades (O'Hara et al. 1999). At the 2006 Whale Killing Method Workshop, the AEWC reported that, when placed near the blow hole or within the thorax, the penthrite

projectiles appear to give a more rapid time to death than traditional black powder (Alaska Eskimo Whaling Commission 2006; IWC 2007a). The chairperson of the AEWC weapons improvement program has also reported a general preference among Alaska Natives for penthrite, rather than black powder grenades, because "with black powder, the meat has a gas taste" (Associated Press 2005). In 2011, the chairperson of the AEWC reported that penthrite grenades had been distributed to over half of the villages and that the use of these weapons "can reduce the time to death for a bowhead whale to 4 seconds, this being the length of time on the grenade's fuse" (IWC 2011d). The following year the chairperson reported that the use and success of the new penthrite grenade was increasing (IWC 2012h).

The Chukotka Natives use both rifles and darting guns to kill whales. They have used penthrite grenades, but they primarily use black powder grenades. At the IWC Annual Meeting in 2003, the Russian Federation reported that approximately 72 percent of whales killed were killed using the darting gun. Mean time to death for gray whales using both methods was 43 minutes, with a maximum of 220 minutes. In the 2002 season, hunters used an average of 2.7 darting gun projectiles per whale killed (IWC 2004c) and this ratio has remained relatively stable during the past decade (Borodin et al. 2012). The mean and maximum time to death for gray whales killed with darting guns in the 2002 hunts was 32 minutes and 56 minutes, respectively. In 2006, for whales killed using a darting gun with a black powder explosive projectile, Chukotka Native hunters reported an average time to death of 32 minutes for 88 whales (minimum 3 minutes, maximum 3 hours) (IWC 2007c). In 2011, the government of Chukotka purchased 45 darting guns to improve the humaneness of the gray whale hunt (IWC 2012g). In the 2016 hunt, Chukotka Natives used darting guns on 40 of the 120 total whales killed in the 2016 hunt, and 40 of the 119 total whales killed in the 2017 hunt (IWC 2018e).

3.4.3.5.5 Proportion of Whales Struck and Lost

During the Makah Tribe's 1999 and 2000 hunts, there were no whales struck and lost; the only whale struck was landed (Gosho 1999; Gearin and Gosho 2000). In the 2007 unauthorized hunt involving several Makah Tribal members, the whale was struck and then allowed to die and sink several hours after enforcement agents stopped the hunt (Scordino 2007a, 2007b).

As noted previously, the Chukotkan hunt for gray whales is not directly comparable to the Makah Tribe's proposed hunt because the Chukotkans use harpoons and either smaller caliber rifles, darting guns, or both (IWC 2007a; IWC 2018d). Of the more than 1,400 whales struck by Chukotkan hunters during the period 2003 to 2013, only 2.3 percent have been struck and lost (IWC Annual Reports 2004-2014; Ilyashenko 2013; Ilyashenko and Zharikov 2013). In more

recent years, from 2014-2021, an average of 1 percent have been struck and lost. The ratio of struck-and-lost whales to total whales struck is shown in Table 3-12.

Table 3-12. Number of struck-and-lost whales to total whales struck in Chukotkan gray whale hunts.

Year	Struck and Lost	Total Struck
2003	2	128
2004	1	111
2005	9	124
2006	5	134
2007	3	131
2008	3	130
2009	0	115
2010	0	118
2011	4	132
2012	4	143
2013	2	127
2014	2	124
2015	1	125
2016	0	120
2017	0	119
2018	1	107
2019	2	137
2020	3	136
2021	1	127

Source: IWC Annual Reports 2004-2012, Ilyashenko 2013, and Ilyashenko and Zharikov 2013; IWC Scientific Committee Reports 2015-2022

Most of the bowhead whales in the Alaska Native hunt are hunted using hand-thrown darting guns and shoulder guns with black powder grenades. During a field trial of penthrite grenades in 1988, Øen (1995) reported that seven of the eight bowhead whales (88 percent) struck with the penthrite projectile were landed. In 1978, the AEWC committed to the IWC to increase the

efficiency (i.e., proportion of whales struck vs. landed) of their bowhead hunt from an average of 50 percent to an average of 75 percent. In 2011, the AEWC reported that while there can be significant year-to-year variability, the 13-year average efficiency was 77.3 percent from 1996 to 2010. In the 2010 hunt, eight whales were struck with the penthrite projectile and five were landed after instant or near-instant kills (IWC 2011d). A report from the AEWC (IWC 2012h) states that during the 2011 bowhead hunt 51 whales were struck and 38 whales were landed (a 74.5 percent efficiency). It also notes that a total of 26 whales were reported as instant or near-instant kills, including all but three of those taken using penthrite grenades. Also, results from the 2012 spring hunt indicate that hunters from one village took six whales using penthrite grenades; all were reported as very quick kills and no whales were lost (IWC 2012h). In the most recent report available (IWC 2022b), 70 bowhead whales were struck in the 2021 Alaska Native subsistence hunt, of which 57 were landed, yielding a slightly higher harvest efficiency (81 percent) than the average over the last 10 years (78 percent from 2011-2020).

3.4.3.5.6 Training and Weapons Improvement

The Makah's proposed action includes a training and certification program. The Tribe also proposes to conduct research and development to refine hunting methods further and revise tribal regulations periodically to improve the safety, effectiveness, and humaneness of the gray whale hunt. This provision is similar to the Alaska Eskimo Whaling Commission's Weapons Improvement Program, which has worked since the late 1980s to develop newer technologies (including use of the penthrite grenade) to increase hunting safety and efficiency (IWC 2011d). Hunter training would likely reduce time to death and decrease the proportion of struck and lost whales (Alaska Eskimo Whaling Commission 2006; Greenland Home Rule Government and Greenland Hunter's Organization 2006). Dr. Ingling emphasized the need for a codified training and qualification program, including regular re-certification for the various whaling crew duties and training in gray whale anatomy (A. Ingling, Doctor of Veterinary Medicine, pers. comm., August 2, 2010).

3.4.3.5.7 Weather and Sea Conditions

Weather and sea conditions in the action area as they relate to safety are discussed in detail in Public Safety, Subsection 3.15.3.2, Weather and Sea Conditions. Weather and sea conditions, including motion of the vessel, also may have implications for harpooner or rifleman accuracy, which could affect a whale's time to death and the proportion of whales struck and lost. The efficiency of the hunt could also be affected by these conditions if they improve the ability of the Tribe to successfully tow and land a killed whale. The Makah proposal includes the use of a

motor-powered vessel to position the rifleman and to tow a killed whale to shore, and it includes maintaining a 30-foot (9.1-m) maximum distance from the rifleman to the whale with minimum visibility of 500 yards (457.2 m).

3.4.3.5.8 Behavior of People Associated with the Hunt

The behavior of people associated with the Makah hunt, including protesters, is also discussed in detail in Public Safety, Subsection 3.15.3.4, Behavior of People Associated with the Hunt. Based on the 1999 and 2000 protester interventions on the water, and the continuing degree of public and media interest in this issue, vessels and people may interfere with whaling activities, increase the time to death, and increase the potential for not successfully landing a whale struck by Makah hunters.

3.4.3.6 Known and Potential Anthropogenic Impacts

Particularly along the coast of North America, gray whales are exposed to intense human activity. Moore and Clarke (2002) concluded that "[t]he recovery of the gray whale population in the face of long-term exposure to human activities along the North American coast suggests a strong degree of tolerance to such activities." The recovery of the ENP gray whale stock in the face of aboriginal subsistence hunting by Chukotka Natives similarly suggests a tolerance to such activity. The following discussion examines some of the more prominent activities affecting gray whales.

3.4.3.6.1 Aboriginal Subsistence Whaling

ENP gray whales have been hunted by various aboriginal groups for hundreds to thousands of years. In the whales' northern feeding areas, five groups of aborigines hunted along the Chukotkan Peninsula of northeastern Asia in the western Bering, northeastern Okhotsk, and western Chukchi Seas, including the Asiatic (Siberian) Eskimos, Chukchi, Koryaks, Kereks, and Itle'mens (Kamchadals) (Krupnik 1984). The (Alaska) Natives also hunted gray whales along the northwestern shores of North America in the eastern Bering and Chukchi Seas for thousands of years (O'Leary 1984). Along the whales' migratory corridors and in the more southern feeding areas south of the Alaskan Peninsula, several Indian tribes between the Aleutian Islands and California hunted gray whales and/or used drift whales for subsistence as a part of their cultural and religious traditions, including the Aleuts, Koniag, Chugash, Tlingit, Haida, Tsimshian, Nootka, Makah (including Ozette), Quileute, Klallam, and Chumash (O'Leary 1984). Some of these tribes hunted during the American and industrial commercial whaling eras. The last Makah hunts in this timeframe were recorded in the 1920s. Table 3-13 identifies the historical (1600 to

1943) aboriginal catches of ENP gray whales reported by Punt and Wade (2012), amounting to nearly than 55,000 whales (approximately 160 whales per year) during that 343-year period.

Table 3-13. Estimated historical (pre-1944) aboriginal catches of ENP gray whales.

Years	Annual # Killed	Years	Annual # Killed
1600-1675	182	1881-1890	108
1676-1750	183	1891-1900	62
1751-1840	197.5	1901-1904	61
1841-1846	193.5	1905-1915	57
1847-1850	192.5	1916-1928	52
1851-1860	187	1929-1930	47
1861-1875	111	1931-1939	10
1876-1880	110	1940-1943	20

Source: Punt and Wade 2012.

Between 1948 and 1955, subsistence hunters in the Chukotkan Region took 241 total gray whales, averaging 30 whales annually (Zimushko and Ivanshin 1980). From 1956 to 1968, the catches in that region increased to an average 158 animals annually (Zimushko and Ivanshin 1980). From 1968 to 1977, the Soviet Ministry of Fisheries imposed catch limits of 140 to 150 whales from 1968 to 1972 and 200 whales annually from 1972 to 1977 (Zimushko and Ivanshin 1980). The IWC established aboriginal subsistence whaling catch limits for the ENP gray whale stock starting in 1978 (Table 3-14). Since then, 5,605 harvested gray whales have been reported to the IWC (averaging just over 127 whales per year), with all but 26 of these whales being taken by Russian/Chukotkan hunters. These hunters typically hunt gray whales beginning in June or July, when the waters become ice free (Krupnik 1987), and continue through the summer and fall. For example, all of the gray whales harvested by Chukotkans in 2009 were taken between June and November, while in 2011 the first and last whales were harvested on May 15 and November 8, respectively (IWC 2012k). This trend holds true for more recent years as well: in 2016, the first and last whales were harvested on May 7 and November 22, respectively, and in 2017, the first and last whales were harvested on May 11 and October 24, respectively (IWC 2018e). Gray whale catches that the United States reported to the IWC include the one whale harvested by the Makah Tribe in 1999 and the one whale killed in 2007 in the unauthorized hunt by members of the Makah Tribe (IWC 2008). More recently, the United States reported to the IWC that Alaska Natives took one gray whale in 2017 and one in 2018 in unauthorized hunts. In the 2018 investigation, the AEWC

noted that the Bering Strait communities were struggling with food due to changing environmental conditions (IWC 2018e). Although Alaska Natives hunted gray whales prior to 1989, the United States has not presented a proposal to the IWC for this hunt, nor has NMFS published a quota under the WCA.

Table 3-14. Aboriginal subsistence whaling catch data for ENP gray whales reported to the IWC.

Year	Total Multi-year Allocation by IWC	Total Annual Allocation by IWC	Total Takes	Russian Federation (Chukotkans)	United States (Alaska Natives)	United States (Makah)
1978	na	179	184	182	2	0
1979	na	179	182	178	4	0
1980	na	179	181	178	2	0
1981	na	179	135	135	0	0
1982	na	179	169	165	4	0
1983	na	179	171	169	2	0
1984	na	179	168	168	0	0
1985	na	179	170	169	1	0
1986	na	179	171	169	2	0
1987	na	179	159	158	1	0
1988	na	179	151	150	1	0
1989	na	179	180	179	1	0
1990		179	162	162	0	0
1991		179	169	169	0	0
1992	na	169	0	0	0	0
1993		169	0	0	0	0
1994		169	44	44	0	0
1995	na	140	92	90	2	0
1996		140	43	43	0	0
1997		140	79	79	0	0
1998	620 (to Russian Federation and United States)	140	125	125	0	0
1999		140	124	123	0	1
2000		140	115	115	0	0
2001		140	112	112	0	0
2002		140	131	131	0	0
1998-2002 Total			*607*	*606*	*0*	*1*
2003	620 (to Russian Federation and United States)	140	128	128	0	0
2004		140	111	111	0	0
2005		140	124	124	0	0
2006		140	134	134	0	0
2007		140	132	131	0	1
2003-2007 Total			*629*	*628*	*0*	*1*
2008	620 (to Russian Federation and United States)	140	130	130	0	0
2009		140	116	116	0	0
2010		140	118	118	0	0
2011		140	128	128	0	0
2012		140	143	143	0	0
2008-2012 Total			*635*	*635*	*0*	*0*
2013	744 (to Russian Federation and United States)	140	127	127	0	0
2014		140	124	124	0	0
2015		140	125	125	0	0
2016		140	120	120	0	0
2017		140	120	119	1*	0
2018		140	108	107	1*	0
2013-2018 Total			*724*	*722*	*2*	*0*
2019	980 (to Russian Federation and United States)	140	137	137	0	0
2020		140	136	136	0	0
2021		140	127	127	0	0
2022		140	*NA*	*NA*	*NA*	*NA*

2023		140	*NA*	*NA*	*NA*	*NA*
2024		140	*NA*	*NA*	*NA*	*NA*
2025		140	*NA*	*NA*	*NA*	*NA*

*Unauthorized take. Sources: IWC Annual Reports and the IWC website at http://iwc.int/table_aboriginal.

3.4.3.6.2 Environmental Contaminants

Environmental contaminants that enter the marine environment through atmospheric, ocean current, and terrestrial transport originate from a variety of urban and rural anthropogenic sources, including agricultural use of pesticides, industrial disposal of manufacturing or pharmaceutical by-products, industrial processing or burning of fossil fuels, and municipal discharge or runoff associated with landfills, wastewater treatment plants, and miles of streets and roads. Marine ecosystems in the northeastern Pacific receive pollutants from a variety of local, regional, and international sources (Grant and Ross 2002; EVS Environmental Consultants 2003; Garrett 2004; Krepakevich and Pospelova 2010).

These chemicals and compounds include organochlorines (e.g., DDT, PCB, dioxins, and furans), heavy metals (e.g., copper, mercury, and lead), and others such as flame retardants (PBDEs) and PFAS, that may have direct lethal effects on individual animals or insidious effects on animal populations through impaired reproductive, metabolic, and immune functions (O'Hara and O'Shea 2005). Many organochlorines are highly fat soluble and have poor water solubility, which allows them to accumulate in the fatty tissues of animals where most storage occurs (O'Shea 1999; Reijnders and Aguilar 2002). Some are highly persistent in the environment and resistant to metabolic degradation. Bioaccumulation through trophic transfer in the marine food chain allows relatively high concentrations of these compounds to build up in top-level marine predators, such as marine mammals (O'Shea 1999). However, reported levels of contaminants and heavy metals in gray whales are lower than in odontocetes, likely due to their feeding on benthic invertebrates at lower tropic levels (Stimmelmayr and Gulland 2020). Gray whales may ingest these environmental contaminants when they bottom feed in areas where both the sediment and benthic prey are contaminated. A recent study quantified blubber concentrations of persistent organic pollutants (POPs) such as PCBs and DDTs in gray whales and found that concentrations have generally decreased since earlier studies (Hayes et al. 2022). The authors also document PBDEs and other pollutants in the gray whale for the first time. However, the exact health effects of various contaminant levels on gray whales is unknown (Stimmelmayr and Gulland 2020). By comparison, pinnipeds and porpoises carry far greater amounts of PCBs and DDTs than baleen

whales and fish, however, because of their higher positions in food chains (O'Shea and Aguilar 2001; Reijnders and Aguilar 2002).

Subsection 3.16.3.2, Environmental Contaminants in Gray Whales, discusses the 'stinky whale' phenomenon and recent evidence suggesting that naturally occurring bromophenols are responsible for the phenomenon, as opposed to organochlorines as was previously thought (Polyakova et al. 2023).

Subsection 3.16.3.2, Environmental Contaminants in Gray Whales, also addresses concentrations of heavy metals (including mercury, lead, and copper, among others) in gray whale tissues with information synthesized from various studies. The three elements usually considered of greatest concern to cetaceans are mercury, cadmium, and lead (O'Shea 1999). Mercury, cadmium, and other metals accumulate primarily in the liver and kidneys, whereas lead concentrates mostly in bones (Reijnders and Aguilar 2002). Concentrations of most metals tend to increase throughout an animal's life and are stored in fatty tissues. There are, however, organic forms of metals, such as methylmercury, that accumulate in the lipids of prey species. Many marine mammal species can tolerate high amounts of metals or detoxify them (Reijnders and Aguilar 2002; Wise et al. 2009). Published accounts of metal-caused pathology are scarce (O'Shea 1999).

In the 1999 and 2000 mass stranding events, chemical contaminants were a possible factor contributing to the increased mortality (Gulland et al. 2005). Overall, however, no contaminant found would be the direct cause for acute mortality of the observed magnitude (Gulland et al. 2005). The mean concentrations of organochlorines in the blubber of gray whales stranded in 1999 were well below levels observed in apparently healthy gray whales harvested in Russia (Tilbury et al. 2002). Also, lower levels of total mercury and methylmercury were reported in the muscle, kidney, and liver tissues of four gray whales that stranded in the Gulf of California in 1999 than were reported for other marine mammals, though sampling differences and the effect of decomposition on blubber lipids may alter the results of chemical analysis (Gulland et al. 2005).

As described below in Subsection 3.4.3.6.12, Marine Debris, a devastating earthquake and tsunami struck Japan in 2011 and washed an estimated 5 million tons of debris into the North Pacific Ocean. In addition, the tsunami damaged several nuclear reactors in the Fukushima Daiichi Nuclear Power Plant complex causing them to release radiation into the atmosphere and North Pacific Ocean. In response a number of agencies have been actively monitoring water, debris, biota and sediment, with the U.S the Environmental Protection Agency playing a lead role in such U.S. monitoring (EPA 2011a). Radiation experts have determined that it is highly

unlikely that any tsunami-generated marine debris holds harmful levels of radiation. Some marine debris collected along shorelines in Hawaii and on the West Coast, including debris known to be from the tsunami, has been tested, and all readings were normal (Ecology 2013b; EPA 2011a; NOAA 2013).

In response to the Japanese nuclear incident, the EPA accelerated and increased sampling frequency and analysis to confirm that there were no harmful levels of radiation reaching the United States from Japan and to inform the public about any level of radiation detected. After a thorough data review showing declining radiation levels, on May 3, 2011, EPA returned to the agency's routine sampling and analysis process for precipitation, drinking water and milk (EPA 2011a). According to researchers at the Woods Hole Oceanographic Institute, "[l]evels of any Fukushima contaminants in the ocean will be many thousands of times lower after they mix across the Pacific and arrive on the West Coast of North America in 2014. This is not to say that we should not be concerned about additional sources of radioactivity in the ocean above the natural sources, but at the levels expected even short distances from Japan, the Pacific will be safe for boating, swimming, etc." (Woods Hole Oceanographic Institution 2014).

3.4.3.6.3 Harmful Algal Blooms

Single-celled algae are the base of the food chain in the marine environment, and they proliferate or aggregate to form dense concentrations of cells called blooms when certain environmental conditions prevail. Algal blooms can produce marine biotoxins, which can accumulate in fish, seabirds, and other marine biota. Harmful algal blooms occur in coastal marine environments throughout the United States, including waters of Puget Sound and off the coasts of Washington, Oregon, California, and Alaska (Lefebvre et al. 2016). There is evidence that harmful algal blooms have increased in frequency, magnitude, and seasonal duration, possibly as a result of global climate change, toxic algal species extending to new areas, and human-related eutrophication of the coastal environment (Trainer 2002). Though less than 5 percent of the known dinoflagellate species and fewer than 25 species in one genus of diatoms produce compounds that are known to be toxic to marine mammals (Van Dolah 2005), some marine mammal morbidity and mortality, including mass strandings, have been associated with marine biotoxin exposure and harmful algal blooms. Along the west coast of the United States, some of the most deleterious biotoxins produced by harmful algal blooms include saxitoxin (the toxin that causes paralytic shellfish poisoning in humans), domoic acid, and the marine alga *Heterosigma akashiwo* (Horner et al. 1997). Gray whales have thus far been shown to be affected by saxitoxin or domoic acid, as explained below.

Saxitoxin

In 1987, acute levels of saxitoxin, produced by a dinoflagellate bloom, were associated with the death of 14 humpback whales off the coast of Cape Cod, Massachusetts (Geraci 1989; Van Dolah 2005). Saxitoxin was also a contributing factor in the mortality of bottlenose dolphins in a Florida lagoon in 2001 and 2002 (Van Dolah 2005). Scientists have also postulated that chronic, sublethal exposure to saxitoxin through ingestion of copepods may affect right whale reproductive rates by lowering diving rates and feeding time, and decreasing overall fitness (Van Dolah 2005). Researchers have demonstrated that saxitoxin has a high affinity and specific binding to the nerve preparations of the brains of gray whales, humpback whales, California sea lions, and manatees (Trainer and Baden 1999). A small sample of gray whales sampled for contaminants from the ongoing UME had trace levels of saxitoxin (Raverty et al. 2020).

Domoic Acid

In 1991, the first evidence of domoic acid on the west coast of North America was a mass mortality of pelicans and cormorants in Monterey Bay, California (Van Dolah 2005). The first confirmed domoic acid poisoning of marine mammals occurred in 1998 in the same area, when more than 70 California sea lions stranded from San Luis Obispo to Santa Cruz (Scholin et al. 2000). Of the 70 sea lions that stranded, 57 sea lions died because of acute toxicity from eating anchovies (Van Dolah 2005). A similar event occurred in 2000 in the same region, when the stranding of 187 sea lions was associated with domoic acid (Gulland et al. 2002; Van Dolah 2005). Concurrent with the 2000 sea lion mortality event, abnormally high numbers of gray whale strandings occurred (Van Dolah 2005). One of the three gray whales whose cause of death was determined in the 1999 and 2000 unusual mortality event was likely intoxicated with domoic acid (Gulland et al. 2005). The levels of domoic acid in the necropsied whale would indicate acute toxicosis in a laboratory primate, but toxic doses for cetacea are undetermined (Truelove and Iverson 1994). Biotoxins were thus one of the factors listed as potentially contributing to the increased number of gray whale mortalities observed in 1999 and 2000, though too few carcasses were adequately sampled to assess their importance in the mortality event (Gulland et al. 2005). In February 2002, researchers documented a domoic acid event on the California coast. This event involved nine marine mammal species and the deaths of thousands of sea lions; none of the reported strandings or deaths was a gray whale (Van Dolah 2005). In a review of the effects of domoic acid on wildlife, Bejarano et al. (2008) did not report any evidence of toxicity in gray whales. In marine mammals other than California sea lions, the association between exposure to domoic acid and abnormal clinical signs has been limited to epidemiological associations rather than direct measurement of domoic acid in body fluids of affected animals (Lefebvre et al. 2010).

A small sample of gray whales sampled for contaminants from the ongoing UME had trace levels of domoic acid (Raverty et al. 2020).

3.4.3.6.4 Oil Spills and Discharges

Exposure to petroleum hydrocarbons released into the marine environment through oil spills and other discharge sources represents another potential anthropogenic impact on gray whales in the action area. Inhalation of vapors at the water's surface and ingestion of hydrocarbons during feeding are the most likely pathways of exposure. Acute exposure to petroleum products can cause changes in behavior and reduced activity, inflammation of the mucous membranes, lung congestion, pneumonia, liver disorders, and neurological damage (Geraci and St. Aubin 1990). Marine mammals can generally metabolize and excrete limited amounts of hydrocarbons, but acute or chronic exposure poses greater toxicological risks (Grant and Ross 2002).

At the water's surface, gray whales have been observed lying in or swimming through oil from the *Exxon Valdez* oil spill along the Alaska coast (Moore and Clarke 2002), and they have been observed migrating through natural seeps near Santa Barbara, California (Kent et al. 1983). Kent et al. (1983) observed that gray whales generally swam faster, stayed submerged longer, and took fewer breaths than whales that did not pass through oil; whales also sometimes changed direction to swim around the surface oil, though it was not clear that the change in direction was in response to the oil. Some scientists have concluded that cetaceans have a thickened epidermis that greatly reduces the likelihood of petroleum toxicity from skin contact with oiled waters (Geraci 1990; O'Shea and Aguilar 2001). Geraci (1990) proposed that gray whales probably experience eye and tactile hair follicle irritation upon contact with oil but that long-lasting effects to skin tissue were less likely. This observation was based on laboratory tests on bottlenose dolphins, because the dolphins did not exhibit a vascular reaction to contact with petroleum products (Geraci 1990). Other scientists have proposed that cetaceans with rough or damaged skin, such as the barnacle-covered skin of a gray whale, may be more susceptible to oil contamination and subsequent bacterial infection than smoother-skinned cetaceans (Albert 1981). Moore and Clarke (2002) reported that it is unclear whether gray whales can detect surface oil.

Gray whales could consume oil from fouled baleen, by engulfing tar balls, or by bottom feeding on contaminated sediments (Geraci 1990; Moore and Clarke 2002), though there are no reported cases of ingestion. Twenty-five whales that stranded after the *Exxon Valdez* spill had oil on their baleen but not in their digestive tracts, suggesting that the baleen was fouled after death (Moore and Clarke 2002). Geraci and St. Aubin (1985) concluded that oil impact on baleen was slight and short term, based on laboratory tests where 70 percent of oil was flushed from baleen in 30

minutes, but Geraci (1990) proposed that baleen fibers could remain oiled if a whale was feeding in a highly oiled area where fouling outpaced the flushing rate. Moore and Clarke (2002) noted that oil and chemical dispersants, used to break up surface oil and cause it to sink, could contaminate benthic sediments. They proposed that any large-scale contamination of a primary feeding area could negatively affect the population. Inhalation and dermal contact are also exposure pathways that could negatively impact gray whales (Takeshita et al. 2017; Stimmelmayr and Gulland 2020).

Exploration and development of offshore oilfields have the potential to release petroleum products and other contaminants into waters used by gray whales. In 1969, a federal platform offshore of Santa Barbara, California, experienced a blowout in one of its wells, releasing an estimated 3.4 million gallons of oil into the ocean. Since then, until 2015, a total of approximately 37,000 gallons of oil were spilled as a result of natural gas and oil operations offshore of California (Bureau of Ocean Energy Management 2015). In 2015, a crude oil pipeline near Refugio State Beach[65] ruptured and spilled over 100,000 gallons of crude oil that eventually made its way in to the ocean and led to the closure of beaches, fisheries, and recreational areas. In 2021, a pipeline off the Orange County coast spilled 25,000 gallons of crude oil in to the ocean 4.5 miles from shore, which eventually washed up on the beach, leading to closures.[66]

Areas of active oil and gas development within the migratory range of ENP gray whales include Southern California and the Chukchi and Beaufort Seas north of Alaska. Onshore refineries and shipping facilities associated with these areas also present a risk of spills, as does shipping traffic. No oil and gas development occurs in the Pacific coastal waters of Mexico, but a refinery at the coastal city of Salina Cruz processes and ships petroleum products from the Gulf of Mexico. There are no active oil or gas leases off the coasts of Oregon or Washington. A moratorium on leasing for offshore oil and gas exploration and development is currently in place in these areas. An informal moratorium on oil and gas drilling off the coast of British Columbia has been in place since the early 1970s.

During the period from 2000 to 2008, a total of 500,600 gallons of oil was spilled in the Pacific Ocean (U.S. Coast Guard 2010). During the same period, the U.S. Coast Guard (2010) reported

[65] https://darrp.noaa.gov/oil-spills/refugio-beach-oil-spill

[66] https://darrp.noaa.gov/oil-spills/pipeline-p00547-huntington-beach-oil-spill#:~:text=What%20Happened%3F,offshore%20of%20Huntington%20Beach%2C%20California.

approximately 468,000 gallons of oil spilled in the waters of Alaska. The data for Alaskan waters includes spills in the Pacific Ocean as well as the Arctic Ocean; therefore, the total amount of oil spilled in United States coastal waters in the range of the ENP gray whale is less than the total of those two amounts. In most years, tank ships, barges, and other vessels accounted for more than half of the total amount of oil spilled nationwide. Processing facilities and pipelines were other major sources of spills (U.S. Coast Guard 2010).

Because of its proximity to Alaska's crude oil supply, Puget Sound is one of the leading petroleum refining centers in the United States, with about 15 billion gallons of crude oil and refined petroleum products transported through it annually (Puget Sound Action Team 2005). Inbound oil tankers carry crude oil to four major refineries in Puget Sound, while outbound tankers move refined oil products to destinations along the United States' west coast (Neel et al. 1997). In 2021, 1,047 oil tankers passed through Washington's waters bound for ports in Puget Sound, Canada, and along the Columbia River (Ecology 2022b). This volume of shipping traffic puts the region at risk of having a catastrophic oil spill. The possibility of a large spill is one of the most important short-term threats to coastal organisms in the northeastern Pacific (Krahn et al. 2002).

Neel et al. (1997) reported that shipping accidents were responsible for the largest volume (59 percent; 3.4 million gallons [12.9 million L]) of oil discharged during major spills in Washington from 1970 to 1996. Other sources were refineries and associated production facilities (27 percent; 1.5 million gallons [5.7 million L]) and pipelines (14 percent; 800,000 gallons [3.0 million L]). Eight major oil tanker spills exceeding 100,000 gallons (378,500 L) have occurred in the state's coastal waters and on the Columbia River since the 1960s, with the largest estimated at 2.3 million gallons (8.7 million L). Grant and Ross (2002) did not report any major vessel spills from British Columbia during this same period, but at least one spill of 100,000 gallons (378,500 L) is known to have occurred in Canadian waters at the mouth of the Strait of Juan de Fuca in 1991 (Neel et al. 1997). In addition to these incidents, numerous near accidents have resulted from vessel groundings, collisions, power loss, or poor vessel condition (Neel et al. 1997).

Between 1995 and 2008, a total of 340,000 gallons (1.29 million L) of petroleum products were spilled in the waters of Washington State (Environmental Research Consulting 2009). More than 80 percent of this resulted from a single event, when 277,000 gallons (1.05 million L) of gasoline spilled from a pipeline in Bellingham in 1999. Most of the remaining total spilled volume came from oil tankers, tank barges, and cargo vessels. Environmental Research Consulting (2009) concluded that, from the perspective of prevention and preparedness, oil tankers represent over 75

percent of the potential risk for worst-case oil discharge, followed by cargo vessels (15 percent of the potential risk), and oil tank barges (6 percent).

Puget Sound's four oil refineries are located on the coast at Anacortes (Shell Oil and Texaco), Ferndale (Mobil Oil), and Tacoma (United States Oil). Four major spills have occurred at two of these facilities, with each causing some discharge of petroleum into marine waters (NMFS 2005d). Pipelines connecting to refineries and oil terminals at ports represent another potential source of coastal spills. Pipeline leaks have caused several major spills in Western Washington, but only the 1999 Olympic spill resulted in any discharge to marine waters (Neel et al. 1997). For a 30-year summary of all major oil spills in Washington, see Ecology (2019).

During the late 1980s and early 1990s, Washington significantly upgraded its efforts to prevent oil spills in response to increased spills in the state and the *Exxon Valdez* accident in Alaska. A number of state, provincial, and federal agencies now work to reduce the likelihood of spills, as does the Makah Tribe and the regional Oil Spill Task Force, which formed in 1989. National statutes enacted in the early 1990s, including the United States Oil Pollution Act in 1990 and the Canada Shipping Act in 1993, have also been beneficial in creating spill prevention and response standards. Since 2008, Washington State has maintained a rescue tugboat at Neah Bay year-round to aid disabled vessels and thereby prevent oil spills. These measures appear to have helped reduce the number and size of spills since 1991 (Neel et al. 1997). For example, in 2010 the Neah Bay emergency tugboat *Hunter* towed the disabled 712-foot container ship *Horizon Tacoma* to the Port of Tacoma after an engine malfunction in the Strait of Juan de Fuca (Gottlieb 2010). This same container ship also lost propulsion in the Strait of Juan de Fuca in October 2011 and was escorted to Port Angeles by the emergency tugboats *Jeffrey Foss* from Neah Bay and *Garth Foss* from Port Angeles (U.S. Coast Guard News 2011). In general, Washington's outer coast, the Strait of Juan de Fuca, and areas near the State's major refineries are the locations most at risk of major spills (Neel et al. 1997). An "area to be avoided" was designated in the OCNMS (Subsection 3.1.1.1.3, Current Issues) to minimize the risk of spills by routing large vessels away from dangerous and sensitive areas. An analysis by NOAA of the effectiveness of the voluntary area to be avoided shows a decrease in the number of commercial vessels transiting the area following the designation. From July through September 1995 (the year in which the area to be avoided was established), 643 vessels transited the area. By 2010, that number had diminished to 61 for the entire calendar year (Ecology 2011).

Chronic small-scale discharges of oil into marine waters from a variety of sources, including tanker ballast waters, ship bilge and fuel oil, and municipal and industrial waste, greatly exceed

the volume released by major spills (Clark 1997) and are another potential impact to gray whales. Though chronic oil pollution has been documented in large numbers of seabird deaths (e.g., Wiese and Robertson 2004), less is known about its impact on gray whales and other marine mammals. The long-term effects of repeated ingestion of sub-lethal quantities of petroleum hydrocarbons on marine mammals are also unknown.

3.4.3.6.5 Offshore Activities and Underwater Noise

Anthropogenic activities in the ocean have increased over the past 50 years, resulting in more underwater noise (Hildebrand 2005; Nowacek et al. 2007). Underwater noise is often regarded as the primary source of disturbance to gray whales (Malme et al. 1988; Moore and Clarke 2002; Richardson et al. 1995; Weller et al. 2006a; Weller et al. 2006b). The types of anthropogenic activities that cause underwater noise within the migratory range of the ENP gray whales include offshore oil and gas development; vessels, including commercial fishing, whale-watching, and scientific research vessels; and training exercises conducted in coastal and offshore waters by the United States Navy. Training activities involve the use of aircraft, marine vessels, submarines, sonar, and explosives. Noise specifically related to whale-watching and other vessel disturbance is described below. A broader discussion of noise (including both atmospheric and underwater noise) in the action area is in Subsection 3.11, Noise, and its effects on wildlife other than gray whales is in Subsection 3.5, Other Wildlife Species.

Gray whale reactions to underwater noise have been relatively well studied compared to those of other mysticetes (Moore and Clarke 2002). Overall, their reactions are variable and influenced by characteristics of the noises they are exposed to (e.g., intensity and temporal pattern of sound) and context of the exposures (e.g., their behavior before the exposure occurred). This section summarizes the results of studies that document a variety of gray whale reactions to a broad range of underwater noises.

Researchers have noted short-term behavioral responses of gray whales to different noises associated with seismic exploration. Malme et al. (1983; 1984; 1988) concluded that continuous broadband sound caused a statistically detectable response in about half of the gray whales exposed to sound levels exceeding approximately 120 decibels (dB re 1 μPa- water standard). The whale response was a brief, slight deflection in migratory course around the sound source. Malme et al. (1984) also found that gray whale response to impulsive sound occurred at received levels 30 to 50 dB more intense than their response to continuous sound. Weller et al. (2006a) found that whales swim away from the noise generated by air guns in seismic surveys off Sakhalin Island, Russia but returned to the areas once the noises ceased. In 2015, a number of

seismic surveys occurred near northeastern Sakhalin Island during the gray whale feeding season, with specific mitigation efforts (Aerts et al. 2022). Gailey et al (2022) found that gray whales exposed to seismic vessels and sounds temporarily changed their movement and respiration patterns, but the biological significance of these behavioral impacts is unknown.

Changes in distribution and acoustic responses were found during playback experiments in San Ignacio Lagoon in 1985 (Dahlheim 1987, reviewed in Schwarz 2002). Most whales abandoned the breeding lagoon apparently in response to the noise, although the whales returned and regularly inhabited this area in subsequent years (Jones et al. 1994).

In addition to altering swimming course and speed, gray whales exhibited abrupt behavioral changes in response to playback sounds and airgun blasts, including switching from feeding to avoidance, with a resumption of feeding after exposure (Malme et al. 1984), and changing calling rates, call structure, and surface behavior, usually from traveling to milling (Dahlheim 1987). Gray whales altered their vocalizations in response to outboard engine and oil drilling sounds, where four different measures of their calls were significantly higher than those measured in experimental conditions (Dahlheim 1987). Whales adapted their calls in response to the noise, essentially "shouting" and calling more frequently to offset the higher noise levels.

A recent study on the Oregon coast found that gray whales had elevated fecal glucocorticoid concentrations, a sign of stress, when more vessels were present the day prior (Lemos et al. 2022). Vessel counts were a significant predictor of underwater ambient noise, suggesting that elevated noise levels may be causing increased stress in the whales, detectable a day later (Lemos et al. 2022).

Technical studies conducted to assess the potential impacts of the U.S. Navy's use of low-frequency active sonar systems investigated the response of baleen whales to low-frequency active sonar signals. The research results confirmed that a portion of the total number of whales exposed to low-frequency active sonar responded behaviorally by changing their vocal activity, moving away from the source vessel, or both, but that the responses were short lived (Department of the Navy 2012). Migrating gray whales avoided exposure to low-frequency active sonar signals when the source was placed in the center of their migration corridor (e.g., Tyack 1999; 2009). In all cases, whales resumed their normal activities within 10s of minutes after the initial exposure to the sonar signal (Department of the Navy 2012).

Malme et al. (1989) prepared a disturbance-ranking scheme for oil and gas noise sources off Alaska. Modeling indicated that gray whales have a high probability of being influenced by noise

from oil and gas operations, including large tankers, dredges, and airgun arrays (Malme et al. 1988), but other studies indicated that the noisiest period of offshore oil and gas operations occurs during exploration and site establishment (Richardson et al. 1995). Production activities are generally quieter and require fewer support operations (Moore and Clarke 2002).

Specific gray whale reactions to whale-watching include changing course and altering their swimming speed and respiratory patterns when followed by whale-watching boats (Bursk 1989), but Jones and Swartz (1984) documented that gray whales in the San Ignacio Lagoon of Baja California become less likely to flee as the season progresses. Mother-calf pairs of gray whales are considered more sensitive to disturbance by whale-watching vessels than other age or sex classes (Tilt 1985). Gray whales also preferentially avoid low frequency active transmissions conducted in a landward direction (Tyack and Clark 1998). Reported gray whale reactions to aircraft vary and seem related to ongoing whale behavior and aircraft altitude (Moore and Clarke 2002).

Gray whale responses to scientific research are described in Subsection 3.4.3.5.3, Whale Response to Being Struck.

Anthropogenic disturbance could potentially lead to energetic loss in gray whales, resulting in fitness and population-level impacts. Bioenergetic models of gray whale energy needs and expenditure can document fitness impacts from lost energy. Under theoretical scenarios, Villegas-Amtmann (2015; 2017) determined the consequences of lost energy intake in gray whales, including survival and reproductive impacts. However, this work has not translated the modeled energetic loss to anthropogenic disturbance. A recent study simulated acoustic disturbance scenarios on gray whale summer foraging grounds in reproductive gray whale females (McHuron et al. 2021). The authors found that spatiotemporal dynamics of disturbance, relating to prey availability, were important factors in the level of individual and population level impacts.

3.4.3.6.6 Vessel Interactions

Whale-watching for gray whales is an important educational and recreational industry and activity along the west coast of North America, from the wintering grounds in the lagoons of Baja California to British Columbia, Canada, although most targeted gray whale whale-watching occurs in the winter range, where tourist boats offer trips to see (and sometimes pet) newly born gray whale calves and mothers. While most commercial whale watching off Washington and British Columbia is directed at killer whales (Hoyt 2001), commercial operations off Washington and British Columbia advertise trips for gray whales along the Pacific coast of Washington (out of Westport and La Push), inside Grays Harbor, the Strait of Juan de Fuca, northern Puget Sound,

and western Vancouver Island, British Columbia. The Oregon coast is a popular whale-watching destination to view members of the PCFG population that utilize the area for their summer feeding grounds. The activity of commercial whale-watching vessels and private recreational boats has raised concerns about its effect on gray whales. In response to these concerns, regulations are in place to minimize disturbance by vessels in Mexico, the United States, and Canada.

In Mexico, the government has applied whale-watching regulations to commercial operators since 1997 (Carlson 2012). There are currently regulations governing the numbers of boats and methods of approach for four specific whale-watching areas in the lagoons. There are no minimum approach distances, but boats cannot chase whales. The northern two-thirds of San Ignacio lagoon closes to whale watching and fishing activities during the breeding and calving season. In the southern third of San Ignacio lagoon (nearest the ocean), whale-watching tourism is closely regulated to allow access to only limited numbers of people (United Nations 1999). In Washington and British Columbia, NMFS and conservation organizations in the United States have teamed up with the Canadian government and conservation organizations to adopt 'Be Whale Wise' guidelines for vessels, kayaks, and other crafts used for watching whales (www.bewhalewise.org; 76 FR 20870, April 14, 2011; Department of Fisheries and Oceans [DFO] Canada 2012a). The guidelines, among other things, recommend that vessels keep a 100-yard (91.4-m) buffer between the vessel and the whale and recommend a slow approach speed of 7 knots within 400 yards (365.8 m) of whales. Washington State law imposes a 300-yard [274-m] approach limit on the side of killer whales, or 400 yards [366 m] in the path of killer whales in Puget Sound, but these regulations do not apply to gray whales.

Whale-watching along the migration route is not heavily regulated, and it has been suggested that this activity, in combination with commercial fishing and vessel operations, may cause gray whales to migrate further offshore (Wolfson 1977). Researchers conducted various studies on the reaction of gray whales to whale-watching vessels in winter on their wintering range and, to some extent, during migration (Urbán-Ramírez et al. 2003). Researchers have paid little attention to the northern portion of the summer range in the Bering Sea and adjacent Arctic Ocean because whale watching is largely undeveloped in those areas (Richardson et al. 1995). One study reported on the reaction of gray whales feeding off Vancouver Island during summer to whale watching vessels (Bass 2000). That study found that the number of vessels had a relatively small influence on gray whale feeding behavior and that effects of vessel presence are more pronounced in shallow water sites. In general, scientists remain cautious about drawing conclusions regarding

the magnitude of the effects of whale watching on gray whales (e.g., Gard 1974; Rice 1975; Reeves 1977; Jones et al. 1994; Urbán-Ramirez and Swartz 2007). That said, findings from a recent study (Sullivan and Torres 2018, discussed below) led to community-developed guidelines for vessels operating near gray whales that would minimize the amount of disturbance experienced by the whales while still maintaining a sustainable local whale-watching industry.

In the winter range, vessels in the lagoons can cause short-term escape reactions in gray whales, especially when boats move erratically or quickly (Ollervides 1997; Reeves 1977; Swartz and Cummings 1978; Swartz and Jones 1978; Swartz and Jones 1981). Bursk (1989) reported that gray whales often changed speed and deviated from their course when near whale-watching vessels. Observers noted that gray whales have also displayed evasive behavior termed snorkeling, where whales came to an almost complete halt to breathe in an inconspicuous manner. Ollervides (1997) found swimming speed decreased and vocalizations changed in response to the presence of boats in Bahia Magdalena. Mosig (1998) reported an inverse relationship between the average number of whale-watching vessels and the average number of gray whales in Laguna San Ignacio in the winter of 1997, but she could not demonstrate any direct effect of vessels on whales. Jones et al. (1994) concluded that whale watching activities were not the cause of the gray whale abandonment of San Ignacio lagoon in the mid-1980s. Observers noted that some gray whales were attracted or showed no response to quiet, idling, slow-moving, or anchored vessels, especially late in winter (Norris et al. 1983; Dahlheim et al. 1984; Jones and Swartz 1984; Jones and Swartz 1986; Richardson et al. 1995). During the course of all these studies, there has been no evidence of long-term impacts of whale-watching vessels on the behavior of gray whales in the lagoons on the wintering grounds (Gard 1974; Jones et al. 1994).

Along the migration route, including the southern portion of the summer range, whale-watching vessels can also cause short-term behavioral reactions in gray whales. Migrating whales disturbed by vessels tended to exhale underwater and surface only long enough to inhale before re-submerging (Hubbs and Hubbs 1967). Observers noted that migrating gray whales also changed course more often with increasing numbers of whale-watching vessels (Bursk 1983; Bursk, in Atkins and Swartz 1988). Heckel et al. (2001) found substantial differences in both speed and direction of the transit of migrating gray whales off Baja California with and without the presence of whale-watching vessels. Similarly, Schwartz (2002) found that gray whales off Point Loma, California, maneuvered to avoid whale watching boats; whales sped up when only one vessel actively followed them and slowed down when more than one vessel was in the vicinity. More recently, a study conducted during the summer of 2015 at two sites off the coast of Oregon found

that gray whales altered their activity budgets, notably the tendency to abandon food searching efforts, when vessels were present within 250 meters (Sullivan and Torres 2018), including motorized tour boats (whale-watching), fishing vessels, recreational, and kayaks. The authors found differences in activity budgets and behavior state transitions across the two sites, suggesting habitat differences (e.g. prey availability or vessel density) and/or variation in disturbance tolerance at different locations (Sullivan and Torres 2018). While these studies show migrating gray whales appear to react to whale-watching and other nearby vessels, there is no other evidence to suggest the whales have altered the location of their migration route due to their presence.

Whale-watching vessels regularly approach gray whales feeding in Clayoquot Sound, on the west coast of Vancouver Island, British Columbia, during summer. Whales responded to the vessels by changing their dive patterns by surfacing more frequently. While these changes appeared to be temporary when the vessels were present, these findings suggested some loss of foraging time for the whales (Bass and Duffus 1999; Bass 2000).

There have been two cases where it has been speculated that vessels and noise, in combination with other factors, may have affected long-term gray whale distribution. Between 1975 and 1978, aerial surveys by Dohl and Guess (1979) showed that about 60 percent of gray whales were using migration routes farther offshore than the coast routes they had traveled previously. They concluded that it was the result of an increase in the overall population of gray whales. Between 1964 and 1983, seismic activity in this region was substantial (Malme et al. 1984), but many suggest that increases in noise and vessel traffic in this region were the cause (Rice 1965; Hubbs and Hubbs 1967; Wolfson 1977; Schulberg et al. 1989 and 1991, as cited in Richardson et al. 1995; Mate and Urbán-Ramirez 2003). The second case focused on gray whales feeding in Clayoquot Sound off Vancouver Island. Duffus (1996) demonstrated a sequential increase in gray whale foraging locations away from the major whale-watching port of Tofino over a 3-year period. While it was not possible to determine if the whale watching vessels contributed to or caused this shift in gray whale distribution, Duffus suggests a risk-averse management approach to regulating vessel traffic in gray whale feeding areas.

Although the gray whale population is exposed to whale-watching vessels and other disturbances on the wintering grounds and along much of the migration route, it has demonstrated a tolerance and resiliency to whale-watching and other noisy human activities as reflected by the successful recovery of the population from over-exploitation (Cowles et al. 1981; Moore and Clarke 2002).

3.4.3.6.7 Activities Occurring in the Mexican Portion of the Range

Much of the coastal area surrounding the Baja lagoons and the gray whale wintering range is protected by law and limited access. In 1988, the Mexican government established El Vizcaino Biosphere Reserve, an area totaling 2,546,790 acres and encompassing Ojo de Liebre (Scammon's Lagoon), Guerreo Negro, and the San Ignacio Bay gray whale sanctuaries. Portions of the reserve, including San Ignacio and the Ojo de Liebre lagoons, were designated as United Nations Educational, Scientific, and Cultural Organization world heritage sites in 1993 (Urbán-Ramírez et al. 2003). In 2005, the Bay of Loreto National Marine Park, in the northern area of the Sea of Cortez, joined the list. In May 2002, all Mexican territorial seas and the EEZ were declared as a refuge for the protection of large whales. See Urbán-Ramírez et al. (2003) for additional information on formal protection of gray whales in Mexico. Whale watching is discussed above in further detail; other activities in the winter range that have been identified as future environmental concerns by ParksWatch of Mexico are discussed below.

Mineral and Salt Mining

Mining for minerals (such as copper, manganese, gypsum, cobalt, silica, and phosphorus) peaked in the last century in places like Santa Rosalia, creating soil erosion, contamination, pollution, and litter in the ocean. Large mining companies have since abandoned these sites, and the town is in economic decline (ParksWatch 2004). The largest saltworks in the world is, however, still operating at Guerrero Negro, where approximately 8 million tons (7.26 million metric tons) per year is extracted from the ocean through evaporation (ParksWatch 2004). The main threat posed by salt mining is the byproducts created by high salt concentrations (Geo-Mexico 2012).

In 1995, two large corporations proposed to expand industrial salt extraction by establishing a plant on the shores of San Ignacio Lagoon, Mexico. International and national concern arose as to whether the then-proposed salt plants would divert fresh water from pumping, produce and discharge toxic brine and other water-based pollutants into the lagoon waters, and spur further development, among other issues, potentially having adverse effects on the ecosystem and gray whales (e.g., Sullivan 2006). At the 52nd meeting of the IWC, Urbán-Ramírez (2000) reported the results of a study on the proposed saltworks project. In particular, he evaluated potential impacts on the gray whales that use this wintering area for breeding, calving, and calf rearing. According to his study results, the salt facility in San Ignacio would not harm gray whales. Nonetheless, on March 2, 2000, the government of Mexico cancelled the saltworks project. Conservation agreements negotiated between the Laguna San Ignacio Conservation Alliance and communal landowners have since placed 120,000 acres of land around the lagoon in a private

land trust, and more agreements are anticipated (Sullivan 2006). Thus, while the local people fish and provide ecotourism and whale-watching, it is reasonable to assume that the area will remain a sanctuary for wintering gray whales (Sullivan 2006).

Shore-Based Commercial Development in Bahia Magdalena

The growth of gray whale tourism in the North Zone of Bahía Magdalena led to a proposed Japanese-owned and financed tourist resort development at Bahía Magdalena (Dedina and Young 1995). Although NMFS identified this activity as a potential threat to the whales and their habitat in its 1999 gray whales status review (e.g., water quality degradation, increase in whale-watching tourism, etc.), there are currently no plans to proceed with this development (Rugh et al. 1999). In response to the popularity of whale watching as a tourist activity, local communities around Bahía Magdalena have developed local inns, guesthouses, and restaurants (Hoyt and Iñíguez 2008). No information is available about any proposals for large-scale shore-based commercial development in the area.

3.4.3.6.8 Ship Strikes

The nearshore migration route used by gray whales makes ship strikes a potential source of injury and mortality (Laist et al. 2001; Silber et al. 2021). Anecdotal data and strandings recorded by the Marine Mammal Stranding Network provide helpful, but incomplete, data on the occurrence, frequency, and significance of vessel-related whale deaths and injuries (Laist et al. 2001). Laist et al. (2001) suggests that most lethal or severe injuries are caused by large ships 263 feet (80 m) or longer and by ships traveling 14 knots or faster. From 1975 to 1980, there were reports of 12 collisions and 6 confirmed deaths of gray whales off the coast of southern California, and 7 of 489 gray whales stranded between Mexico and Alaska from 1975 to 1989 had apparent propeller injuries (Laist et al. 2001). Ferrero et al. (2000) reported five gray whale mortalities off California from ship strikes from 1993 to 1995, and one ship-strike mortality occurred off Alaska in 1997. Between 1999 and 2003, the California Marine Mammal Stranding Network reported four serious injuries or mortalities of gray whales caused by ship strikes, one each in 1999, 2000, 2001, and 2003 (Angliss and Outlaw 2005).

Based on the photo-identification catalog maintained for gray whales in the winter range, Urbán-Ramírez et al. (2003) reported that an estimated 2 percent (then about 1,600) of the whales had injuries (scars) from impact with a large keel or propeller. Additional mortality from ship strikes probably goes unreported because the carcasses sink at sea (i.e., the whales do not strand), the beached carcasses do not show obvious signs of ship strikes or the whales may not die when hit (Urbán-Ramírez et al. 2003). It is impossible to quantify the actual mortality of gray whales from

this source, and an annual mortality rate of one or two gray whales per year from ship strikes represents a minimum estimate (Scordino et al. 2020; Silber et al. 2021; see also Rockwood et al. 2017). Consistent with that estimate, Carretta et al. (2023) reported that for the most recent 5-year period, 2014-2018, the total serious injury and mortality of ENP gray whales attributed to ship strikes was 9 animals, or 1.8 whales per year. Most of these reported strikes occurred in California, while two occurred in Washington and two in Oregon. Seven of the whales were reported as dead, while the remainder were reported as having a serious injury. The total serious injury and mortality of gray whales due to vessel strikes in the area used by PCFG whales (based on season and range) during this same period was three animals (i.e., equivalent to 0.6 whales per year). A recent study mapped out vessel traffic density in the north Pacific to assess the overlap gray whale migration, wintering, and feeding grounds (Silber et al. 2021). The authors found the greatest risk of vessel strikes to occur during the migration route when gray whales are closer to shore and coinciding with larger shipping vessels, although commercial fishing also posed a risk (Silber et al. 2021).

3.4.3.6.9 Incidental Catch in Commercial Fisheries

Most data on human-caused mortality and serious injury of gray whales is from strandings (including at-sea reports of entangled animals alive or dead). Strandings represent only a fraction of actual gray whale deaths (natural or human-caused). Punt and Wade (2012) estimated that 3.9 to 13.0 percent of gray whales that die in a given year strand and are reported. Since 1978, a total of 12 entangled gray whales have been reported within the Makah U&A (NMFS 1995; Scordino and Mate 2011; NMFS 2013a; Carretta et al. 2014; Carretta et al. 2020). Of the gray whales entangled in the past 30 years, only one is known to have died and been used by the Tribe (NMFS 1995).[67] When entangled whales are sighted in the Makah U&A, tribal biologists typically work with other researchers and agencies (e.g., NMFS and the Cascadia Research Collective) to disentangle the animals. The Makah Tribe has assisted in several disentanglement efforts, including helping with two humpback whales in 2008 and 2010 (Cascadia Research Collective 2008; Cascadia Research Collective 2010a) and the successful disentanglements of gray whales in 2009 and 2013 (NMFS 2013a).

[67] In 2018, a humpback whale was killed by a ship strike and subsequently harvested for ceremonial and subsistence purposes. This is the only other time a stranded whale has been used by the Makah Tribe in the last 30 years. See https://www.seattletimes.com/seattle-news/whale-killed-by-ship-near-neah-bay-now-a-harvest-celebration-as-makah-nation-prepares-feast/.

NMFS recognizes 15 commercial fisheries in California, Oregon, Washington, and Alaska that use gillnet, trawl, or pot gear and that have caused incidental serious injuries or mortalities of gray whales (87 FR 55348, September 9, 2022). Serious injuries or mortalities have occurred in the Bering Sea, Aleutian Islands flatfish trawl and crab pot fisheries, as well as several pot fisheries in California, and the Dungeness crab pot fishery in Oregon and Washington.

Several Alaska and California set and drift gillnet fisheries have also caused gray whale mortalities or serious injuries. There have been five observed entanglements in the California/Oregon thresher shark/swordfish drift gillnet fishery from 1990-2018, including one from the most recent 5-year period of 2014-2018 (Carretta et al. 2023). In the more coastal California set gillnet halibut fishery there have been no observed entangled gray whales for the same time period, but there have been recent sightings of free-swimming gray whales entangled in gillnets (Carretta et al. 2023). NMFS observers monitored the Makah tribal set gillnet fishery from 1990 to 1998 and in 2000, reporting one gray whale taken in 1990 and one in 1995. One gray whale was entangled in a set gillnet during the 1995 fishery and was used by the Tribe after it died (NMFS 1995); another whale entangled in the 1996 fishery was released alive (Hill and DeMaster 1998).[68] In recent years, this set gillnet fishery has been reduced considerably and is currently restricted to the Strait of Juan de Fuca (Makah Fisheries Management 2012). Because of a lack of observer programs, mortality data from Canadian commercial fisheries is not available. Baird et al. (2002) estimated the annual mortality in Canadian fisheries to be approximately two whales.

Carretta et al. (2023) summarized the human-caused mortality and serious injury resulting from unknown fishery sources (predominantly pot/trap or net fisheries) for the most recent 5-year period of 2014 to 2018. Total observed human-caused fishery mortality and serious injury due to entanglement for ENP gray whales during this period was 9.3 whales per year. Total observed human-caused fishery mortality and serious injury due to entanglement in the area used by PCFG whales (based on season and range) for the same period was 1.1 whales per year.

3.4.3.6.10 Marine Energy Projects

Hydrokinetic projects generate electricity from waves or directly from the flow of water in ocean currents, tides, or inland waterways. Broadly, the technologies developed for this purpose are

[68] Another gray whale was found entangled in a tribal set gillnet in 2009 and swam away during disentanglement attempts (Scordino and Mate 2011; Carretta et al. 2014).

categorized as wave energy converters (e.g., buoys that translate vertical motion into energy) or rotating devices (e.g., underwater turbines).

WDFW (2006b) identified preliminary potential impacts of such projects to birds, fish, and marine mammals. They include, but are not limited to, direct mortality or injury from turbine blade strikes, interference with migratory patterns, measures to protect equipment from marine growth, direct habitat loss from equipment and infrastructure placement, impacts on currents, changes in water surface elevations, effects on commercial and recreational fishing areas and equipment, changes in sediment transport, and other issues not yet identified.

In December of 2007, FERC issued a license for a pilot wave energy project in Makah Bay, located in the Makah U&A andwithin the gray whale's migratory corridor. In 2009, the licensee surrendered the license, stating that the project had become uneconomical (HydroWorld 2009). In addition to this project, there are at least 30 others originally considered for placement along the Washington, Oregon, and California coasts that are now classified as defunct (PFMC 2013).

In August 2012, the Federal Energy Regulatory Commission (FERC 2012) issued a 35-year license for a 10-buoy, 1.5-megawatt wave energy project approximately 2.9 miles (4.6 km) off the Pacific coast near Reedsport, Oregon. In a review of the project, NMFS (2012b) determined that construction and installation of the buoy array would not result in any harassment or take of marine mammals that may be found in the area and are listed under the Endangered Species Act (specifically Southern Resident killer whales and humpback whales). In 2013, the licensee (Ocean Power Technologies) announced that the Reedsport project was being suspended because of regulatory, financial, and other considerations (Ocean Power Technologies 2013), and the project was abandoned in 2014 (Hunt and Cardwell 2014).

In March 2014, the FERC issued a 10-year pilot license for a proposed 600-kilowatt tidal project to be located in Puget Sound's Admiralty Inlet (FERC 2014). The project was intended primarily to be a research site to assess the commercial viability of tidal energy generation (using two tidal power turbines) and expected to operate for just 3 to 5 years. In reviewing the project, NMFS (2013b) determined that the proposed action was not likely to jeopardize the continued existence of ESA-listed marine species (including Southern Resident killer whales and humpback whales) nor likely to result in the destruction or adverse modification of designated critical habitat. In that review, NMFS also noted that any future development of this tidal energy project beyond the 10-year license period would be subject to separate review and authorizations. However, in September 2014, the project was cancelled due to funding constraints (Snohomish Public Utilities District 2014).

As of January 2023, there is only one FERC-licensed hydrokinetic project on the U.S. West Coast (FERC 2023). PacWave South Hydrokinetic (formerly known as Pacific Marine Energy Test Center South Energy Test Site Wave Test Center) is located on the Outer Continental Shelf of the Pacific Ocean, approximately 6 nautical miles off the coast of Newport, Oregon. In 2021, the Bureau of Ocean Energy Management (BOEM) issued a lease of the site to Oregon State University for marine hydrokinetic research activities at a proposed open ocean wave energy test center (86 FR 40620, July 28, 2021). FERC issued a license to Oregon State University for the construction, operation, and maintenance of the proposed test facility that would have a capacity of 20 megawatts. The PacWave South license is valid through February 2046. A second site, PacWave North, also operated by Oregon State University off the coast of Newport, Oregon, serves as a test site for small-scale, prototype technologies and is not grid-connected[69].

While there are several active preliminary permits under FERC for hydrokinetic projects in inland waters of Alaska (which allow developers to study the feasibility of proposed projects), there are no active or pending preliminary permits for projects on the coasts of Washington, Oregon, or California (FERC 2023) where gray whales could potentially travel.

3.4.3.6.11 Climate Change and Ocean Acidification

There is growing evidence indicating that the Arctic climate is changing significantly, and these changes are likely to directly or indirectly affect marine mammals. For example, Wang and Overland (2009 and 2012) reviewed several climate models to predict that the Arctic could be nearly free of summer sea ice sometime in the 2030s. As reported in the most recent NMFS stock assessment report (Carretta et al. 2023), this change in the Arctic ecosystem will impact, or already is impacting, gray whales. With past increases in numbers of gray whales (Rugh et al. 2005), in combination with changes in prey distribution (Grebmeier et al. 2006; Moore et al. 2007) and a reduction in the extent of sea ice cover in some regions (Johannessen et al. 2004), some gray whales have moved into new feeding areas, spreading their summer range (Rugh et al. 2001). These changes may also result in major mortality events (Stewart et al. 2023). Laidre et al. (2008) surmised that for gray whales and other species that feed in the Arctic during the summer, animals may start to arrive farther north at progressively earlier dates and compete directly with those species that live year-round in the Arctic. These authors developed an index of sensitivity of Arctic marine mammals to climate-induced change; species that were most sensitive included

[69] See https://pacwaveenergy.org/ for more information.

those that relied on sea ice and specialized feeding adaptations, such as polar bears, walrus, and narwhals. Gray whales are considered to be more opportunistic foragers (Moore and Huntington 2008), and projected short-term impacts on them are equivocal (Ragen et al. 2008).

Bluhm and Gradinger (2008) examined the availability of pelagic and benthic prey in the Arctic and concluded that pelagic prey is likely to increase while benthic prey is likely to decrease in response to climate change. They noted that marine mammal species that exhibit trophic plasticity (such as gray whales, which feed on both benthic and pelagic prey) will adapt better than trophic specialists. Moore and Huntington (2008) assessed the impacts of climate change on the resilience of Arctic marine mammals and observed that "gray whales are perhaps the most adaptable and versatile of the mysticete species" (but see Stewart et al. (2023)). They further noted that gray whales are dynamic and opportunistic foragers and cited recent and unexpected observations that some animals remain in northern waters (including the Beaufort Sea) year round. In their review of reported climate change impacts on gray whales, Salvadeo et al. (2013) cited the following as likely gray whale responses to global warming:

- Fewer whales in the Gulf of California.
- Increased numbers of mothers with calves along the California coast.
- Winter occurrence of whales on their feeding areas.
- Recolonization of the Atlantic Ocean by gray whales.
- Decrease in whale numbers in the breeding lagoons.

Several of these predictions have been realized in recent years coinciding with the current UME, including fewer whales in the Gulf of California, reduced number of whales in the breeding lagoons (LSIESP 2023), and shifting occurrence in feeding areas (Moore et al. 2022; Joyce et al. 2023).

Rising levels of carbon dioxide are expected to increase ocean acidification which in turn could also cause changes in the abundance and types of shell-forming organisms[70] (Fabry et al. 2008; Hall-Spencer et al. 2008), many of which are important in the gray whales' diet (Nerini 1984; Moore and Huntington 2008). Atmospheric carbon dioxide levels are currently rising at a rate roughly 100 times faster than at least the past 420,000 years, and approximately half of the anthropogenic CO_2 produced in the past 200 years has been absorbed by the oceans (Royal Society 2005). In 2005, the Royal Society convened a working group of international experts to

[70] The reaction of carbon dioxide with seawater reduces the availability of carbonate ions that calcifying prey organisms like amphipods need to create shells.

produce a report on ocean acidification as a result of increasing atmospheric carbon dioxide. One of the main conclusions regarding impacts on marine species was that:

> *"Organisms will continue to live in the oceans wherever nutrients and light are available, even under conditions arising from ocean acidification. However, from the data available, it is not known if organisms at the various levels in the food web will be able to adapt or if one species will replace another. It is also not possible to predict what impacts this will have on the community structure and ultimately if it will affect the services that the ecosystems provide. Without significant action to reduce CO_2 emissions into the atmosphere, this may mean that there will be no place in the future oceans for many of the species and ecosystems that we know today. This is especially likely for some calcifying organisms."*

Global climate change is also likely to increase human activity in the Arctic as sea ice decreases, including oil and gas exploration and shipping (Hovelsrud et al. 2008). Such activity will increase the chance of oil spills and ship strikes in this region. Gray whales have demonstrated avoidance behavior to anthropogenic sounds associated with oil and gas exploration (Malme et al. 1983; 1984; Gailey et al. 2022) and low-frequency active sonar during acoustic playback experiments (Buck and Tyack 2000; Tyack 2009). Some oceanographers (Hester et al. 2008; Brewer and Hester 2009) have reported that an unanticipated consequence of ocean acidification is a significant decrease in sound absorption because of various chemical interactions, in particular those involving forms of boron. The result is a "noisier ocean" where sounds travel farther, especially low frequency sounds used by marine mammals. These researchers reported that sound already may be traveling 10 percent farther in the oceans than it did a few hundred years ago and that it remains to be seen how marine mammals will adapt to the greater background noise. In contrast to these reports, subsequent modeling by Udovydchenkov et al. (2010) yielded results indicating that changes may be minimal; a few decibels of increase may occur in 100 years in some very quiet areas very far from noise sources, with small effects closer to noise sources.

In a recent review, Gulland et al. (2022) identified several impacts of climate change on marine mammals in U.S. waters, including fitness, ecological, and health impacts. While the review did not identify any studies that predicted climate effects on gray whales in U.S. waters, the authors did compile recent observational data reported by various researchers that suggests a climate link to gray whale body condition, mortality, and calf production (Gulland et al. 2022).

Recent work has identified that climate variables and sea ice cover are important predictors of gray whale distribution, phenology, and population dynamics. For example, Perryman et al.

(2021) found that the variability in calf production can be explained by climate indices and sea ice cover in the northern feeding grounds (Bering and Chukchi Seas) experienced by gray whales in the preceding year. In years with high sea ice cover in spring/early summer, northbound calf counts were lower the following year, suggesting access to prey during early gestation could be mediating this relationship (Perryman et al. 2021). Gailey et al. (2020) found a similar pattern for WNP gray whales in their feeding grounds off Sakhalin Island.

Gray whale abundance and distribution in northern feeding grounds also varies with sea ice cover and prey abundance. In a recent analysis, Joyce et al. (2023) found a negative relationship between gray whale counts and ice concentration in the northeast Chukchi Sea, along with absence in foraging hot spots during years with delayed ice break-up and during periods of dense ice cover. Further, the authors found that the onset of acoustic detection of gray whales had a strongly positive relationship with ice break-up date, meaning that gray whales arrive later to the foraging grounds when sea ice break-up is later (with a model-estimated lag time of 10-15 days) (Joyce et al. 2023). In various locations throughout the Bering and Chukchi Seas, Moore et al. (2022) found that gray whale calls were associated with winter sea ice retreat, and that gray whale distribution correlated with prey abundance and wind patterns that influence prey abundance.

Previous work has suggested that sea ice coverage prevents gray whales from accessing foraging habitats within the Pacific Arctic feeding grounds (Gailey et al. 2020; Perryman et al. 2021), thus delaying access to important infaunal and benthic prey following a long migration period during which limited feeding occurs (and resulting in reduced calf production; see above). Joyce et al. (2023) note, however, that there are significant departures from this trend. These include: a) calf production in 2013-2014 was high despite relatively high sea ice cover in the preceding years, and b) calf production in 2021 was relatively low (Stewart and Weller 2021b) despite very low sea ice cover. Joyce et al. (2023) posit an alternative, non-mutually-exclusive hypothesis, that suggests the lag between sea ice break-up and arrival at foraging hot spots allows for nutrient uptake by prey prior to consumption by gray whales. Further, as described in Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates, Stewart et al. (2023) found that both sea ice cover and crustacean biomass affect gray whale population dynamics, suggesting that sea ice cover is mediating a relationship between benthic prey communities and higher trophic level foragers.

While no studies have found a direct link between climate change and adult gray whale mortality, some have proposed that the ongoing UME is due to climate-related factors mediated by prey availability (also see Stewart et al. (2023)). Post-mortem studies of gray whale strandings from

the UME that was declared in 2019 have been equivocal, however. Raverty et al. (2020) and Fauquier et al. (2023) documented that some gray whales that stranded during 2019-2021 were emaciated or thin (16 whales with emaciation as the only postmortem finding out of 61 whales evaluated), although other causes of death were identified as well including vessel strikes (11 whales), predation (3 whales), and entanglement/entrapment (3 whales). Photogrammetry studies of gray whales in wintering lagoons in Mexico found elevated numbers of whales in poor body condition during early years of the UME (and the year prior) as compared to 2017 (Christiansen et al. 2021), which may have fitness-level effects. Additionally, the body condition of PCFG whales in Oregon during this same time period (2017-2019) appeared to have improved (despite the PCFG having overall lower body condition than whales wintering in Mexico) (Torres et al. 2022), providing more support for climate-related effects on ENP gray whale prey in the Pacific Arctic feeding grounds.

3.4.3.6.12 Marine Debris

A substantial body of evidence documents the negative effects of marine plastic debris on marine life, including whales (EPA 2011b; IWC 2013b). In 2013, 2014, and 2019, the IWC held Marine Debris Workshops to address the impacts of marine debris on cetaceans and their habitat (IWC 2013b; 2014d; 2020). ENP gray whales were one of three species considered a priority for research to determine the severity and location of impacts on individual whales and whale populations.

The most common threats of marine debris to whales are ingestion of and entanglement (EPA 2011b) in debris that has settled on the sea floor or accumulated at or near the water's surface. Gray whales can ingest debris while foraging or swimming. For example, a gray whale that stranded in West Seattle in April 2010 was found to have ingested a variety of manmade objects, including plastic bags, small towels, surgical gloves, sweat pants, plastic pieces, duct tape, and a golf ball (Cascadia Research Collective 2010b), but is not known if the items contributed to the death of the whale. Foraging gray whales can also inhale low-density plastics that become airborne at the water's surface (IWC 2013b). Problems associated with the ingestion of plastics by whales include the development of internal and external wounds, impairment of feeding capacity because of the buildup or blockage of the digestive system, decreased mobility and predator avoidance, and toxicity (Gregory 2009; EPA 2011b; IWC 2020).

Plastic debris in particular is a widespread problem, making up 50 to 80 percent of beach litter, floating marine debris, and waste on the sea floor (Barnes et al. 2009). In 2012, more than 300 million tons of plastic were produced globally, less than half of which was recycled or consigned

to landfills (Rochman et al. 2013). Large patches of plastic debris have been observed in the North Pacific Ocean where currents form a gyre that collects floating materials (EPA 2011b). Studies based on satellite-derived information and ocean circulation models, and confirmed by flight observations, show that the largest debris concentration in the North Pacific occurs along a southwest-to-northeast line north of the Hawaiian Islands between 23° N and 37° N latitude (EPA 2011b) and is accumulating plastics more rapidly than previously thought (Lebreton et al. 2018). The distribution of marine debris is dependent on the distribution of sources of the debris (e.g., urban areas, tourist beaches, shipping routes, fishing grounds) and oceanographic processes (Howell et al. 2012; IWC 2013b). For example, microplastics (i.e., plastic particles smaller than 0.04 inch [1 mm]) are 2.5 times more abundant in coastal marine areas that receive sewage than areas that do not (Browne et al. 2011). A recent study quantified microparticle loads in gray whale prey and fecal matter off the Oregon coast (Torres et al. 2023). While estimated daily consumption rates of microparticles were high, toxicity and health consequences are unknown.

The potential toxicity of plastic debris is a growing concern (NOAA 2023). Pollutants in seawater adhere to and become concentrated on small particles of plastic (Ashton et al. 2010; Rios et al. 2010; Andrady 2011), which can subsequently be ingested or inhaled by whales. Mato et al. (2001) found the concentration of PCBs on plastic resin pellets to be 100,000 to 1,000,000 times that of surrounding waters. Other pollutants that may be concentrated on plastic debris include polyethylene, polypropylene, phthalates, and other persistent organic pollutants (IWC 2013b; 2019). Persistent organic pollutants are synthetic organic compounds that have a wide range of chronic effects, including endocrine disruption, mutagenicity, and carcinogenicity (Rios et al. 2007). Furthermore, these pollutants are chemically stable, meaning they are not easily degraded in the environment or in organisms (Rios et al. 2007). The impacts on baleen whales of ingesting toxins in plastic debris are largely unknown (IWC 2020). However, the presence of phthalates in the blubber of stranded fin whales in the Mediterranean Sea provides evidence for the consumption and metabolism of plastics by cetaceans (Fossi et al. 2012; IWC 2013b).

In addition to ingesting or inhaling small particles of marine debris, gray whales can become entangled in larger debris. Debris such as derelict fishing gear (e.g., nets, rope, monofilament fishing line, traps, pots, floats, buoys) can entangle and injure animals or interfere with their ability to pursue food. As noted in Subsection, 3.4.3.6.9, Incidental Catch in Commercial Fisheries, and Subsection 3.10.3.5.2, Makah Subsistence Consumption, gray whales encounter and sustain injury from a variety of fishing gear, including derelict gear. Gray whales and humpback whales are the most commonly reported entangled large whale species along the U.S.

west coast (IWC 2013b; Saez et al. 2013; NMFS 2022a). Whale entanglements on the U.S. west coast are reported from opportunistic on-water sightings (e.g., NOAA's 1-800-SOS-Whale reporting hotline), stranding records, and commercial fishery observers, but there is no formal reporting infrastructure for entanglements (IWC 2013b). As a result, and in light of the cryptic nature of entanglement events, the numbers of entanglements are likely underreported (Read et al. 2006; IWC 2013b). Based on reported observations of mortality and serious injury from entanglement in fishing gear from 2014 to 2018, Carretta et al. (2023) reported that 2 gray whales were killed or seriously injured from marine debris entanglements, or an estimated 0.4 deaths or serious injuries each year. Some of the strandings (see in Subsection 3.4.3.1.7, Strandings), may be related to marine debris, but the cause of death for most stranded whales is unknown. Notably, 48 marine mammals were found dead in derelict gillnets recovered from Puget Sound and the U.S. portions of the Strait of Juan de Fuca and Strait of Georgia from 2002 through 2013, none were gray whales (Northwest Straits Foundation 2013).

On March 11, 2011, a devastating 9.0 earthquake and tsunami struck Japan, causing significant loss of life and property and washing out an estimated 5 million tons of debris into the North Pacific Ocean. While most of the debris sank near Japan, approximately 30 percent floated away and 635 metric tons of debris was removed from the shores of Alaska, Hawaii, Washington, Oregon, and California over the next several years (NOAA 2013; 2022). There have been approximately 1,900 debris sighting reports coming to the NOAA reporting and tracking system, with 67 percent of reports from shore-based observations (NOAA 2015). Several items found have confirmed connections to the Japan tsunami, including vessels, buoys, sports balls, floating piers, and a motorcycle in a container. Other types of debris that could wash up include buoyant items, such as fishing nets, lumber, or cultural items. Because marine debris is a persistent problem originating from many sources around the Pacific, it's very difficult to tell where debris came from without unique identifying information.

3.5 Other Wildlife Species

3.5.1 Introduction

Various marine mammals and birds inhabit the action area, with the highest use during late spring through early fall and the lowest use during winter (NOAA 1993). Thirty species of marine mammals and 109 species of marine birds have been recorded in the action area (NOAA 1993). Of these species, nine mammal species (Guadalupe fur seals, Southern Resident killer whales, WNP gray whales, Central America and Mexico DPS humpback whales, sperm whales, fin whales, blue whales, sei whales, and North Pacific right whales) (Table 3-16) and two bird

species (marbled murrelets and short-tailed albatross) are listed under the ESA as threatened or endangered. Four federally listed reptiles (leatherback sea turtles, green sea turtles, loggerhead sea turtles, and olive ridley sea turtles) also can occur in the area (Plotkin 1995). One marine mammal (sea otter) not listed under the federal ESA is listed as endangered by Washington State.

3.5.2 Regulatory Overview

Various federal, state, and local regulations address the protection of threatened, endangered, and sensitive wildlife in the action area. Table 3-15 lists regulations for wildlife. In most cases, city and county regulations reflect WDFW recommendations. For a detailed description of NMFS' management of marine mammals (including, but not limited to, gray whales), see Subsection 3.4.2.1, Marine Mammal Protection Act Management.

With regard to disturbance of marine wildlife, MMPA prohibits (with some exceptions) the harassment of marine mammals in U.S. waters. The 1994 amendments to the MMPA defined harassment (Level B) as any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. Loud, continued noises could be considered harassment to wildlife, particularly to marine mammals that use sound to communicate.

To protect nesting seabirds and marine mammals from noise and physical disturbance from low-flying aircraft, OCNMS prohibits flying motorized aircraft less than 2,000 feet (610 m) over certain areas of the Sanctuary. These restrictions are described in greater detail in Subsection 3.1.1.1.2, Designation [of the OCNMS] and Regulatory Overview. The restrictions were finalized with a final rule published by NOAAion (77 FR 3919, January 26, 2012). In addition, the Sanctuary has made increasing voluntary compliance with this regulation a major priority (Galasso 2005). Notably, data collected by University of Washington researchers studying marine birds at Tatoosh Island were used to conduct an enforcement action against a helicopter pilot and contracting passenger (Parrish et al. 2005).

Table 3-15. Federal, state, and local regulations for protected wildlife.

Regulation	Overseeing Agency	Wildlife Species and Habitats Addressed
Federal		
Marine Mammal Protection Act (MMPA)	NMFS and USFWS	All marine mammal species. See Subsection 1.2.3, Marine Mammal Protection Act, for a description of the MMPA.
Whaling Convention Act (WCA)	NMFS	All cetacean species. See Subsection 1.2.4, Whaling Convention Act, for a description of the WCA.
Endangered Species Act (ESA)	USFWS and NMFS	All federally listed threatened and endangered species and critical habitats. Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.
Migratory Bird Treaty Act and Executive Order 13186	USFWS	Most migratory birds. The act provides that it is unlawful to pursue, hunt, take, capture, or kill these birds.
Bald Eagle Protection Act and Eagle Protection Act	USFWS	Bald eagle (and golden eagle). The act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions.
Olympic Coast National Marine Sanctuary regulations, 15 CFR Part 922, Subpart O	NOAA, National Marine Sanctuary Program	Marine mammals, sea turtles, seabirds, and their habitats. The regulations prohibit take of these wildlife, except as authorized by the ESA, MMPA, Migratory Bird Treaty Act, or pursuant to any relevant Indian treaty, provided that the treaty is exercised in accordance with the ESA, MMPA, and Migratory Bird Treaty Act, to the extent that they apply. These regulations prohibit flying motorized aircraft at less than 2,000 feet (610 m) elevation both above the sanctuary and within 1 nautical mile (1.9 km) of the Flattery Rocks National Wildlife Refuge or within 1 nautical mile (1.9 m) seaward from the coastal boundary of the sanctuary, with limited exceptions.
State		
Washington State Endangered Species Act, Washington Administrative Code 232-12-297	WDFW	All state-listed threatened, endangered, and 'state sensitive' species. Associated recovery plans provide guidelines on management of these species.
Local		
Clallam County Critical Areas Ordinance No. 709, 2001	Clallam County	Habitat for threatened, endangered, and other sensitive species. Provides general guidance. Also provides specific buffers for bridge construction and other projects that are not relevant to the action alternatives.

3.5.3 Existing Conditions

The following discussion is divided into three primary topics. It focuses on establishing a baseline of information for addressing issues of concern including noise, disturbance, and other perturbations that may affect marine wildlife. Subsection 3.5.3.1 describes the marine mammal species that are known to occur in the action area. Subsection 3.5.3.2 provides an overview of other marine wildlife species in the action area. Both sections address ESA-listed species as well as other species in the action area. Subsection 3.5.3.3 discusses the sensitivity of marine mammals and other wildlife species to noise and other disturbance both above and below the surface of the water.

3.5.3.1 Marine Mammals

Table 3-16 lists 30 species of marine mammals that breed within, rest within, or migrate through the waters off the Washington coast (NMFS 1992b; NOAA 1993). Descriptions of state and federal threatened or endangered species followed by common and then, to a lesser extent, uncommon species are provided in this section. Full descriptions of these species are in Young et al. (2023), Carretta et al. (2023), Haley (1986), Perrin et al. (2002), and Nowak et al. (2003), with specific information on their use off the Washington coast by Brueggeman et al. (1992), Calambokidis et al. (2004b), Green et al. (1993), Jeffries et al. (2012), and Oleson et al. (2009).

Table 3-16. Marine mammals that occur along the Washington coast and their federal/state status.

Species	*Scientific Name*	Occurrence	Primary Habitat	Primary Prey	Season(s) Present	Federal/ State Status
Harbor seal	*Phoca vitulina*	Common	Coastal/ continental	Fish	Year-round	
California sea lion	*Zalophus californianus*	Common	Coastal/shelf	Fish	Summer/ spring	
Steller sea lion	*Eumetopias jubatus*	Common	Coastal/shelf	Fish	Year-round	Federally delisted
Northern elephant seal	*Mirounga angustirostris*	Common	Shelf/slope	Fish/squid/ crab	Summer/fall	
Northern fur seal	*Callorhinus ursinus*	Common	Offshore/ slope	Fish/squid	Year-round	Federally depleted
Guadalupe fur seal	*Arctocephalus townsendi*	Uncommon	Offshore/ slope	Fish/squid	Year-round	Federally threatened
Dall's porpoise	*Phocoenoides dalli*	Common	Shelf/slope/ offshore	Fish	Year-round	
Harbor porpoise	*Phocoena phocoena*	Common	Shelf	Fish/squid	Year-round	State Candidate Species
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	Common	Slope/ offshore	Fish	Year-round	
Northern right whale dolphin	*Lissodelphis borealis*	Common	Slope/ offshore	Fish/squid	Year-round	
Common dolphin	*Delphinus delphis*	Rare	Offshore	Squid/fish	Unknown	
Striped dolphin	*Stenella coeruleoalba*	Rare	Shelf/offshore	Fish/squid/ zooplankton	Unknown	
Risso's dolphin	*Grampus griseus*	Common	Slope	Squid	Year-round	
Killer whale[1]	*Orcinus orca*	Common	Shelf/slope	Fish/marine mammals	Year-round	Federally/state endangered[1]
False killer whale	*Pseudorca crassidens*	Rare	Offshore	Fish	Unknown	
Pilot whale	*Globicephala macrorhynchus*	Rare	Shelf/offshore	Fish/ octopus	Unknown	
Pygmy sperm whale	*Kogia breviceps*	Rare	Offshore	Octopus/ fish/squid	Unknown	

Species	*Scientific Name*	Occurrence	Primary Habitat	Primary Prey	Season(s) Present	Federal/ State Status
Gray whale[2]	*Eschrichtius robustus*	Common	Coastal/shelf	Crustaceans	Year-round	State sensitive; ENP = Federally delisted; WNP = Federally endangered[2]
Humpback whale[3]	*Megaptera novaeangliae*	Common	Shelf/slope	Zooplankton/ fish	Spring to fall	State Endangered, Central America DPS= Federally endangered, Mexico DPS= Federally threatened, Hawaii DPS = Federally delisted[3]
Sperm whale	*Physeter macrocephalus*	Common	Slope/ offshore	Squid/fish	Spring to fall	Federally/state endangered
Minke whale	*Balaenoptera acutorostrata*	Uncommon	Shelf	Fish/squid	Year-round	
Fin whale	*Balaenoptera physalus*	Uncommon	Slope/ offshore	Fish/ zooplankton	At least winter	Federally/state endangered
Blue whale	*Balaenoptera musculus*	Rare	Slope/ offshore	Zooplankton	Unknown	Federally/state endangered
Sei whales	*Balaenoptera borealis*	Rare	Offshore	Zooplankton	Unknown	Federally/state endangered
Right whale	*Balaena glacialis*	Rare	Shelf	Zooplankton	At least spring	Federally/state endangered
Baird's beaked whale	*Berardius bairdii*	Rare	Shelf/offshore	Squid/ octopus/fish	At least fall	
Cuvier's beaked whale	*Ziphius cavirostris*	Rare	Offshore	Squid/fish	Unknown	
Stejneger's beaked whale	*Mesoplodon stejnegeri*	Rare	Offshore	Squid/fish	Unknown	
Sea otter (Washington stock)	*Enhydra lutris kenyoni*	Common	Coastal	Invertebrates	Year-round	State threatened

[1] NMFS has listed the Southern Resident killer whale population as endangered. Transient and offshore killer whales are not listed under ESA, but occur in the action area.

[2] The ENP stock of gray whales – the subject of the Makah waiver request – was delisted in 1994. The WNP stock is currently listed as endangered under the ESA and depleted under the MMPA (refer to Subsections 3.4.3.2.4, WNP Status, Carrying Capacity, and Related Estimates and 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates).

[3] NMFS revised the ESA listing of humpback whales in 2016 based on a global status review that identified 14 distinct population segments. As a result, the Central America DPS was listed as endangered, the Mexico DPS was listed as threatened, and the Hawaii DPS was delisted (81 FR 62259).

Source: Haley 1986; Calambokidis et al. (2004b); Brueggeman et al. (1992); Green et al. (1993); Carretta et al. (2006); Anglis and Outlaw (2005); Young et al. 2023; Carretta et al. (2023).

3.5.3.1.1 ESA-listed Marine Mammal Species

Killer Whale

There are three ecotypes of killer whales in the North Pacific Ocean: resident, transient, and offshore whales (Bigg et al. 1990; Ford et al. 2000). Resident killer whales (Northern and Southern ecotypes) congregate in relatively large groups in coastal areas where they forage primarily on fish. Transient killer whales, whose range extends over a broader area, primarily hunt marine mammals (Krahn et al. 2004; Baird et al. 1992). Three transient killer whale stocks are recognized within the Pacific U.S. EEZ: 1) the Gulf of Alaska, Aleutian Islands, and Bering Sea transient stock, occurring primarily from Prince William Sound through the Aleutian Islands and Bering Sea; 2) the AT1 transient stock, occurring in Alaska from Prince William Sound through the Kenai Fjords; and 3) the West Coast transient stock, occurring from California through southeast Alaska (Young et al. 2023). The West Coast Transient stock has a minimum population estimate of 349 animals with a PBR of 3.5 animals (Young et al. 2023). Transient pods are usually smaller than resident pods, and they typically have different dorsal fin shapes and saddle patch pigmentation than resident pods. Little is known about offshore killer whales, but their groupings are large. They range from Mexico to Alaska and are presumed to feed primarily on fish (Ford et al. 2000; Krahn et al. 2002; Krahn et al.2004). All three ecotypes of killer whales, including Southern and Northern Residents, were seen each year during ship surveys and detected at acoustic monitoring sites off the outer coast of Washington from August 2004 through September 2008 (Oleson et al. 2009). Oleson et al. (2009) reported 6 sightings of 51 animals; all of the groups sighted had fewer than 15 animals. More recently, killer whales (Southern Residents and transients) were encountered off Washington State during small boat surveys conducted in the spring of 2011 and 2012 (Jeffries et al. 2012). They reported 2 sightings of 13 animals in 2011, and 3 sightings of 9 animals in 2012. Killer whales were widely distributed across different habitats; animals were sighted both close to and far from shore and in fairly shallow and deep water.

As summarized by Carretta et al. (2023), most sightings of the Eastern North Pacific Southern Resident stock of killer whales have occurred in the summer in inland waters of Washington and southern British Columbia. Pods belonging to this stock have, however, also been sighted in coastal waters off southern Vancouver Island and Washington, especially between Grays Harbor and the Columbia River (Ford et al. 2000; Hanson et al. 2013; Emmons et al. 2021). Although less is known about the whales' coastal habitat use, recent acoustic studies, satellite tagging, and opportunistic sightings suggest that Southern Residents spend almost all of their time within 34

km of shore in water shallower than 200 m (Hanson et al. 2017), from Cape Flattery, Washington, to Point Reyes, California (Hanson et al. 2013). Of the three pods that compose this stock, one (J) is commonly sighted in inshore waters in winter, while the other two (K and L) apparently spend more time offshore (Ford et al. 2000; Hanson et al. 2017). In 1993, the three pods composing this stock totaled 96 killer whales (Carretta et al. 2023). The population increased to 99 whales in 1995, then declined to 79 whales in 2001, and recently numbered 74 whales in 2021 (Ford et al. 2000; Carretta et al. 2023). The minimum population estimate for the eastern North Pacific Southern Resident stock of killer whales is 74 animals with a PBR of 0.13 whales per year (Carretta et al. 2023). The Southern Residents primarily feed on salmon returning to rivers in Washington and southern British Columbia.

NMFS listed the Southern Resident killer whale distinct population segment as endangered in 2005 (70 FR 69903, November 18, 2005). Listing factors included reduced quantity and quality of prey, persistent pollutants that could cause immune or reproductive system dysfunction, oil spills, and noise and disturbance from vessel traffic. Additionally, the small size of this stock makes it potentially vulnerable to inbreeding that could cause a major population decline (70 FR 69903, November 18, 2005). In November 2006, NMFS designated critical habitat for the Southern Resident killer whales (71 FR 69054, November 29, 2006). This designation includes approximately 2,500 square miles (6,475 sq. km) of Puget Sound, including the entire Strait of Juan de Fuca in the action area. Areas with water less than 20 feet (6.1 m) deep are not included in the designation. NMFS revised the critical habitat designation for Southern Residents in 2021 to include 15,910 square miles (41,207 square km) of marine waters between the 20-foot (ft) (6.1-meter (m)) depth contour and the 656.2-ft (200-m) depth contour from the U.S. international border with Canada to Point Sur, California, excluding one area around the Quinault Range Site (86 FR 41668). The primary constituent elements for the Southern Resident killer whale critical habitat are 1) water quality to support growth and development; 2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and 3) passage conditions to allow for migration, resting, and foraging.

Humpback Whale

In 2015, NMFS completed a global status review of humpback whales (Bettridge et al. 2015) and, in 2016, revised the ESA listing to identify 14 DPSs (81 FR 62259, September 8, 2016). Of these, three are found in the Makah U&A: Central America (endangered), Mexico (threatened), and Hawaii (not listed). NMFS also evaluated the stock structure of humpback whales under the

MMPA and revised the stock definitions in the stock assessment reports (Carretta et al. 2023). There are two humpback whale stocks recognized in the North Pacific region stock assessment reports and one in the Alaska stock assessment reports that occur in the action area: (1) the Central America/Southern Mexico – California-Oregon-Washington (CA-OR-WA) stock, (2) the Mainland Mexico – CA-OR-WA stock, and (3) the Hawai'i stock.

Humpback whales filter-feed on small crustaceans (mostly krill) and small fish. Physical features facilitate formation of near-surface aggregations of humpback prey species (Tynan et al. 2005, Santora et al. 2011) and are, thus, likely to also influence humpback whale distributions (Bettridge et al. 2015). For example, extensive aerial surveys conducted off the coasts of Washington and Oregon from April 1989 to October 1990, indicated that the whales were particularly clustered along the southern edge of Heceta Bank off of Oregon and in the steeply sloped waters associated with submarine canyons off of Washington (Astoria, Grays, and Nitinat Canyons) (Green et al. 1992).

The primary wintering area for the Central America/Southern Mexico – CA-OR-WA stock includes the Pacific coasts of Nicaragua, Hondursa, El Salvador, Guatemala, Panama, Coasta Rica, Michoacán, and Colima. Individuals from this stock are primarily found in California and Oregon in the summer season, with only a few sightings in the Washington/southern British Columbia feeding areas (Carretta et al. 2023). Curtis et al. (2022) estimate the size of this population at 1,496 (CV=0.171) with a minimum abundance estimate of 1,284 whales using photographic capture-recapture methods between 2019 and 2021. This is almost double the 2004-2006 estimate that excludes whales from southern Mexico (Wade 2021). The PBR for this stock is estimated to be 5.2 whales per year (Carretta et al. 2023).

Mainland Mexico – CA-OR-WA stock humpback whales winter in Nayarit, Jaliso, Colima, and Michoacán, while their main summering areas include U.S. and Canadian West Coast waters from Calfornia to Alaska. This is the humpback whale stock that most commonly occurs in the action are during the summer (Wade 2021). Curtis et al. (2022) estimate the abundance of the Mainland Mexico – CA-OR-WA as the difference between the number of whales wintering in southern Mexico and Central America (i.e. the whales that make up the Central America/Southern Mexico – CA-OR-WA stock) and a recent estimate of total abundance of humpback whales in the U.S. West Coast EEZ from mark-recapture data (Calambokidis and Balrow 2020). This yields an abundance estimate of 3,477 anmals (CV=1.01). This may be an underestimate, as Calambokidis and Barlow (2020) did not include photographs of humpback whales off the coast of Washington, however there is movement of these whales between

Washington, Oregon, and California. Therefore, the estimate likely does include those individuals (Carretta et al. 2023). The minimum population estimate for this stock is 3,185 whales, with a PBR of 65 whales per year (Carretta et al. 2023).

The Hawai'i stock is composed of the combination of the Hawai'i – Southeast Alaska/Northern British Columbia DIP and the Hawai'i—North Pacific unit (Young et al. 2023). Whales in the Hawai'i – Southeast Alaska/Northern British Columbia DIP winer off Hawai'i and summer in Southeast Alaska and Northern British Columbia (Wade et al. 2021). There are a small number of individuals that migrate between Hawai'i and Southern British Columbia/Washington, but it is unlcear which unit within the stock these whales belong to (Wade 2021). The best current estimate of abundance for this stock is 11,278 (CV=0.56) with a minimum abundance estimate of 7,265 whales and a PBR of 127 whale per year (Young et al. 2023).

Members of the threatened Mexico DPS are also found in the Mainland Mexico – CA-OR-WA and Hawai'i stocks. The Mexico DPS breeds along the Pacific coast of Mexico and the Revillagigedo Islands; it feeds across a broad range from California to the Aleutian Islands (81 FR 62259, September 8, 2016). The Mexico DPS has been estimated to have an abundance of about 2,913 whales based on data collected in 2004-2006 (CV= 0.066, Wade 2021).

The Southern Mexico- CA-OR-WA stock includes whales from Central America DPS. This population breeds along the Pacific coast of Central America; the population feeds off the west coast of the United States and southern British Columbia (81 FR 62259, September 8, 2016). It is estimated that most Central America DPS whales use California-Oregon waters for feeding (NOAA 2016; Wade et al. 2016; Wade 2021). In terms of distribution across their foraging range, these whales are significantly more common in waters of southern California and occur in increasingly lower numbers off the coast of Washington and Southern British Columbia (Steiger et al. 1991; Calambokidis et al. 2000, 2008, 2017). This distribution pattern was also confirmed by the results of the SPLASH study, which indicated that out of 29 between-season photo-identification matches of whales from the Central America breeding areas, 26 occurred within the California/ Oregon feeding area and 3 occurred within the northern Washington/ southern British Columbia area (Barlow et al. 2011). Bettridge et al. (2015) note that use of the Salish Sea by this DPS may be extremely limited and has been indicated by the single re-sighting reported in Calambokidis et al. (2017). The Central America DPS has been most recently estimated to include about 755 whales based on data collected in 2004-2006 (CV = 0.242) (Wade 2021).

Humpbacks are generally seen off the coast of Washington from May to November, although they have also been seen earlier in the spring and later in the winter (Shelden et al. 2000) with the

highest numbers in June and July. A recent survey conducted along the west coasts of Vancouver Island, the United States, and northern Mexico from June through November of 2018 recorded 179 sightings of 578 animals off the coast of Washington (Henry et al. 2020). Calambokidis et al. (2004b) reported sightings of humpback whales during ship surveys conducted from 1995 to 2002 off the northern Washington coast within the boundaries of the OCNMS. Humpbacks were the most common species seen, with 232 sightings of 402 animals and more than 191 unique individuals; the largest numbers were seen in 2002 when there were 79 sightings of 139 individuals. Group sizes ranged from one to eight animals. Only six calves were recorded from the ship surveys, probably because it was difficult to identify calves at the distance at which most sightings occurred. Sightings were concentrated between Juan de Fuca Canyon and the outer edge of the continental shelf, an area called the Prairie. A small area east of the mouth of Barkley Canyon and north of Nitnat Canyon where the water was approximately 410 to 475 feet (125 to 145 m) deep had numerous sightings in all years. Smaller numbers of humpback whales were also seen on Swiftsure Bank. Wade (2021) used a mark recapture model as well as photo-identification data to estimate abundance within the winter and summer areas of the North Pacific sampled in the 2004-2006 SPLASH project, as well as estimate migration rates between these areas. NMFS used these results to estimate mixing ratios of the three DPSs present in Washington coastal waters. The relative probability that an encountered humpback on the Washington coast would be from the non-listed Hawaii DPS, threatened Mexico DPS, or endangered Central America DPS is 69 percent, 25 percent, and 6 percent, respectively (NMFS 2021a).

Sperm Whale

The sperm whale is listed as endangered throughout its range (35 FR 8491, June 2, 1970). Sperm whales are widely distributed in the pelagic regions of the North Pacific Ocean where they prey on deepwater squid (Gosho et al. 1984). Sperm whales breed in the lower latitudes (south of 40° N) in winter and then migrate northward to summer feeding areas. Whaling records indicate that about eight sperm whales were harvested annually by whalers at the Bay City, Washington whaling station during its 15 years of operation in the early 1900s, suggesting that sperm whales were regularly present off the coast at that time. Ship surveys by Jeffries et al. (2012) from 2011 and 2012, Oleson et al. (2009) from 2004 to 2008, and Calambokidis et al. (2004b) from 1995 to 2002 recorded no sperm whales. However, sperm whales were heard in all months of the year from 2004 to 2008 at the offshore acoustic monitoring station off the outer Washington coast (Oleson et al. 2009). In surveys Brueggeman et al. (1992) conducted, 24 groups of 36 sperm whales were recorded off the Oregon and Washington coasts. Most were encountered in the

deeper offshore waters except for a relatively small number found in continental slope waters. Brueggeman et al. (1992) observed sperm whales during spring through fall, but not in winter. The highest single-day count was 13 sperm whales in September 1990. Green et al. (1993) reported seven sperm whales in five groups off the Oregon and Washington coasts between March and May. The most recent estimate of abundance for the California/Oregon/Washington stock is 1,997 sperm whales; the minimum population estimate is 1,270 animals with a PBR of 2.5 whales per year (Carretta et al. 2023). The population abundance for the California/Oregon/Washington stock appears to have been rather variable and does not show any obvious trends. The information indicates that relatively small numbers of sperm whales are present in the deep waters off the Washington coast from spring through fall.

Fin Whale

The fin whale is listed as endangered throughout its range (35 FR 8491, June 2, 1970). Three stocks are generally recognized off the United States west coast: the California/Oregon/Washington stock, the Hawaii stock, and the Northeast Pacific stock (Carretta et al. 2023). Fin whales of the California/Oregon/Washington stock are year-round residents off the coast of California; they summer off the Oregon coast and may pass by the Washington coast. They are a pelagic species, seldom found in waters shallower than 656 feet (200 m). During 2011 and 2012 ship surveys off the Washington and Oregon coasts, Jeffries et al. (2012) reported seven sightings of 13 animals. From 2004 to 2008, Oleson et al. (2009) reported one sighting of two animals along the outer Washington coast during ship surveys. Ship surveys by Calambokidis et al. (2004b) from 1995 to 2002 indicated no fin whales. Aerial surveys Brueggeman et al. (1992) conducted off the Oregon and Washington coasts indicated 13 groups of 27 fin whales between June and January. All of the fin whales were observed off the Oregon coast, with all but five whales in waters on the continental slope (656 to 6,562 feet [200 to 2,000 m] deep). The whales that were not observed in continental slope waters included two seen about 124 miles offshore in November and three viewed on the continental shelf just south of the Columbia River in January. The former group was traveling south, suggesting they were migrating back to the wintering grounds. Except for these two groups of whales, all the other whales were observed during June and July. No calves were observed with any of the whales. Green et al. (1993) reported sighting two fin whales during aerial surveys off the coast of Oregon and Washington between March and May in 1992, but did not report the location. An estimated 3,044 fin whales occur off the coasts of California, Oregon, and Washington during summer and fall, based on shipboard surveys in 2005 by Forney (2007) and in 2008 by Barlow (2010). A best-estimate of abundance of 11,065

animals was derived from a species distribution model using 1991-2018 line-transect survey data. The minimum population estimate from the 2018 estimate is 7,970 whales with a PBR of 80 whales per year (Carretta et al. 2023).Fin whales can be distinguished from other mysticetes (baleen whales, such as gray, humpback, sei, bowhead, and fin whales) by distinct coloration on the head. The pigmentation differs on the left side and right side, as well as on the dorsal and ventral surface. On the left side, both the dorsal and ventral surfaces are dark slate. On the right side, the dorsal surface is gray and the ventral surface is white (Aguilar 2002). Fin whales in the northern hemisphere typically feed on small schooling fish, planktonic crustaceans, small squid, and zooplankton (Aguilar 2002; Nowak 2003).

Blue Whale

Blue whales are the largest animal, with recorded lengths of 104 to 107 feet (31.7 to 32.6 m). Females are typically larger than males, and southern hemisphere whales are larger than those of the northern hemisphere (the largest recorded was 92 feet [28 m]) (Sears 2002). The species is listed as endangered under the ESA (35 FR 8491, June 2, 1970) throughout its range. Three stocks of blue whales inhabit United States waters: the western North Atlantic stock, the central North Pacific stock (formerly called the Hawaiian stock), and the eastern North Pacific stock. The eastern North Pacific stock feeds in California waters in summer and fall (from June to November) and migrates south to productive areas off Mexico and as far south as the Costa Rica Dome in winter and spring (Carretta et al. 2023). Blue whales are very rarely seen off the Oregon coast, but there have been sightings off the Washington coast (Calambokidis and Barlow 2004; Calambokidis et al. 2004b; Calambokidis et al. 2009b; Cascadia Research Collective 2011; Carretta et al. 2023). Blue whales are found in coastal and deep offshore waters but also occur on the continental shelf. Blue whales appear to feed almost exclusively on krill (which are relatively large euphausiid crustaceans) worldwide in areas of cold current upwelling (Nowak 2003; Sears 2002). Some other prey species, including fish and copepods, have been reported as being consumed by blue whales, but these prey are unlikely to contribute substantially to the diet of blue whales (NMFS 2015c). The best estimate of the eastern North Pacific blue whale stock is 1,898 individuals with a minimum population estimate of 1,767 with a PBR of 4.1 whales per year (Carretta et al. 2023). There is some indication that blue whale increased in abundance in California coastal waters between 1991 and 1996 based on photographic mark-recapture data. Population abundance trends fluctuated between 1997 and 2013 but remained relatively stable before increasing in 2014 (Carretta et al. 2023). Blue whales would not be expected to occur in the action area.

Sei Whale

The sei whale is listed as endangered throughout its range under the ESA (35 FR 8491, June 2, 1970). Sei whales are rare off California, Oregon, and Washington (Carretta et al. 2023). Two sei whales were tagged off California in 1962 and 1965, and later commercially taken off the Washington coast in 1969 and British Columbia in 1966 (Rice 1974). No sei whales were observed during aerial surveys conducted by Brueggeman et al. (1992) off the coast of Oregon or Washington in 1991 or in 1992, during surveys by Green et al. (1993), or during ship surveys conducted by Jeffries et al. (2012) in 2011 and 2012, by Oleson et al. (2009) from 2004 to 2008, or by Calambokidis et al. (2004b) from 1995 to 2002. Sei whales are primarily found offshore in deeper water and are not associated with coastal waters. Sei whales primarily prey on copepods and amphipods, but also take euphausiids and small fish (Nowak 2003). The most recent abundance estimate for sei whales off California, Oregon, and Washington out to 300 nautical miles (556 km) from the coast is 519 whales based on the unweighted geometric mean of shipboard surveys in 2008 and 2014 (Barlow 2016; Carretta et al. 2023). The minimum population estimate is 374 whales with a PBR of 0.75 whales per year (Carretta et al. 2023). Sei whales are not expected in the action area.

Right Whale

The North Pacific right whale is listed as an endangered species under the ESA (35 FR 8491, June 2, 1970). It is the least abundant of all whale species. Right whales are found in three general regions: the North Atlantic, the North Pacific, and the Southern Hemisphere. The North Pacific stock has two populations: a Sea of Okhotsk stock and an eastern North Pacific stock. The range of the latter population is thought to include the west coast from Mexico to Alaska (Brownell et al. 2001; Clapham et al. 2004), although a few have been observed off the Washington coast. A group of eight right whales was reported off Destruction Island, Washington in April 1959 (Fiscus and Niggol 1965). One individual was photographed on October 25, 2013 off British Columbia and northern Washington State showing evidence of probable fishing gear entanglement (Ford et al. 2016). Recent extensive ship surveys in western Alaska indicated no sightings of right whales (Zerbini et al. 2006), nor were any seen off Washington during ship surveys from 1995 to 2012 (Calambokidis et al. 2004b; Oleson et al. 2009; Jeffries et al. 2012). Right whales generally feed on zooplankton, including copepods, near the coast and continental shelf edge. Reliable estimates of population size and trends are not known (Angliss and Outlaw 2005), but observers believe that the North Pacific stock numbers 100 to 200 animals, a small fraction of the pre-whaling abundance (Nowak 2003). More recently, Wade et al. (2011)

produced a best estimate of 31 right whales in the Bering Sea. The minimum estimate of abundance is 26 with a PBR of 0.05 (Young et al. 2023) based on the photo-identification estimate of 31 whales (Wade et al. 2011). This information suggests that a small number of right whales could occur off the Washington coast; however, the probability is extremely low (Carretta et al. 2006).

3.5.3.1.2 Common Species off the Washington Coast

Steller sea lions, harbor seals, California sea lions, northern fur seals, northern elephant seals, Dall's porpoises, harbor porpoises, Pacific white-sided dolphins, Risso's dolphins, northern right whale dolphins, and minke whales are common in the action area. A short description of each of these species is provided below.

Steller Sea Lion

The eastern stock (identified as a DPS) of Steller sea lions extends from California to 144° W longitude (at Cape Suckling, Alaska) at the northern end of southeast Alaska and includes Washington and Oregon. Based on extrapolations from pup counts, the stock is estimated to be within the range of 65,342 and 90,305 animals with a minimum population estimate of 43,201 and a PBR of 2,592 (Young et al. 2023). This stock was listed as threatened under the ESA in 1990 (55 FR 12645, April 5, 1990) but was delisted in 2013 (78 FR 66139, November 4, 2013). Overall, the non-pup portion of population has been increasing at about 3.22 percent per year from 1987 to 2017 (Young et al. 2023). The best available information indicates the eastern stock has increased from an estimated 18,040 animals in 1979 to an estimated 70,174 animals in 2010 (NMFS 2013c).

The Steller sea lion occurs year-round in Washington State (NMFS 1992b). Pupping in Washington has been increasing, and a new rookery has become established on the outer Washington coast just south of the action area at the Carroll Island and Sea Lion Rock complex in the last several years, where pupping occurs from late May to early July (Young et al. 2023). Within Washington, Steller sea lions occur primarily in the nearshore zone and continental shelf zone, with smaller numbers in the inside waters of the Strait of Juan de Fuca and Puget Sound.

There are several Steller sea lion haulout sites in the action area that are used in all months of the year (Gearin and Scordino 1995); peak counts of Steller sea lions in the action area are in spring and fall. Haulout sites within the action area include Tatoosh Island (48° 23.32' N, 124° 44.26' W), Guano Rock (48° 10.90' N, 124 44.52' W), East Bodelteh Island (48° 10.57' N, 124 45.15' W), and West Bodelteh Island (48° 10.75' N, 124 46.27' W) (Jefferies et al. 2000). Steller sea

lion counts are variable within and between years. During 2011 and 2012, the average count in the action area peaked in November at 842 sea lions and was the least in September at 79 sea lions (J. Scordino, Makah Tribe Marine Mammal Biologist, pers. comm., February 7, 2014).

Steller sea lions are opportunistic predators, feeding primarily on a wide variety of fish and cephalopods. Some of the more important prey species in Washington include Pacific whiting, Pacific herring, spiny dogfish, skates, salmon, and smelts (Gearin et al. 1999). Before 2005, Makah tribal regulations explicitly advised subsistence hunters to take care in hunting California sea lions to avoid Steller sea lions (Sepez 2001); since 2005, the Tribe has not authorized direct subsistence harvest of any marine mammals.

Harbor Seal

For management purposes, three harbor seal stocks are recognized along the west coast of the continental United States, including the California stock, outer coast of Oregon and Washington stock, and Washington inland waters stock (Carretta et al. 2023). Harbor seals from the last two stocks occur year-round within the action area. Both occur principally in the nearshore zone and are the most common marine mammal in Washington (NMFS 1992b). In 1999, mean counts from aerial surveys showed 10,430 seals off the Washington coast and 5,735 in Oregon, totaling 16,165 harbor seals for the outer coast of Oregon and Washington stock, or a population estimate of 24,732 after using a correction factor to account for seals in the water that are missed during aerial surveys (Jeffries et al. 2003). The mean number of seals in the Washington inland waters stock was estimated to be 14,612 in 1999 (Jeffries et al. 2003); more recent estimates are not available (Carretta et al. 2023). Because the most recent abundance estimates for both of these stocks are greater than 8 years old, there are no current estimates of abundance, minimum population estimates, or PBRs available for these stocks.

Harbor seals give birth on shore and nurse their pups for 4 to 5 weeks. After the pups are weaned, they disperse widely in search of food. Pupping along the outer coast of Washington and the Strait of Juan de Fuca occurs in May through July, and additionally in August in the strait. Breeding occurs in the water shortly after the pups are weaned. The Makah U&A contains 32 harbor seal haulout sites (Gearin and Scordino 1995; Jefferies et al. 2000). This area (the Makah U&A) is subdivided for convenience into three areas (western Strait of Juan de Fuca complex, Cape Flattery Complex, and the Cape Alava Complex) with variable harbor seal densities within each complex. The western Strait of Juan de Fuca complex has the lowest density (number of seals per nautical mile); the Cape Alava area has the highest density and number of pups (Gearin and Scordino 1995; Jefferies et al. 2000). Common prey include sole, flounder, sculpin, hake, cod, herring, squid, octopus, and, to a lesser degree, salmon (Jeffries and Newby 1986; Orr et al. 2004). California Sea Lion

The California sea lion includes three subspecies of which *Zalophus californianus californianus* (found from southern Mexico to southwestern Canada) occurs in the action area. California sea lions breed on islands in three geographic regions that are used to separate this subspecies into five stocks: the United States stock, which begins at the United States/Mexico border and extends northward into Canada; the Western Baja California stock, which extends from the United States/Mexico border to the southern tip of the Baja California Peninsula; and the Gulf of California stocks (Southern Gulf of California, Central Gulf of California, and Northern Gulf of California) that include the Gulf of California from the southern tip of the Baja California peninsula (Carretta et al. 2023). Based on extrapolations from pup counts, the population is estimated to be 257,606 sea lions (Carretta et al. 2023). The minimum population estimate is 233,515 sea lions with a PBR of 14,011 per year (Carretta et al. 2023).

Males migrate northward along the coast following the summer breeding season in California (the species' only known breeding area). Beginning in August, male California sea lions appear along the outer Washington coast principally in the nearshore and continental shelf zones. Some move into Puget Sound and British Columbia. California sea lions remain in Washington waters through the winter and early spring before returning to California in May and June (Gearin and Scordino 1995; Jeffries et al. 2000). The migration can be characterized as a feeding migration consisting primarily of adult and sub-adult males. California sea lion females and younger animals less than 4 to 5 years old tend to remain near the home rookeries throughout the year, or move only as far north as central California. California sea lions are common in the action area during fall, winter, and spring. In the action area, California sea lions haul out within the Neah Bay Harbor, at Waadah Island (48° 23.19' N, 124° 36.02' W), Tatoosh Island, East Bodelteh, and West Bodelteh, as well as on mooring buoys (Jefferies et al. 2000). As many as 4,000 to 5,000 California sea lions have been observed on the Bodelteh Islands during the fall. Farther south on Carroll Island, 200 to 300 sea lions may haul out during the migration peak. Little is known of their diet on the Washington coast, but preliminary data collected by the Makah Tribe at Washington haulouts show that they feed primarily on Pacific whiting, Pacific herring, American shad, salmonids, dogfish sharks, Pacific sardine, northern anchovy, and rockfish (J. Scordino, Makah Tribe Marine Mammal Biologist, pers. comm., March 21, 2013). Before 2005, the Makah Tribe promulgated regulations allowing Tribe members to exercise treaty rights for subsistence harvest of sea lions. Up to two sea lions were taken for subsistence each year (Carretta et al. 2006).

Northern Elephant Seal

Northern elephant seals, estimated to number 187,386 animals, breed off Mexico and California during winter and move northward in the spring to feed from Baja California to northern Vancouver Island and far offshore of the Gulf of Alaska and Aleutian Islands (Nowak 2003; Carretta et al. 2023). The minimum population estimate is 85,369 seals with a PBR of 5,122 per year (Carretta et al. 2023). Populations of northern elephant seals in the United States and Mexico all originally derived from a few tens or a few hundreds of individuals surviving in Mexico after they were nearly hunted to extinction. The California breeding population is now demographically isolated from the Baja California population and is considered a separate stock for management purposes (Carretta et al. 2023). The majority of elephant seal sightings occurred from January to June during visual surveys off the coast of Washington from 2004 to 2008 (Oleson et al. 2009). In contrast, Brueggeman et al. (1992) found that elephant seals occurred off the Washington coast primarily during summer and early fall. They were the second most common pinniped sighted during summer ship surveys off the Washington coast from 1995 to 2002 (Calambokidis et al. 2004b). In contrast, all the elephant seals Brueggeman et al. (1992) observed from mid-fall through spring were off the Oregon coast. Most of the elephant seals they encountered were over the continental shelf and slope, at a mean distance of almost 40 miles (64.4 km) from the coast. Small numbers of elephant seals haul out on East Bodelteh Island during the molting season and rarely at Tatoosh Island (J. Scordino, Makah Tribe Marine Mammal Biologist, pers. comm., March 21, 2013). Elephant seals prey on deepwater and bottom dwelling organisms, including fish, squid, crab, and octopus (Nowak 2003).

Northern Fur Seal

The eastern Pacific stock of the northern fur seal is estimated to number 611,617 animals; the minimum population estimate is 626,618 with a PBR of 11,403 (Young et al. 2023). Based on significant declines in abundance during the 1960s and 1970s, the Pribilof Islands population was listed as depleted under the MMPA in 1984 because population levels had declined to levels lower than 50 percent of those observed in the 1950s (1.8 million animals) (53 FR 17888, May 18, 1988) . Causes of decline and current threats are uncertain but may include climate change, vessel and human presence, depletion of prey species, predation, and environmental contamination (NMFS 2007).

Fur seals are a seasonal migrant off the Washington coast, and they do not breed or haul out (although individuals may infrequently be seen on land intermixed with sea lions) in Washington (Angliss and Outlaw 2005). The closest rookeries are in the Bering Sea (Pribilof Islands and Bogoslof Island) and the Channel Islands (San Miguel Island) off the California coast. During the

July to August breeding season, most of the population is found on the Pribilof Islands. Females and juveniles of both sexes migrate south in fall into waters over the continental shelf and slope of the eastern North Pacific Ocean, while adult males generally stay in Alaska waters (Gentry 2002). The migration ranges as far south as 30 to 32° N latitude off southern California and northern Baja, Mexico. Fur seals begin the return migration northward in mid-spring; by early summer, most have returned to their breeding islands (Gentry 2002; Nowak 2003).

In Washington, Oleson et al. (2009) and Brueggeman et al. (1992) reported that northern fur seals primarily inhabited the deep offshore waters, but they also used the continental shelf and slope waters. They were observed off the Washington coast year-round, but most individuals (more than 90 percent) were encountered from January through May. Sightings of northern fur seals in the Strait of Juan de Fuca or Puget Sound are rare, but they do occur occasionally (Gearin and Scordino 1995). They feed on walleye pollock, Pacific herring, capelin, squid, and small schooling fishes (Kajimura 1984). Pribilof Islands Aleut Natives take approximately 600 to 800 sub-adult male fur seals per year for subsistence use (Angliss and Outlaw 2005). Makah Tribe hunters took fur seals from canoes in the open ocean in the late 1800s and into the 1900s, but they do not currently hunt them nor have they recently been taken incidental to the Makah set net fisheries (Swan 1883; Swan 1887; Sepez 2001).

Northern Sea Otter

Sea otters occurred historically along the outer coast of Washington; the population was severely over-hunted in the late mid-1700s to 1800s and extirpated in the Pacific Northwest by 1920 (NMFS 1992b; Jameson 1995). The last known native sea otters in Washington were taken in Willapa Bay in 1910 (Scheffer 1940). In 1969 and 1970, 59 northern sea otters were transplanted to Washington from Amchitka Island, Alaska (Lance et al. 2004). Although the otters off Washington State are descended from the Amchitka Island sea otters and are, thus, related to the southwest Alaska distinct population segment listed as threatened under the ESA (70 FR 46366, August 9, 2005), they are geographically isolated from the southwest Alaska population by hundreds of miles and are not included in the listing. Sea otters off the Washington coast have been listed as a Washington State endangered species since 1981 because of their small population size, restricted distribution, and vulnerability (Lance et al. 2004).

The USFWS has conducted cooperative sea otter surveys with WDFW since 1985. Between 1989 and 2016, the sea otter population increased at a 9 percent annual rate with a population of 1,380 sea otters in 2016 (Jeffries et al. 2016). The PBR for this stock is 18 animals (USFWS 2018). Laidre et al. (2011) estimated the carrying capacity of sea otters at 1,854 individuals (95 percent

confidence interval from 1,499 to 2,208), based on an assumption that sea otters will reoccupy most of their historic habitat along the outer Washington coast (excluding reoccupation of the Columbia River, Willapa Bay, and Grays Harbor estuaries because of significant human alterations and use) and eastward into the Strait of Juan de Fuca as far as Protection Island. The 2016 estimated population abundance is very close to the carrying capacity estimate reported by Laidre et al. (2011). However, the sustained annual growth rate of 9 percent does not indicate that the population is approaching carrying capacity, suggesting that the estimate may not be a good representation of current habitat capabilities. In fact, more recent estimates of carrying capacity incorporating more data from the last decade are higher than that predicted by Laidre et al. (2011) (Hale et al. 2022). In the absence of a reliable carring capacity estimate, the stock's status relative to OSP cannot be determined (USFWS 2018).

The current sea otter population range extends around the Olympic Peninsula from as far south as Cape Elizabeth on the outer Olympic Peninsula coast to as far east as Pillar Point in the Strait of Juan de Fuca, with concentrations near Duk Point, Cape Alava, Sand Point, Cape Johnson, Perkins Reef, and Destruction Island (Figure 3-2). However, scattered individuals have been seen outside of this range (USFWS 2018). More than half of the population occurs outside of the Makah U&A south of La Push, with the single largest concentration of otters located at Destruction Island (Jameson and Jeffries 2005; Jameson and Jeffries 2013). A large group of males moved into the Strait of Juan de Fuca during winter in the 1990s (Lance et al. 2004) but have not done so since 2000. In 2011, only two sea otters were observed in the Strait of Juan de Fuca during the annual surveys, both east of Waadah Island near Neah Bay (Jameson and Jeffries 2013). Sea otters generally inhabit shallow coastal waters less than 1 mile from shore, but sea otters are found out to at least 5 miles from the Cape Alava area. In Washington, sea otters generally stay in relatively shallow waters and forage on a variety of marine invertebrates, including sea urchins, throughout their entire depth range from intertidal areas out to at least 20 fathoms (120 feet/36.6 m) (Lance et al. 2004). Sea otters pup in late winter and early spring, and the pups are weaned in late summer and early fall. Reproduction occurs throughout the area (Lance et al. 2004). Post-weaning mortality is higher for males than females and increases as resources become limited (Estes and Bodkin 2002). Low levels of mortality occur in adult females as a result of injury by males during copulation (Estes and Bodkin 2002). Sea otters are preyed upon by white sharks, killer whales, and, infrequently, Steller sea lions. Of the marine mammals within the action area, they (and northern fur seals) are most susceptible to mortality caused by oil spills because of damage to their fur, which is important in regulating metabolism (Ballachey et al. 1994).

Harbor Porpoise

Two harbor porpoise stocks are recognized within the action area, the Washington Inland Waters stock and the Northern Oregon/Washington Coast stock. Some movement between the two stocks is likely, but is currently not possible to quantify (Carretta et al. 2023). The most recent estimate of abundance for the Washington Inland Waters stock is from 2013 to 2015 and is 11,233; the minimum population estimate is 8,308 animals with a PBR of 66 (Carretta et al. 2023). The Northern Oregon/Washington Coast stock was estimated to number 21,487 animals in 2010-2011; the minimum population estimate is 15,123 individuals with a PBR of 151 (Carretta et al. 2023). The Northern Oregon/Washington Coast stock is present year-round off the Washington coast, and those in the Inland Waters stock are present throughout most of the year in inland waters (Carretta et al. 2023). Numbers of harbor porpoises are particularly high in the fall and winter, low in the summer, and intermediate in the spring (Brueggeman et al. 1992). Oleson et al. (2009) reported 114 sightings of 244 animals during boat surveys off the coast of Washington between 2004 and 2008. The fall sightings were closest to shore, farthest from the shelf edge, and in shallower waters. However, in the summer, sightings were farthest from shore, closest to the shelf edge, but in deeper water. They are widespread throughout the inland and coastal waters of Washington with the exception of southern Puget Sound (NMFS 1992b). Scheffer and Slipp (1948) provide a historical account of this species in Washington.

Harbor porpoises are known to calve and breed in Washington, and they generally give birth in summer from May through July. Calves remain dependent for at least 6 months (Leatherwood et al. 1982). Harbor porpoises are usually shy and avoid vessels; thus, they are difficult to approach. The species frequents inshore areas, shallow bays, estuaries, and harbors. Harbor porpoises are found almost exclusively shoreward of the 100-fathom (600-foot/183-m) contour line along the Pacific coast, with the vast majority found inside the 25-fathom (150-foot/46-m) curve (Gearin and Scordino 1995; Green et al. 1992). The primary prey of harbor porpoise are small fish and squid typically found in shallow waters. Bottom-dwelling fishes and small pelagic schooling fishes with high lipid content, including herring and anchovy, are common prey (Bjorge and Tolley 2002; Leatherwood and Reeves 1986). Small numbers of harbor porpoise have been taken incidentally in Makah set net fisheries, including two individuals in 2004 but none from 2005 through 2009 (Carretta et al. 2013).

Dall's Porpoise

Dall's porpoises are common off the Washington coast, but their distribution and abundance are variable and likely linked to oceanographic conditions (Carretta et al. 2023). They are probably

the most widely distributed cetacean in the temperate and subarctic regions of the North Pacific and Bering Sea (Leatherwood et al. 1982). An estimated 16,498 Dall's porpoises occur in the California, Oregon, and Washington stock with a minimum population estimate of 10,286 and a PBR of 99 animals per year (Carretta et al. 2023). Jeffries et al. (2012) reported 69 sightings of 244 individuals during boat surveys off the Washington and Oregon coasts between 2011 and 2012. During ship surveys off the Washington coast between 2004 and 2008, Oleson et al. (2009) reported 44 sightings of 206 animals. They were the most common small cetacean observed in ship surveys off the Washington coast from 1995 to 2002 with 115 sightings of 406 animals (Calambokidis et al. 2004b). Brueggeman et al. (1992) reported 152 groups containing 341 Dall's porpoise, including four calves, during surveys off the coast of Oregon and Washington. Porpoises were most common during fall, least common during winter, and intermediate in occurrence during spring and summer, although encounter rates were not substantially different among seasons, suggesting that a resident population occurs off the coast of Oregon and Washington (Brueggeman et al. 1992). Encounter rates were highest over the continental slope, lowest on the continental shelf, and intermediate in offshore waters. They rarely occurred in shallow coastal waters. Dall's porpoises were observed in small groups, which are consistent with observations reported in other studies, although aggregations of at least 200 individuals have been reported. They occur only rarely in groups of mixed species, although they are sometimes seen in the company of harbor porpoises and gray whales (Klinowska 1991; Reeves and Leatherwood 1994; Oleson et al. 2009). Dall's porpoises apparently feed at night. They depend, to some degree, on the deep scattering ocean layer through which fauna travel upwards each night from the deeper parts of the water column. Prey species, as determined from stomach contents, include squid and schooling fishes (Jefferson 2002; Klinowska 1991; Reeves and Leatherwood 1994). Killer whales and sharks are believed to be the primary natural predators of Dall's porpoises.

Pacific White-Sided Dolphin

The Pacific white-sided dolphin numbers an estimated 34,999 animals in the California, Oregon, and Washington stock, and it is one of the most abundant dolphins occurring year round off the coast of Washington (Brueggeman et al. 1992; Green et al. 1993; Carretta et al. 2023). The estimated minimum population level is 29,090 with a PBR at 279 dolphins per year (Carretta et al. 2023). Jeffries et al. (2012) reported four sightings of 159 animals in 2011 and six sightings of 171 animals in 2012 off the coasts of Washington and Oregon. Between 2004 and 2008, white-sided dolphins were acoustically detected 9 to 10 months each year in the coastal waters of Washington; nighttime detection rates were eight times higher than daytime detection rates

(Oleson et al. 2009). Oleson et al. (2009) also recorded 18 sightings of 1,681 animals during visual surveys along the outer Washington coast. Calambokidis et al. (2004b) recorded 28 sightings of 1,133 individuals in offshore waters during ship surveys off the Washington coast from 1995 to 2002. Some seasonal shifts occur off the coast of Oregon and Washington where dolphins are more common in offshore waters during spring. Their distribution shifts to continental slope waters during summer and fall, in rough synchrony with the movements of prey (VanWaerebeek 2002). Pacific white-sided dolphins may also move north to south seasonally (Forney and Barlow 1998). Although peak abundances off the Oregon and Washington coast have been reported during May from visual surveys (Brueggeman et al. 1992; Buckland et al. 1993), acoustic detections peaked in the summer and high levels of detection continued through November (Oleson et al. 2009). Pacific white-sided dolphins consume a wide variety of fishes and cephalopods. Off the coast of British Columbia, herring was the most commonly occurring prey species, followed by salmon, cod, shrimp, and capelin (Heise 1997). Pacific white-sided dolphins have been known to occur in association with other marine mammals, including Dall's porpoise, Risso's dolphin, northern right whale dolphin, humpback whale, and gray whale (Brueggeman et al. 1992).

Risso's Dolphin

Risso's dolphins are distributed world-wide in warm-temperate and tropical waters along the continental shelf and slope edge. They are estimated to number 6,336 animals in the California, Oregon, and Washington area with a minimum population level of 4,817 a PBR of 46 per year (Carretta et al. 2023). Risso's dolphins are common off the coast of Washington, where they are present year-round (Brueggeman et al. 1992). Jeffries et al. (2012) reported two sightings of six animals in the coastal waters off Washington in the summer of 2011, while Henry et al. (2020) reported more than eight sightings of Risso's dolphins off the coast of Washington and Vancouver Island in the summer of 2018. During surveys along the outer coast of Washington between 2004 and 2008, Risso's dolphins were acoustically detected an average of 5 to 6 days per year but were only visually observed on two occasions with 38 animals documented (Oleson et al. 2009). Nine sightings of 79 individuals were reported off the Washington coast during ship surveys from 1995 to 2002 (Calambokidis et al. 2004b). They are most common during spring and summer, least common in winter, and intermediate in occurrence during the fall (Brueggeman et al. 1992). Calves have been observed off the coast of Oregon and Washington during May, July, and November. Risso's dolphins primarily inhabit continental slope waters, but they also occur in lower numbers near the edge of the continental shelf. Risso's dolphins are

consistently found on the continental slope and in shelf-edge waters throughout the year, suggesting there is no inshore to offshore movement pattern. However, there may be some seasonal north to south movement of Risso's dolphins between Oregon/Washington and California, based on the shifts in abundance between the two regions, possibly related to prey movements. Principal prey include cephalopods and fish, and limited behavioral research suggests that they feed primarily at night (Baird 2002; Nowak 2003). Risso's dolphins have been known to occur in association with other marine mammals, including Pacific white-sided and northern right whale dolphins (Brueggeman et al. 1992). No habitat issues are known to be of concern for this species, and human-caused mortality from commercial fishing and other sources is low (Carretta et al. 2023).

Northern Right-Whale Dolphin

The California, Oregon, and Washington stock of the northern right-whale dolphin is estimated at 29,285 animals with a minimum population estimate of 17,024 and a PBR of 153 dolphins per year (Carretta et al. 2023). The species is relatively common off the coast of Washington, which is toward the northern end of its range in the eastern North Pacific Ocean (Brueggeman et al. 1992). Oleson et al. (2009) reported three sightings of 59 animals during ship surveys off the Washington coast from 2004 to 2008. Henry et al. (2020) reported nine sightings off the coast of Washington and Vancouver Island in the summer of 2018. The northern right-whale dolphin has been reported in Washington waters during all seasons except winter (Calambokidis et al. 2004b; Brueggeman et al. 1992). Numbers are highest in the fall and lowest during spring and summer. While northern right whale dolphins show a seasonal abundance pattern off the Washington coast that is somewhat opposite of the California pattern, it is not clear whether they move between the two areas. They are gregarious animals, often traveling in groups of 2,000 to 3,000 animals. The primary prey for this species include lanternfish, Pacific whiting, saury, mesopelagic fish, and squid (Lipsky 2002). The northern right-whale dolphin has been frequently reported in association with Pacific white-sided dolphins (Leatherwood and Walker 1979; Brueggeman et al. 1992).

Minke Whale

Minke whales in the north Pacific are believed to be migratory, but those in the inland waters of Washington and in central California appear to establish home ranges (Dorsey et al. 1990). These "resident" minke whales in coastal waters of California, Oregon, and Washington (including Puget Sound) appear behaviorally distinct from migratory whales furhter north, and are therefore considered a separate stock (Carretta et al. 2023). The abundance of the California/Oregon/Washington stock is estimated at 915 whales based on data from line-transect

surveys from 1991 to 2018 (Becker et al. 2020) with a minimum population size of 509 whales and a PBR of 4.1 whales per year (Carretta et al. 2023). They typically occur as single animals, rather than in groups. Jeffries et al. (2012) reported two sightings of two individuals during ship surveys off Washington and Oregon coasts in the summer of 2011. From July 2004 to September 2008, Oleson et al. (2009) conducted visual and acoustic monitoring efforts in waters off the outer coast of Washington and reported only one sighting of one minke whale during the visual surveys. Calambokidis et al. (2004b) reported four sighting of four individuals during ship surveys off the Washington coast from 1995 to 2002. Brueggeman et al. (1992) encountered four single minke whales, including three off the Oregon coast and one off the Washington coast. Most were on the continental shelf. Minke whales are also known to enter shallow bays and estuaries (Nowak 2003). Green et al. (1993) reported 10 groups of 12 minke whales off the Oregon and Washington coasts between March and May but did not give their locations or indicate the distributions between the two states. Minke whales in the North Pacific Ocean typically prey on euphausiids, Japanese anchovy, Pacific saury, walleye pollock, small fish, and squid (Perrin and Brownell 2002; Nowak 2003).

3.5.3.1.3 Uncommon Marine Mammal Species off the Washington Coast

Nine marine mammal species are rarely, but occasionally, sighted off the Washington coast. They include Guadalupe fur seals, common dolphin, striped dolphin, false killer whale, pilot whale, pygmy sperm whale, Baird's beaked whale, Curvier beaked whale, Hubb's beaked whale, and Stejneger's beaked whale (Table 3-16). Most of these species would be expected to occur seasonally in low numbers in deeper offshore waters. Oleson et al. (2009) reported one sighting of three Curvier beaked whales in June 2006. Brueggeman et al. (1992) observed a small number of false killer whales in the spring and beaked whales in the fall off the Washington coast. Five groups of 21 Baird's beaked whales were also observed, but all were off the Oregon coast during spring and summer, suggesting low occurrence by this species in Washington waters. While there is some limited information on this group of uncommon marine mammals, little is known about their use of waters off the Washington coast. Summary information for each species can be found in Carretta et al. (2023), Young et al. (2023), and Perrin et al. (2002).

3.5.3.2 Other Marine Wildlife

The action area provides breeding and wintering habitat for several species that are listed as threatened or endangered under the ESA and numerous species of seabirds. The following sections provide descriptions of ESA-listed species and other seabird species. The latter discussion is organized by the habitat types with which the species are associated.

3.5.3.2.1 ESA-listed Species and Designated Critical Habitat

The following ESA-listed marine wildlife species are either known to occur or could occur in the action area: marbled murrelet, short-tailed albatross, leatherback sea turtles, green sea turtles, loggerhead sea turtles, and olive ridley sea turtles. The brown pelican and bald eagle also occur in the area but have been delisted. The subsections below provide brief descriptions of species that are currently ESA-listed and that may occur in the action area.

Marbled Murrelet

The marbled murrelet is federally listed as threatened under the ESA (57 FR 45328, October 1, 1992). This species nests in mature and old-growth forests and forages in marine waters. Nearshore marine waters within 1.2 miles (1.9 km) are considered essential to the recovery of the species (USFWS 1997). Newer information indicates murrelets occur out to 5 miles (8 km) from shore with the highest mean densities closer to shore (Raphael et al. 2007). Critical marine foraging habitat includes "proximity of old-growth forests, distribution of rocky shoreline/substrate versus sand shoreline/substrate, and abundance of kelp" (Thompson 1996, as cited in USFWS 1997). Key prey species include Pacific sand lance, Pacific herring, northern anchovy, smelt, and possibly sardines, although the birds will forage on a variety of other small fish and macrozooplankton.

In the action area, marbled murrelets occur throughout the year in the nearshore marine waters and bays. During their pre-basic molt (occurring between July and December), marbled murrelets are flightless for 2 months and must select areas which provide adequate prey resources within swimming distance (Carter and Stein 1995). As indicated in a study by Thompson (1999), marbled murrelets are more abundant closer to shore. In Thompson's study (1996, as cited in USFWS 1997), murrelet density declined with increasing distance from the coastline. Survey data collected under the auspices of the Northwest Forest Plan effectiveness monitoring indicate that murrelet densities in the action area begin to decline 1.9 miles (3 km) from shore (D. Lynch, USFWS Wildlife Biologist, pers. comm., 2006) and Huff et al. (2006) reported that only a small proportion of the population (generally less than 5 percent) is found beyond 1.86 miles (3 km) from shore. From 2001 to 2016, the density of marbled murrelets has increased from 2.47 birds/sq. km to 2.58 birds/sq. km. However, marbled murrelet populations have decreased by annual rates of 4.9 percent (Zone 1–Strait of Juan de Fuca [east of Koitlah Point] and Puget Sound) and 2.4 percent (Zone 2–Strait of Juan de Fuca [west of Koitlah Point] and the Washington coast) in that same period in the action area (USFWS 2019).

Short-tailed Albatross

The short-tailed albatross, which is federally listed as endangered under the ESA, is an extremely rare bird off Washington's coastline (65 FR 46643, July 31, 2001). Since 2002, the Northwest Fisheries Science Center Fisheries Observation Science Program (FOS) has deployed observers on commercial fishing vessels along the U.S. west coast to document sightings of ESA-listed species, including short-tailed albatross. In total, the FOS program has recorded 187 observations of short-tailed albatross from 2002 to 2019, the largest concentration of which was located should of San Francisco Bay, California. Significant concentrations have also been observed off Cape Flattery and Aberdeen, Washington (USFWS 2020). The majority of sightings occur many miles offshore and are associated with the continental shelf break (USFWS 2020). Short-tailed albatross primarily feed on squid (Seattle Audubon Society 2005; Walker et al. 2015). The total population is estimated to be 7,365 birds, with 1,011 breeding pairs observed during the 2018-2019 breeding season (USFWS 2020).

Sea Turtles

Four species of sea turtles occur off Washington's outer coast: the leatherback turtle, green turtle (East Pacific DPS), loggerhead turtle (North Pacific DPS), and olive ridley turtle. Leatherback sea turtles are federally listed as endangered under the ESA, while the three other sea turtles are federally listed as threatened (35 FR 8491, June 2, 1970; 43 FR 32800, July 28, 1978). Leatherback sea turtles are associated with pelagic habitats and while rare, occur with some regularity in the deep waters off the coast of Washington (Bowlby et al. 1994). In addition, these turtles occasionally have been sighted in bays and estuaries, although bays and estuaries are not their preferred habitat (Brown et al. 1995). Leatherback sea turtles' diet consists almost exclusively of jellyfish (Sea Turtle, Inc. 2005). The species does not nest in Washington State. The entire action area is within designated critical habitat for leatherback turtles (77 FR 4170, January 26, 2012).

The other three sea turtle species (green, loggerhead, and olive ridley) are strictly warmer water species, and they occur infrequently off the coast of Washington during the summer (Brown et al. 1995). Higher occurrences of the sea turtles coincide with El Niño years that are characterized by warmer currents in the area. Diets of the three species vary. The green sea turtle is mostly herbivorous and feeds on a variety of sea grasses and marine algae; the loggerhead is primarily carnivorous and feeds on a variety of crabs, jellyfish, shellfish, and sponges; and the olive ridley is omnivorous and feeds primarily on crustaceans, mollusks, and tunicates (Sea Turtle, Inc. 2005). None of these sea turtles nest in Washington State.

3.5.3.2.2 Non-listed Birds and Their Associated Habitats

The action area provides important habitat for bald eagles and some of the largest seabird colonies in the continental United States. The area also provides wintering and other non-breeding habitat for marine birds. Considering all seasonal uses, more than 100 marine bird species use the marine waters, associated beaches, and offshore islands within the action area, with 20 of these species known to nest in the action area (Table 3-17).

Bald Eagle

The bald eagle was de-listed under the ESA on July 9, 2007 (72 FR 37346). These birds are present in Washington State year-round, although individual birds may be present for only a portion of the year (e.g., the wintering period). Bald eagles nest in large, superdominant trees, generally away from intense human activity, and they forage in nearby waters with abundant fish, waterfowl, and seabird prey (Stinson et al. 2001). Perch sites generally consist of large trees along shorelines. Roost sites are typically large trees within forested stands that are located within 0.67 mile (1 km) of foraging areas (Stinson et al. 2001).

Bald eagle nest sites occur throughout the action area's coastline. Most of the Washington State bald eagle wintering population occurs along major salmon rivers (e.g., Skagit, Nooksack, and Columbia Rivers), but the birds also winter along the state's outer coastline and along the Strait of Juan de Fuca, including portions of the action area (Stinson et al. 2001).

Brown Pelican

Brown pelicans also occur in the action area and were de-listed under the ESA in 2009 (74 FR 59444, November 17, 2009). They occur as non-breeding individuals from June to October (Seattle Audubon Society 2005) and forage in marine waters, particularly in shallow areas, including bays and estuaries, and near offshore islands, spits, breakwaters, and open sand beaches. The birds rarely forage more than 40 miles (64 km) from shore (USFWS 2005a). Their diet consists of schooling anchovies, herring, Pacific mackerel, minnow, and sardines (Monterey Bay Aquarium 2003). Brown pelicans roost on offshore islands in the action area (Seattle Audubon Society 2005).

Marine Environments Used by Marine Birds in the Action Area

The marine environments used by marine birds in the action area can be divided into six habitat types: 1) coastal beaches, bays, and estuaries; 2) coastal headlands and islands; 3) nearshore marine waters; 4) inland marine deeper waters; 5) marine shelf; and 6) oceanic waters. Habitat types for marine birds are based on Buchanan et al. (2001) but were modified slightly for

consistency with marine fish habitat types (NMFS 2005c) and marine mammal habitats. This subsection describes these habitats and their associated bird species.

Table 3-17. Marine bird species present in the Makah U&A.

Common Name	***Scientific Name***
LOONS AND GREBES	***GAVIIDAE AND PODICIPEDIDAE***
Common loon	*Gavia immer*
Pacific loon	*Gavia pacifica*
Red-throated loon	*Gavia stellata*
Yellow-billed loon	*Gavia adamsii*
Horned grebe	*Podiceps auritus*
Red-necked grebe	*Podiceps grisegena*
Western grebe	*Aechmophorus occidentalis*
Eared grebe	*Podiceps nigricollis*
TUBENOSES	***PROCELLARIIFORMES (DIOMEDEIDAE, PROCELLARIIDAE AND HYDROBATIDAE)***
Black-footed albatross	*Diomedea nigripes*
Short-tailed albatross	*Phoebastria albatrus*
Laysan albatross	*Diomedea immutabilis*
Buller's shearwater	*Puffinus bulleri*
Flesh-footed shearwater	*Puffinus carneipes*
Pink-footed shearwater	*Puffinus creatopus*
Short-tailed shearwater	*Puffinus tenuirostris*
Sooty shearwater	*Puffinus griseus*
Northern fulmar	*Fulmaris glacialis*
Fork-tailed storm petrel*	*Oceanodroma furcata*
Leach's storm petrel*	*Oceanodroma leuchorhoa*
PELICANS AND CORMORANTS	***PELECANIDAE AND PHALOCROCORACIDAE***
Brown pelican	*Pelecanus occidentalis*
Brandt's cormorant*	*Phalacrocorax penicillatus*
Double-crested cormorant*	*Phalacrocorax auritis*
Pelagic cormorant*	*Phalacrocorax pelagicus*
SWANS, GEESE, AND DUCKS	***ANATIDAE***
Trumpeter swan	*Cygnus buccinator*
Tundra swan	*Cygnus columbianus*

Common Name	***Scientific Name***
Aleutian Canada goose	*Branta canadensis leucopareia*
Brant	*Branta bernicla*
Black scoter	*Melanitta nigra*
Surf scoter	*Melanitta perspicillata*
White-winged scoter	*Melanitta fusca*
Harlequin duck	*Histrionicus histrionicus*
Oldsquaw	*Clangula hyemalis*
Bufflehead	*Bucephala albeola*
Common goldeneye	*Bucephala clangula*
Barrow's goldeneye	*Bucephala islandica*
Greater scaup	*Aythya marila*
Lesser scaup	*Aythya affinis*
Canvasback	*Aythya valisineria*
Red-breasted merganser	*Mergus serrator*
Common merganser	*Mergus merganser*
Hooded merganser	*Lophodytes cucullatus*
Gadwall	*Anas strepera*
Eurasian widgeon	*Anas penelope*
American widgeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Green-winged teal	*Anas crecca*
Blue-winged teal	*Anas discors*
Northern shoveler	*Anas clypeata*
Northern pintail	*Anas acuta*
Ruddy duck	*Oxyura jamaicensis*
RAILS, GALLINULES, AND COOTS	***RALLIDAE***
American coot	*Fulica americana*
EAGLES, OSPREYS, AND FALCONS	***FALCONIFORMES***
Bald eagle*	*Haliaeetus leucocephalus*
Osprey*	*Pandion haliaetus*
Peregrine falcon*	*Falco peregrinus*
OYSTERCATCHERS	***HAEMATOPODIDAE***
Black oystercatcher*	*Haematopus bachmani*

Common Name	***Scientific Name***
PLOVERS	***CHARADRIIDAE***
Killdeer*	*Charadrius vociferous*
Semipalmated plover	*Charadruis semipalmatus*
American golden plover	*Pluvialis dominicus*
Black-bellied plover	*Pluvialis squatarola*
SANDPIPERS, TURNSTONES, SURFBIRDS, AND PHALAROPES	***SCOLAPACIDAE***
Black turnstone	*Arenaria melanocephala*
Ruddy turnstone	*Arenaria interpres*
Surfbird	*Aphriza virgata*
Marbled godwit	*Limosa fedoa*
Greater yellowlegs	*Tringa melanoleuca*
Lesser yellowlegs	*Tringa flavipes*
Spotted sandpiper*	*Actitis macularia*
Whimbrel	*Numenius phaeopus*
Wandering tattler	*Heteroscelus incanus*
Long-billed dowitcher	*Limnodromus scolopaceus*
Short-billed dowitcher	*Limnodromus griseus*
Rock sandpiper	*Calidris ptilocnemis*
Baird's sandpiper	*Calidris bairdii*
Dunlin	*Calidris alpina*
Least sandpiper	*Calidris minutilla*
Sanderling	*Calidris alba*
Western sandpiper	*Calidris mauri*
Red phalarope	*Phalaropus fulicaria*
Red-necked phalarope	*Phalaropus lobatus*
Northern phalarope	*Lobipes lobatus*
JAEGERS AND SKUAS	***STERCORARIINAE***
Long-tailed jaeger	*Stercorarius longicaudus*
Parasitic jaeger	*Stercorarius parasiticus*
Pomarine jaeger	*Stercorarius pomarinus*
South polar skua	*Catharacta mccormicki*
GULLS AND TERNS	***LARIDAE***
Bonaparte's gull	*Larus philadelphia*

Common Name	***Scientific Name***
California gull	*Larus californicus*
Glaucous-winged gull*	*Larus glaucescens*
Heerman's gull	*Larus heermanni*
Herring gull	*Larus argentatus*
Mew gull	*Larus brachyrhynchos*
Ring-billed gull	*Larus delawarensis*
Sabine's gull	*Xema sabini*
Thayer's gull	*Larus thayeri*
Western gull*	*Larus occidentalis*
Black-legged kittiwake	*Rissa tridactyla*
Caspian tern	*Sterna caspia*
Common tern	*Sterna hirundo*
Forster's tern	*Sterna forsteri*
Arctic tern	*Sterna paradisaea*
ALCIDS	***ALCIDAE***
Ancient murrelet	*Synthliboramphus antiquum*
Cassin's auklet*	*Ptychoramphus aleutica*
Common murre*	*Uria aalge*
Marbled murrelet	*Brachyramphus marmoratus*
Pigeon guillemot*	*Cepphus columbia*
Rhinoceros auklet*	*Cerorhinca monocerata*
Tufted puffin*	*Lunda cirrhata*
KINGFISHERS AND HERONS	***ALCEDINIDAE AND ARDEIDAE***
Belted kingfisher*	*Ceryle alcyon*
Great blue heron*	*Ardea herodias*
Green heron	*Butorides striatus*
American bittern	*Botaurus lentiginosus*

Sources: Speich and Wahl 1989; Peterson 1990; Buchanan et al. 2001; USFWS 2005b.
* = species known to nest in the area.

Coastal Beaches, Bays, and Estuaries

The action area includes several beaches, bays, and estuaries. Bays and estuaries provide concentrations of nutrients and forage for marine birds and shorebirds such as loons, grebes, mergansers, scoters, dunlins, plovers, and sandpipers. Beaches, particularly those with fine-

grained sand, provide forage areas for several shorebird species, including sanderlings, dunlins, and killdeer. Human-made structures, such as jetties, pilings, and buoys, provide important roosting habitat for cormorants, gulls, and other birds. Approximately 49 marine bird species in Washington State are closely associated with beaches, bays, and estuaries; 37 marine bird species are generally associated; and another 16 marine bird species occasionally use beaches, bays, and estuaries (Table 3-18). Bird densities along the beaches and in the bays and estuaries are particularly high during winter and during spring and fall migration periods (Buchanan et al. 2001).

Table 3-18. Marine bird species richness in marine habitats based on habitat association.

Habitat Type	Habitat Use (recorded as number of species)			
	Closely Associated[1]	Generally Associated[2]	Occasional Use[3]	Total
Beaches, bays, and estuaries	49	37	16	102
Headlands and islands	22	14	2	38
Nearshore marine	31	26	10	67
Inland marine	21	17	9	47
Marine shelf	28	15	9	52
Oceanic	18	7	3	28

Source: Table adapted and modified from Buchanan et al. (2001). Because some species are associated with more than one habitat type, totals within columns are not additive.

[1] Closely associated: A species is widely known to depend on a habitat for part or all of its life-history requirements.

[2] Generally associated: A species exhibits a high degree of adaptability and may be supported by a number of habitats. These habitats play a supportive role for the species' maintenance and viability.

[3] Occasional use: A species demonstrates occasional use of a habitat. The habitat provides marginal support to the species for its maintenance and viability.

Coastal Headlands and Islands

This habitat type includes coastal headlands and bluffs, rocky cliffs, and offshore rocks and islands. In the action area, steep headlands, bluffs, and cliffs are used by ledge-nesting birds, including peregrine falcons, pelagic cormorants, and common murres. Offshore islands and rocks support large breeding colonies of seabirds (Speich and Wahl 1989; Buchanan et al. 2001; USFWS 2005b).

Comprehensive information on seabird colony breeding densities in Washington is available from Speich and Wahl (1989). These researchers summarized seabird colony data from surveys conducted from 1978 to 1982. In the Cape Flattery survey region, which extends along the outer Washington coast from Cape Flattery to Carroll Island and inland along the Strait of Juan de Fuca to Sail Rock, surveyors documented 13 breeding seabird species, the most common of which were Cassin's auklets, Leach's storm-petrels, and tufted puffins (Table 3-19). Sites with the

highest recorded abundance of seabird colonies (all species combined) in this region include Carroll Island (18,876 breeding seabirds), Bodelteh Island (11,618 breeding seabirds), and the Tatoosh Islands (3,528 breeding seabirds). In addition to the survey sites from the Cape Flattery survey region, the Speich and Wahl report includes data from Jagged Island, near the southern boundary of the Makah U&A. The surveyors recorded 37,057 breeding seabirds on Jagged Island, including 20,000 Leach's storm-petrels, 7,800 tufted puffins, and 8,000 Cassin's auklets (Speich and Wahl 1989).

Table 3-19. Breeding seabird species and abundance in the vicinity of Cape Flattery.

Species	Approximate Number of Breeding Birds
Cassin's auklet	24,000
Leach's storm-petrel	11,000
Tufted puffin	8,700
Glaucous-winged or western gulls	4,400
Fork-tailed storm-petrel	3,700
Common murre	900
Pelagic cormorant	900
Rhinoceros auklet	200
Double-crested cormorant	150
Pigeon guillemot	150
American black oystercatcher	60
Brandt's cormorant	10

Source: Speich and Wahl (1989)

A variety of shorebirds (such as plovers, oystercatchers, sanderlings, and sandpipers) uses offshore rocks and islands and their associated tidal areas for foraging and roosting. The larger islands (including Ozette Island and the Bodelteh Islands) are used by several raptors (such as peregrine falcons) for foraging and occasionally nesting. Passerines (such as swallows and sparrows) use these islands for nesting, foraging, and migration resting areas (USFWS 1985). Nesting great blue herons have also been documented on the larger islands (USFWS 1985). The island vicinities are also used by migrating and wintering marine birds (such as gulls, loons, grebes, and scoters). Buchanan et al. (2001) indicate that 22 marine bird species in Washington are closely associated with headlands and offshore islands (Table 3-18).

Nearshore Marine Zone

The nearshore marine habitat zone includes those marine waters along shorelines that are not significantly affected by freshwater inputs (i.e., excludes bays and estuaries)

(Buchanan et al. 2001). Nearshore marine habitat includes both nearshore marine waters and inland marine deeper waters. Nearshore marine waters extend from the high tide line to a depth of approximately 66 feet (20 m) (Buchanan et al. 2001). Typical birds that forage in nearshore marine waters include western grebes, Brandt's cormorants, common murres, sooty shearwaters, and rhinoceros auklets; the latter three species may concentrate in large numbers during the summer (Buchanan et al. 2001). A variety of common marine birds (e.g., phalaropes, other shorebirds, and waterfowl) also uses nearshore marine habitats as migration corridors (Buchanan et al. 2001). Buchanan et al. (2001) indicate that 31 bird species in Washington are closely associated with nearshore marine waters (Table 3-18).

Within the action area, inland marine deeper waters include waters ranging from 66 feet (20 m) deep within the western portion of the Strait of Juan de Fuca up to 120 feet (37 m) deep. Species richness is relatively low in this area, with richness and bird densities higher in winter than summer (Table 3-18) (Buchanan et al. 2001). Common wintering birds in the area include western grebes, common murres, scoters, phalaropes, mergansers, buffleheads, and goldeneyes (Buchanan et al. 2001; Nysewander et al. 2004). Murres are also common in summer, along with cormorants and auklets.

Continental Shelf

Along the outer coast of Washington, the continental shelf habitat includes those marine waters from approximately 120 to 600 feet (37 to 183 m) deep (Buchanan et al. 2001, as modified by NMFS 2005c). As with the nearshore marine habitat, the continental shelf provides foraging habitat and a migration route for a variety of marine birds. In Washington, 28 birds are highly associated with continental shelf habitat (Table 3-18). Typical birds that forage in the shallower portions of the continental shelf are common murres, rhinoceros auklets, tufted puffins, and sooty shearwaters. Typical birds in the outer, deeper portions of the continental shelf include albatrosses, fulmars, storm-petrels, and shearwaters (in addition to the sooty shearwater). Species use varies by season, with the most species during winter and the fewest species during summer (Buchanan et al. 2001). Bird densities are greatest in summer and early fall, when both summer residents and migrant phalaropes, jaegers, terns, and alcids are present (Buchanan et al. 2001).

Continental Slope

Oceanic waters include the marine slope (waters from 600 to 4,200 feet [183 to 1,280 m] deep) and offshore areas (waters greater than 1.25 miles [2 km] deep) (Buchanan et al. 2001, as modified by NMFS 2005c). Species richness and bird densities in oceanic waters are diminished

compared to the other marine habitats, presumably because of the lower abundance of food in oceanic waters (Table 3-18) (Buchanan et al. 2001). As with the continental shelf, bird densities in oceanic waters are greatest in late summer to early fall, when both summer residents and fall migrants are present. Characteristic bird species of the continental shelf include the black-footed albatross, fork-tailed storm-petrel, northern fulmar, herring gull, and black-legged kittiwake (Buchanan et al. 2001).

3.5.3.3 Sensitivity of Wildlife to Noise and Other Disturbance

This section describes the sensitivity of marine wildlife species to noise and other disturbance. Anthropogenic noise can be either transient or continuous and can result in a variety of effects with consequences ranging from none to severe (Würsig and Richardson 2002). Sources of transient noise include helicopters, planes, and explosions; sources of continuous noise include ships underway and dredging activities. The discussion that follows focuses on wildlife sensitivity to noise potentially generated from activities associated with a Makah whale hunt, including aircraft overflights, boat traffic, and use of gunfire or explosives. See Section 3.11, Noise, for a discussion of key concepts related to noise, as well as existing noise levels in the action area.

Marine mammals may respond to noise and other disturbance in many ways, including changes in behavior, avoidance reactions, masking, hearing impairment, and nonauditory physiological effects and stress (Würsiig and Richardson 2002). For marine mammals that rely on sound to communicate, find prey, avoid predators, and likely to navigate, perturbations involving noise could have negative impacts on fitness or survival.

Effects of disturbance on marine birds can range from temporary and minor behavioral changes, such an alert response, to reactions with potentially negative effects on reproductive success, such as nest abandonment. Bird responses depend on a variety of factors as described further in the subsections below (Carney and Sydeman 1999; Point Reyes Bird Observatory 2005). Colonial nesting birds are particularly vulnerable to disturbance because of their high nesting densities and group behavior; when one bird responds to a given disturbance (e.g., flushing from its nest), other birds often follow (Rodgers and Smith 1995).

3.5.3.3.1 Aircraft Overflights

Based on a review of studies on the response of species found in west coast National Marine Sanctuaries, Moore (1997) concluded that aircraft overflights "can and do disturb wildlife." The regulations governing the OCNMS (15 CFR 922.152(7), revised January 26, 2012) state that failure to maintain a minimum flight altitude of 2,000 feet (610 m) over certain portions of the

Sanctuary is presumed to disturb marine mammals or seabirds. These restrictions are described in greater detail in Subsection 3.1.1.1.2, Designation and Regulatory Overview (of the OCNMS). Disturbance varies by species and the specifics of the situation. The following paragraphs discuss disturbance of birds and marine mammals (i.e., wildlife likely to use habitats in the action area) by aircraft.

Reactions of some bird species may range from increased vigilance and attentiveness (including scanning by head-turning) to flushing from a nest or perch (Brown 1990; Stalmaster and Kaiser 1997; Giese and Riddle 1999; Ward et al. 1999). In similar circumstances, other species may not react at all (Parrish et al. 2005). In their review of overflight and wildlife disturbance, the National Park Service (1995) indicated mixed results, with some species exhibiting response to overflights, but other species showing minimal or no response. At least one study (of peregrine falcons) indicated no apparent change in parental behavior from low (less than 500 feet [152 m]) military overflights, while another study (of waterfowl) found minimal disturbance caused by military overflights (Parrish et al. 2005). With increasing numbers of overflights, some wildlife may habituate to aircraft noise (e.g., black ducks), whereas other species will not (e.g., wood ducks, black brant, emperor, and Canada geese) (Conomy et al. 1998; Ward and Stein 1989). In a study of experimental overflights at lakes, Komenda-Zehnder et al. (2003) found that the behavior of waterbirds was not substantially altered by fixed-wing aircraft flying at least 1,000 feet (305 m) above ground level and helicopters flying at least 1,500 feet (457 m) above ground level. In that study, birds disturbed by low-flying aircraft returned to relaxed behavior (e.g., resting, preening, feeding) within 5 minutes of overflights.

In general, conclusions based on responses of one species are not necessarily applicable to another species (Manci et al. 1988); similarly, responses to one aircraft type may differ from responses to other types, even within a single species (National Park Service 1995; Ward et al. 1999). In a field study using playback of recordings of overflights to measure effects on seabirds, Brown (1990) found that the level of response increases with increasing noise. This is notable because not all aircraft produce the same amount of noise; thus, a relatively quiet aircraft flying nearby may cause less disturbance than a noisier aircraft farther away (Parrish et al. 2005). In a study of nesting osprey, for example, Trimper et al. (1998) found that adult osprey did not appear to be disturbed by military overflights at various distances, approximately 2 miles (3.2 km) from the nest, but reacted strongly to float planes approaching within 4.8 miles (7.7 km). Parrish et al. (2005) noted that helicopters typically cause more disturbance than other aircraft types. Similarly, Komenda-Zehnder et al. (2003) found that the disturbance effect of helicopters was greater than

that of fixed-wing aircraft. The helicopters used in that study were larger and louder than the airplanes, which makes it impossible to determine which of two factors (visual or acoustic cues), was responsible for the differences.

Based on observations of marine birds and aircraft overflights at Tatoosh Island, Parrish et al. (2005) drew the following general conclusions:

1. Aircraft type has a substantial effect on disturbance level, independent of altitude, with louder aircraft having a greater effect.
2. Immediate geomorphology has an effect on disturbance level, as concave surfaces (bowls) concentrate sound, whereas convex surfaces dispel sound.
3. The timing of the disturbance event within the breeding season has an effect on disturbance level; earlier in the season (before egg laying), birds are more likely to exhibit signs of disturbance (culminating in temporary evacuation of nesting or loafing sites), whereas later in the season (when pairs have eggs or chicks), birds may remain on nests even during elevated levels of disturbance.
4. Not all species respond equally. Disturbance varies by species and the specifics of the situation such that even related species differ in their responses. Disturbance may also be minimal or not occur. The lateral distance of the aircraft also strongly affects whether wildlife are disturbed. The correlation between distance and increased disturbance may result from increasing noise levels. The sudden appearance of aircraft, especially in the case of infrequent overflights, may also disturb wildlife.
5. Based on observed disturbance caused by overflights, several authors conclude that aircraft altitude restrictions should be developed or maintained, with recommendations for the distance aircraft should stay from wildlife ranging from 500 to 5,000 feet (152 to 1,524 m), depending on the species under consideration (Giese and Riddle 1999; Grubb and Bowerman 1997; Stalmaster and Kaiser 1997).
6. For any particular aircraft type, flying at lower altitudes generally increases the level of disturbance.

Few studies have documented the response of marine mammals to overflights (Parrish et al. 2005). Studies measuring the response of marine animals to noise were summarized by Myrberg (1990), who noted numerous reports of marine mammal disturbance caused by man-made sources, including offshore oil drilling and shipping. Responses of marine mammals to aircraft vary by

species, aircraft type, approach distance and altitude, and pre-disturbance behavior. In a study of bowhead and beluga whales, Patenaude et al. (2002) found that helicopters cause more disturbance than other types of aircraft, and that beluga whales responded more often to all noise than bowhead whales. Aircraft flying at low altitude, at close lateral distances, and above shallow water tend to elicit stronger responses than aircraft flying higher, at greater lateral distances, and over deep water (Patenaude et al. 2002; Smultea et al. 2008). Würsig et al. (1998) found that whales and dolphins milling or resting at the surface are most sensitive to disturbance from aircraft. In a study of the responses of sperm whales to aerial whale-watching trips, Richter et al. (2006) found a very high degree of variation in responses among individuals. Transient whales were less tolerant of aerial whale-watching activities, while resident whales appeared to cope better, possibly because of habituation (Richter et al. 2006).

Pinnipeds are susceptible to disturbance while in the water or on land. Calkins and Pitcher (1982) found that disturbance from aircraft and vessel traffic has extremely variable effects on hauled-out sea lions, ranging from no reaction at all to complete and immediate departure from the haulout (i.e., a stampede). When sea lions are frightened off rookeries during the breeding and pupping season, pups may be trampled or, in extreme cases, abandoned (Calkins and Pitcher 1982). Insley (1993) used sound recordings, sound pressure measurements, and video recordings to study the effect of aircraft overflights on northern fur seal behavior at St. George Island, Alaska. He found that if pilots followed the prescribed flight path and altitude and did not pass over the seal rookeries there was no discernible impact on the seals.

Response to aircraft may also depend on overflight frequency. With increasing numbers of overflights, some wildlife may habituate to aircraft noise, whereas other species will not (Conomy et al. 1998). Conversely, sensitization may also occur. For example, the response of harbor seals increased with greater overflight occurrence (Johnson 1977 as cited in Moore 1997).

Some specific study results relevant to the action alternatives in this FEIS include:

1. In a review paper of marbled murrelets, Nelson (1997) stated that aircraft flying at low altitudes are known to cause marbled murrelets to dive, although the specific altitude was not mentioned.

2. Pilots are required to stay more than 2,000 feet (610 m) above ground level when flying over the OCNMS; failure to maintain that minimum flight altitude over certain portions of the Sanctuary is presumed to disturb marine mammals or seabirds (15 CFR

922.152(7)). Federal Aviation Administration navigational charts have been revised to include information on the Sanctuary's overflight regulations.

3. Several studies have documented effects of aircraft on foraging and nesting eagles. In a study of nesting eagles in Michigan, average eagle flushing distance was approximately 0.5 mile (0.8 km) for jets, 0.75 mile (1.21 km) for light planes, and 0.4 mile (0.64 km) for helicopters (Grubb et al. 1992). In a study on the effects of helicopters on nesting eagles in northwestern Washington, Watson (1993) reported that 53 percent of nesting eagles were disturbed (i.e., alert and flush behavior) when helicopters approached within 1,500 feet (457 m) of eagle nests. In a study of wintering bald eagle response to military activities at Fort Lewis, Washington, investigators reported that most eagles flushed when helicopters approached within 1,000 feet (305 m) (Stalmaster and Kaiser 1997). In their National Bald Eagle Management Guidelines (2007), USFWS recommends that aircraft maintain a distance of at least 1,000 feet (305 m) from eagle nests during the nesting season, except where eagles have demonstrated tolerance for such activity.

4. In a study of the effects of low-level jet aircraft overflights along the Naskaupi River, Labrador, Canada, nesting osprey behavior did not differ significantly between pre- and post-overflight periods, and adult osprey did not appear agitated or startled when overflown by jet aircraft (at overflights as low as 100 feet (31 m) above ground) (Trimper et al. 1998). Osprey were attentive and occasionally flushed from nests when float planes entered their territories.

5. At a mixed cliff-nesting colony of fulmars, shags, herring gulls, kittiwakes, guillemots, razorbills, and puffins on the Aberdeenshire coast of Scotland, aircraft flying at heights about 300 feet (91 m) above the cliff-top did not affect the attendance of incubating and brooding birds (Dunnet 1977).

3.5.3.3.2 Boat Traffic

A study on the Pribilof Islands in summer 1990 measured the effect of direct noise (airplanes, land vehicles, ships, and construction activities) on northern fur seal behavior at rookeries on St. Paul Island (Insley 1992). Noise levels were measured on land near the rookeries as ships moved toward and away from the island during all hours of the day. Ship noise at the rookeries averaged approximately 82 dB in a frequency range between 60 and 300 hertz (Hz). No effect from ship noise was observed in fur seal behavior during this study. In contrast, Insley et al. (2003) found that fur seals foraging at sea changed their direction of movement when commercial trawl vessels were nearby. As summarized by Würsig and Richardson (2002), the strongest

components of sound from many of the major anthropogenic sources are below 1,000 Hz. Peak sound intensities of small powerboats are generally in the frequency range of 350 to 1,200 Hz (Barlett and Wilson 2002).

Marine birds can also be sensitive to disturbance from boat traffic. Bird responses to boat traffic range from changing body position to abandoning a foraging attempt to flushing from a nest (Burger 1998; Carney and Sydeman 1999; Point Reyes Bird Observatory 2005). Responses of birds depend on a variety of factors, including the time of year; type, speed, and distance of boats from the birds; frequency of disturbance; bird species; and bird activity (e.g., foraging, roosting, or nesting) (Burger 1998; Rodgers and Schwikert 2002; Ronconi and St. Clair 2002). In general, mobile birds (e.g., foraging birds) move away from areas with high boat traffic, while nesting birds show behavioral, growth, or reproductive effects, with varying degrees of habituation (Kuletz 1996; Burger 1998).

Some specific study results relevant here include:

1. Of the hundreds of murrelets that researchers encountered with their skiff each day in Alaska's Auke Bay and Fritz Cove, most of the birds reacted to the skiff by paddling away; only a few of the birds reacted by flying away (Speckman et al. 2004). However, on eight separate occasions, murrelets that were holding fish crosswise in their bills swallowed the fish on approach of the skiff, generally when the skiff was within 15 to 130 feet (5 to 40 m) of the bird. The birds holding fish were presumed to be parents about to make food deliveries to their chicks (as consistent with other alcids). Consequently, skiff disturbance represented a loss in food for the chicks. The researchers concluded that such disturbance could be detrimental to murrelets in areas where prey are relatively scarce, where birds' inland nests are far from marine foraging areas, or where boat traffic is concentrated in waters immediately adjacent to nesting areas.

2. Observers conducting boat surveys for marbled murrelets noted that the birds dove more often than flew when a boat approached. If approached slowly and from an angle, however, the birds paddled away from the boat (E. Neatherlin, WDFW, pers. comm., 2003, as cited in USFWS 2003).

3. In a study in Finland, boat disturbance (at levels of 3.5 to 8.5 disturbances per day) lengthened the swimming distances of velvet scoter ducklings and reduced the time used for feeding (Mikola et al. 1994). The birds showed a response to the boats when the boats were within 100 feet (30.5 m) of the ducks. Birds disturbed more frequently than average

were smaller than birds disturbed less frequently. The frequency of predatory gull attack on the ducks was 3.5 times higher in disturbed areas than undisturbed areas.

4. In a study in Florida, researchers investigated the flushing distance of 23 waterbird species to personal watercraft and outboard-powered boats (Rodgers and Schwikert 2002). Flushing distance for foraging and loafing birds varied by species and individual and boat type. Average flush distance by species ranged from 77 feet (24 m) (Forster's tern) to 190 feet (58 m) (osprey) of outboard-powered boats and 64 feet (20 m) (least tern) to 162 feet (49 m) (osprey) for personal watercraft. Based on their study results, the researchers suggested buffer zones of 590 feet (180 m) for wading birds, 490 feet (149 m) for osprey, 460 feet (140 m) for terns and gulls, and 330 feet (101 m) for plovers and sandpipers to minimize disturbance at foraging and loafing sites.

5. In a study at a black skimmers nesting colony in New Jersey, Burger et al. (2010) found that reproductive stage had the greatest effect on the responses of birds to approaching boats. During the pre-egg-laying period, skimmers flushed from their nests when boats were 330 feet (101 m) away, on average, compared to a flushing distance of 140 feet (43 m) when they had small chicks on the nest. The time for skimmers to return to the nesting colony after a disturbance event also varied seasonally, with birds taking substantially longer to return during the pre-egg period (approximately 9.5 minutes) than during the hatching period (approximately 0.7 minutes). The researchers recommended a set-back distance of approximately 390 feet (119 m) from the perimeter of the nesting colony.

6. Rojek et al. (2007) documented vessel disturbances of common murres at three breeding colonies in central California. Most boat disturbance occurred when vessels approached within 164 feet (50 m) of active nesting areas and remained in the area for extended periods. Such disturbances resulted in the loss of both eggs and chicks.

7. Several studies have documented effects of boats on foraging and nesting eagles. In a study of nesting eagles in Michigan, average eagle flushing distance was 360 feet (110 m) for power boats and about 1,000 feet (305 m) for canoes/kayaks (Grubb et al. 1992). Foraging eagles on the Columbia River maintained an average distance of 1,300 feet (396 m) from stationary boats. In the presence of boats, the birds reduced their feeding time and number of foraging attempts (McGarigal et al. 1991). In a study of wintering bald eagle response to military activities at Fort Lewis, Washington, investigators reported that most eagles flushed when boats approached within 330 feet (101 m) (Stalmaster and Kaiser 1997). In a study of wintering eagles along the Nooksack

and Skagit Rivers in Washington, researchers reported that average distance for perched eagles flushed by a canoe was approximately 500 to 550 feet (152 to 168 m), and average flush distance for eagles standing or feeding on the ground was approximately 750 to 900 feet (229 to 274 m), although more sensitive eagles flushed at distances out to approximately 1,150 feet (351 m) (Knight and Knight 1984). In their National Bald Eagle Management Guidelines (2007), USFWS recommends that within 300 feet (91 m) of eagle nests during the nesting season (1) concentrations of noisy vessels (e.g., commercial fishing boats and tour boats) should be avoided, except where eagles have demonstrated tolerance for such activity; and (2) other motorized boat traffic should attempt to minimize trips and avoid stopping in the areas where feasible, particularly where eagles are unaccustomed to boat traffic.

Marine birds may be sensitive to underwater noise when they are diving to catch fish. Effects can range from behavioral changes (e.g., delayed or aborted foraging attempts, avoidance of potential foraging areas) to physical injury (USFWS 2003). Based on a review of studies of the effects of noise on animals in underwater environments, USFWS (2003) estimated that peak sound pressure levels greater than 180 dB have the potential to cause physical injury. A recent study of noise levels from small powerboats found peak levels of 145 to 150 dB, primarily in the 350- to 1,200 Hz frequency range (Barlett and Wilson 2002). Similarly, Hildebrand (2005) reported peak noise levels of 140 dB for small fishing vessels. Higher noise levels are associated with larger vessels; Richardson et al. (1995) provided estimates of 171 dB for a tug and barge and 181 dB for a large supply ship.

3.5.3.3.3 Gunfire and Explosives

Studies on the effects of non-lethal gunfire on marine birds are rare. Investigators did study the effect of military shooting ranges on the birds of the Wadden Sea, although effects may have been confounded by aircraft effects (Kuesters and Van Raden 1998). The investigators stated that the reactions of the birds to bombing and shooting air-to-ground missiles and machine guns from low-flying planes varied from continuing feeding to alert behavior to spontaneous flight. Reaction intensity depended on the sequence in which the weapons were fired (i.e., birds were more likely to become habituated if the shooting started with low-noise weapons) and particularly on the tide, with higher tides (and associated concentrations of birds on their high-tide roosts) eliciting stronger responses. In a study of wintering bald eagle response to military activities at Fort Lewis, Washington, investigators reported that most eagles were not “overly disturbed” by artillery and small arms fire (Stalmaster and Kaiser 1997). In a study of nesting eagles in Michigan, average

eagle flushing distance was approximately 1,600 feet (488 m) for gunfire and 5,000 feet (1,524 m) for artillery fire (Grubb et al. 1992).

Indirect evidence of the effects of gunfire on birds can be obtained from results of bird hazing activities at aquaculture facilities, hydroelectric facilities, agricultural sites, and oil spills. In general, gunfire and other pyrotechnics initially cause foraging birds to flush, but the birds usually become habituated to the gunfire over time (Bomford and O'Brien 1990; Salmon and Marsh 1991; Bechard and Marquez-Reyes 2003).

3.5.3.3.4 Marine Mammals and Underwater Noise

Within animals, hearing characteristics vary among individuals, sex and age classes, populations, and species. Hearing capabilities of marine mammals have been studied for just over 20 of approximately 125 species (Richardson et al. 1995; Wartzok and Ketten 1999; Würsig and Richardson 2002). The species studied are limited to those small enough to be held in captivity. Traditionally, direct hearing measurements have involved trained responses; more recently, electrophysiological methods have been used to measure neural activity in animals presented with sound. For larger or rare species, hearing must be estimated from mathematical models based on anatomy, inferred from the sounds they produce, or from reactions to sounds in their environment.

Hearing and sound production are highly developed in all studied cetacean species. Cetaceans rely heavily on sound and hearing for communication and sensing their environment (Watkins and Wartzok 1985; Tyack 2000). Of all mammals, cetaceans have the broadest acoustic range and the only fully specialized ears adapted for underwater hearing. Little information is available, however, for individual hearing capabilities in most cetacean species (Ketten 2000).

Of the cetaceans, baleen whales are thought to be most sensitive to low-frequency sounds (approximately 7 Hz to 35 kHz) based on characteristics of their auditory morphology, behavioral responses, and sound production (NMFS 2018a). Refer to Subsection 3.4.3.6.5, Known and Potential Anthropogenic Impacts, Offshore Activities and Underwater Noise, for more information about gray whales and marine noise. No direct empirical data exist on the hearing of baleen whales. Most odontocetes (toothed cetaceans, such as killer whales, other dolphins and porpoises, and sperm whales) have functional hearing across a broader range of mid to high frequencies (from 150 Hz to 160 kHz) (NMFS 2018a). Odontocetes communicate mainly above 1,000 Hz and use echolocation signals as high as 150 kHz (NFMS 2018a). A few odontocetes, including harbor porpoises and river dolphins, hear relatively similarly in this broad range, but

appear to be specialized for hearing sounds at very high frequencies (approximately 275 Hzto 160 kHz or higher) (NMFS 2018a).

Pinnipeds (seals, sea lions, and walrus) are fundamentally different from other marine mammals, because they are amphibious mammals performing important life functions both above and below water. Consequently, they have a number of auditory adaptations enabling fairly sensitive hearing across wide frequency ranges both in air and water (Richardson et al. 1995; Kastak and Schusterman 1998). Pinnipeds can be segregated into two functional groups based on their underwater hearing capabilities: 1) otariids (sea lions and fur seals), which have been shown to be sensitive to a fairly wide range of mid frequencies (approximately 50 Hz to 86 kHz); and 2) phocids (true seals) and walruses, which generally are capable of hearing across a wide range of low to mid frequencies (approximately 60 Hz to 39 kHz) (NMFS 2018a). The differences in hearing bandwidth in air are less striking between the phocids and otariids; in both taxa, functional bandwidth is narrower in air than in water.

Ketten (1998) reported that there are no conventional audiometric data available for sea otters, but research on river otters indicates a functional hearing range in air of approximately 450 to 35,000 Hz and a peak sensitivity of 16,000 Hz.

Noise and Marine Mammal Physiological Effects

Noise exposure may result in a range of effects on auditory and non-auditory systems. Noise may be detectable but have no effect on a mammal's hearing or physiology. The presence of noise may mask signals of interest (such as calls of other animals) (Bain and Dahlheim 1994; Erbe 2002; Southall et al. 2003). Intense or prolonged exposure may result in either temporary or permanent changes in hearing sensitivity (Schlundt et al. 2000). Sound exposure may also induce physical trauma to non-auditory structures (Jepson et al. 2003; Fernandez et al. 2005), although much remains uncertain regarding the exact mechanisms. Physical effects, such as direct acoustic trauma, can be influenced by a marine mammal's frequency range of hearing compared to a sound source, as well as the intensity and energy from the source that are received by the animal (Nowacek et al. 2007; Southall et al. 2003). Because marine mammals in the action area rely on underwater sounds for various purposes, any strong anthropogenic sounds at relevant frequencies might have an effect.

Noise and Marine Mammal Behavior

Most studies of the effects of noise on marine mammal behavior are observational rather than experimental. Behavioral responses can range in severity from no observable response to panic

and stranding (Southall et al. 2003; Ellison et al. 2012). Behavioral responses of more typical and moderate severity may take many forms, including subtle changes in surfacing and breathing patterns, changes in vocalization rate or intensity, or active avoidance or escape from the vicinity of the noise source. Bowhead whales have been observed altering their diving and blowing behavior in response to human noises (Richardson et al. 1986). Many whale species have been seen to cease vocalizing in response to human noises. These include right whales (Watkins 1986), bowhead whales (Wartzok et al. 1989), sperm whales (Watkins and Schevill 1977; Bowles et al. 1994), humpback whales (Sousa-Lima and Clark 2012), and pilot whales (Bowles et al. 1994). Other responses include humpback whales lengthening their song cycles (Miller et al. 2000) and moving away from mid-frequency sonar (Maybaum 1993) or tourist boats (Sousa-Lima and Clark 2012), beluga whales adjusting their echolocation clicks to higher frequencies (Au et al. 1985), and gray whales avoiding air gun noise (Malme et al. 1984). Average speed and distance of nearby vessels have both been found to affect the behavior of Southern Resident killer whales in the inland waters of Washington State (Holt et al. 2021a and 2021b). In contrast, some observers (e.g., Tyack and Clark 1998; Fristrup et al. 2003) have reported instances in which whales did not respond to human sounds.

Many factors can affect the broad range of marine mammals' behavioral responses to sound, which makes their behavioral responses hard to predict (NRC 2005; Ellison et al. 2012); the received level of sound intensity contributes to such responses (Southall et al. 2003). Responses may also vary depending on the context of the sound exposure (i.e., whether the animal is motivated to be in an area because of feeding or breeding or whether the sound source is novel) as well as the animal's age and sex. For example, mother-calf pairs of gray whales are considered more sensitive to disturbance by whale-watching vessels than other age or sex classes (Tilt 1985). Responses also appear to be affected by the location of the source relative to the animal, the motion of the source, and the onset and repetition of the sound (Hildebrand 2005; NRC 2003; Ellison et al. 2012).

Jensen et al. (2009) studied the potential for sounds from recreational motorboats (including boats used for whale-watching excursions) to interfere with communication by cetacean species in shallow-water habitats (bottlenose dolphins) and deep-water habitats (short-finned pilot whales). They found that small vessels traveling at 5 knots in shallow water can reduce the communication range of bottlenose dolphins within 164 feet (50 m) by 26 percent. Similar vessels traveling at similar speeds in quieter deep-water habitats can reduce the communication range of pilot whales

by 58 percent (Jensen et al. 2009). Holt et al. (2009) found that Southern Resident killer whales increase their call amplitude by 1 dB for every 1 dB increase in background noise levels.

In a study that used acoustic tags and controlled exposure experiments with North Atlantic right whales, Nowacek et al. (2004) examined the effects of shipping noise on marine mammal behavior. Five of six individual whales responded strongly (interrupted dive pattern and rapid ascent to the surface) to the presence of an artificial alarm stimulus (series of constant frequency and frequency modulated tones and sweeps) but ignored playbacks of vessel noise. More information about the effects of noise on gray whale behavior can be found in Subsection 3.4.3.6.5, Known and Potential Anthropogenic Impacts, Offshore Activities and Underwater Noise.

3.6 Economics

3.6.1 Introduction

This section describes current conditions and recent trends in economic activity within Clallam County and on the Makah Reservation, including Neah Bay. Information presented in this section includes the following:

- Countywide employment, personal income, and tourism statistics
- Commercial shipping information
- Makah tribal employment and personal income statistics
- Local economic conditions related to tourism
- County and tribal income generated by tourism
- Ocean sport and commercial fishing statistics
- Summary of economic effects of media coverage of the 1998, 1999, and 2000 Makah Tribe gray whale hunts

3.6.2 Regulatory Overview

Regulations, statutes, and policies addressing wildlife management and hunting activities in the action area are discussed in other subsections of this section (Subsection 3.3.2, Regulatory Overview (Marine Habitat and Species), Subsection 3.4.2, Regulatory Overview (ENP Gray Whale), Subsection 3.5.2, Regulatory Overview (Other Wildlife Species).

3.6.3 Existing Conditions

3.6.3.1 Countywide Conditions (Clallam County)

3.6.3.1.1 Employment, Unemployment, and Labor Force

Over the past 20 years, the economy in Clallam County has experienced slow but steady growth, shaped in part by a vibrant port district in the county's major coastal city of Port Angeles

(Vleming 2022). Immigration has also continued to rise as many retirees are attracted to Sequim's "sunbelt" climate. The service sector has been experiencing growth over the past decade, and in 2021 accounted for almost 90 percent of all non-farm employment (Vleming 2022). Top employers in the county include two prisons, a hospital, and a school district. Following the popularity of the *Twilight* books and movies, the city of Forks continues to be a tourism destination (Vleming 2022). The economy of Clallam County has historically been resource-based, with an emphasis on forest products, although new industries have moved into the county in the past decade, increasing overall employment. There has also been recent growth in construction and manufacturing sectors (Vleming 2022).

As of November 2022, government jobs made up almost one third of jobs countywide, while the largest proportion of private sector jobs in the county is the service industry (Washington State Employment Security Department 2023a). Retail trade currently accounts for approximately 21 percent of private-sector jobs countywide, with leisure and hospitality accounting for another 19 percent. While historically much of the economy of the county was dominated by jobs in forestry and wood products, as of 2022 only approximately 7 percent of the jobs in the county are in the mining, logging, and construction industries combined (Washington State Employment Security Department 2023a).

In the 10 years from 2012 through 2021, annual average wage in Clallam County was stagnant from 2012 to 2014, then began to steadily increase, with the fastest gains seen from 2018 into 2020. From 2012 through 2015 total employment also held relatively steady, fluctuating between 22,140 and 22,450 jobs, followed by steady growth leading to approximately 23,530 jobs by 2019 (Washington State Employment Security Department 2023b). In 2020, as in communities across the United States the local economy in Clallam County began to shrink as a result of the COVID-19 pandemic and related closure of the Canadian border (Vleming 2022). Most of the job losses occurred in service industries, where almost 70 percent of the 1,350 jobs added between 2012 and 2019 were wiped out in 2020, although by the end of 2021 had already rebounded to levels closer to their pre-pandemic levels (Washington State Employment Security Department 2023b). Employment growth also was relatively stable in the government sector, which added 780 new jobs between 2012 and 2019, only lost 280 of these jobs between 2019 and 2020, and was able to recover 200 of them in 2021. The other sectors with steady job growth in the last decade were professional and business services, with 270 additional jobs, and education and health services, with 110 additional jobs, neither of which lost jobs between 2019 and 2020. Retail trade managed to maintain marginal growth, adding 100 jobs from 2012 to 2021, and leisure and hospitality has

overall gained 140 additional jobs between 2012 and 2021 although this is only a third of the jobs that had been gained by 2019. There were 210 more mining, logging, and construction jobs in 2021 than in 2012, although manufacturing jobs fell throughout the decade, with 520 fewer jobs by 2021 (Washington State Employment Security Department 2023b).

In 2022, an average of 24,640 wage and salary workers were employed in Clallam County. Goods-producing industries, including those involved in natural resources, mining, construction, and manufacturing, accounted for 11 percent of countywide employment (Washington State Employment Security Department 2023b). This proportion is similar to the statewide pattern, where these industries accounted for 14 percent of non-farm jobs at the end of 2022 (Bureau of Labor Statistics 2023). Government employment generated 32 percent of the county's jobs, compared to 16 percent statewide, in 2022. Trade, transportation, warehousing, and utility industries accounted for 17 percent of both Clallam County and statewide wage and salary jobs, whereas the service sector (financial, professional and business services, education and health services, and leisure and hospitality) generated only 35 percent of countywide employment opportunities, compared to 52 percent statewide. Leisure and hospitality jobs actually made up 13 percent of Clallam County's nonfarm jobs in 2022, compared to 9 percent statewide, so this difference in the local service sector impact is due to the relatively smaller contribution of other service types (Bureau of Labor Statistics 2023; Washington State Employment Security Department 2023a).

In addition to wage and salary employment, employment related to business ownership and self-employment is important to the economy of Clallam County. For example, in 2021, proprietors' employment produced 9,164 jobs in addition to contributing to countywide wages and salaries (Bureau of Economic Analysis 2023).

Clallam County's resident civilian labor force averaged 29,275 persons in 2021, reflecting labor force growth of 4 percent since 2012, which is still a decrease from the peak of 30,374 in 2009 (Washington State Employment Security Department 2023b). Unemployment in the county steadily decreased from 10.5 percent in 2012 to 6.5 percent in 2021, despite a short-lived spike when unemployment jumped up to 10.2 percent in 2020 (Washington State Employment Security Department 2023b). Growth in the employment of Clallam County's residents therefore roughly kept pace with growth of the county's resident labor force between 2012 and 2021. However, Clallam County unemployment is still lagging behind the statewide unemployment rates over the same period, which decreased from 8.1 percent to 5.2 percent (Washington State Employment Security Department 2023b, Bureau of Economic Analysis 2023).

3.6.3.1.2 Personal Income

Personal income is generally seen as a key indicator of a region's economic vitality. Personal income, as presented here, captures all forms of income: wages, salaries, government transfer payments, retirement income, farm income, self-employment income, proprietors' income, interest, dividends, and rent, but it does not include contributions toward social insurance. Social insurance payments are those made for certain government programs, including health, disability, unemployment, retirement, life insurance, and workers' compensation insurance programs. Nominal (i.e., not adjusted for inflation) total personal income for Clallam County increased from $2.6 billion in 2011 to $3.9 billion in 2020 (the most recent year for which data are available) (Table 3-20). The increase in personal income between 2011 and 2020 equates to an average annual growth rate of 4.5 percent, lower than the state's average annual growth of 6.3 percent for the same period (Washington State Employment Security Department 2023b, Bureau of Economic Analysis 2023).

Per capita income, which relates an area's total income to its population level, provides an indicator of the economic well-being of the residents of an area. In 2020, per capita income in Clallam County was $49,718, less than the state ($67,126), and the nation's ($59,510) per capita income (Vleming 2022, Bureau of Economic Analysis 2023b). Between 2011 and 2020, nominal per capita income in Clallam County increased by 36 percent (Table 3-20). In 2020, the median household income in the county was $55,090, also behind the state's ($77,006) and the nation's ($64,994), and 13.3 percent of the population was living below the poverty level, higher than the statewide and national rates, although the percentages are not directly comparable (Vleming 2022).

Table 3-20. Population and personal income in Clallam County in 2011 and 2020.

Category	2011	2020	Percent change 2011-2020
Population	71,778	78,067	8.8
Total personal income ($ billion)	2.62	3.88	48.1
Per capita income	36,551	49,718	36.0

Source: Washington State Employment Security Department 2023b.

3.6.3.1.3 Tourism

Tourism is an important component of Clallam County's economy. The rugged, pristine environment and variety of habitats found along the Olympic Coast and the Strait of Juan de Fuca

provide recreational opportunities for both residents and tourists. Much of the land in Clallam County, including a large segment of its Pacific coastline, is within the Olympic National Park and Olympic National Forest. Olympic National Park attracted an average of 2.8 million recreation visitors per year between 2018 and 2022, although numbers have yet to return to their pre-pandemic peak of 3.2 million visitors in 2019 (National Park Service 2023). This tourism also generates visitation to Clallam County, including visitor centers in Port Angeles, Forks, Sequim, and Neah Bay. The OCNMS, which provides opportunities for wildlife viewing, also attracts visitors to the county's outer coastline. Additional information concerning Olympic National Park and the OCNMS is presented in Subsection 3.12.3.2, Vantage Points and Visual Opportunities in the Action Area.

Tourism and recreation is a relatively large industry in Clallam County and makes up 84 percent of the county's ocean economy (which also includes living resource, marine construction, ship building, marine transportation, and offshore mineral extraction sectors), as compared to 54 percent of the statewide ocean economy (NOS 2023). According to a recent study of travel-related economic impacts, visitors spent $300.7 million at destinations in Clallam County in 2018 (Table 3-21), generating $21.9 million in local taxes and supporting 4,260 local jobs (Table 3-22). Non-local visitors to Olympic National Park alone generated $265 million in visitor spending, supporting an estimated 2,970 jobs with $131 million in associated labor income, and visitors to State Parks in Clallam County spent an additional $2.5 million, generating $128 thousand in State and local tax revenue and supporting 20 jobs (Table 3-23). Spending occurs in several sectors of the county's economy but is greatest in the food and beverage services sector (36 percent of total visitor spending) and accommodations sector (21 percent). The local transportation, arts/entertainment/recreation, and retail sales sectors received approximately 8 percent, 12 percent, and 13 percent of visitor spending in 2018, respectively (Table 3-21).

Table 3-21. Travel Spending in Clallam County in 2018.

Commodity Purchased	Travel Spending ($ millions)	Percent of Total Travel Spending (%)	Change from Prior Year (%)
Accommodations	62.5	21	+7.0%
Food and beverage services	108.1	36	+9.2%
Food stores	30.8	10	+3.4%
Local transportation and fuel	25.6	9	+13.3%
Arts, entertainment, and recreation	36.0	12	+6.2%
Retail sales	37.7	13	+4.7%
TOTAL SPENDING	**300.7**	**100**	**+7.5%**

Source: Olympic Peninsula Tourism Commission (2023a). Visitor spending impacts in Clallam County (2018).

Travel-related spending by visitors to Clallam County generates earnings and employment in visitor-serving industries. Earnings generated by travel spending totaled an estimated $101.5 million in 2018 (Table 3-22). Employment generated by travel-related spending in Clallam County supported a total of an estimated 4,260 jobs in 2018 (Table 3-22), accounting for 27 percent of Clallam County's private sector jobs and 18 percent of all jobs in that same year (Washington State Employment Security Department 2023b).

Table 3-22. Estimated travel-related economic impacts in Clallam County in 2018.

Impact Source	Development Generated
Tourism Supported County Jobs	4,260
Tourism Supported County Earnings	$101.5 million
Local Tax Receipts from Visitor Spending	$6.5 million
State Tax Receipts from Visitor Spending	$15.4 million

Source: Olympic Peninsula Tourism Commission (2023a). Visitor spending impacts in Clallam county (2018).

Table 3-23. Nonlocal spending by visitors to State and National Parks in Clallam County.

Park	Year (most recent data)	Total Annual Expenditures	Jobs Supported
Olympic National Park	2018	$265,000,000	2,970
State Parks	2015	$2,530,000	20

Source: Trust for Public Land (2021).

Visitors to Clallam County as well as local residents participate in an array of sightseeing and recreational activities (The Trust for Public Land 2021). General sightseeing, hiking, wildlife viewing, and visiting historical and cultural sites are among the most popular activities of visitors to the county. In addition to hiking, other popular recreational activities include biking, mountaineering, snow sports, kayaking, tidepooling, diving, boating and water sports, and fishing (Olympic Peninsula Tourism Commission 2023b). Local residents in the North Olympic Peninsula also engage in outdoor recreational activities at higher rates compared to the U.S. average, particularly biking, boating, fishing, hunting, backpacking, hiking, and canoeing or kayaking (Trust for Public Land 2021). This generates additional revenue for the local economy from resident spending on sports, recreation, and equipment (Table 3-24). In addition, households in the region spend $26.1 million annually on recreational vehicles and fees (including boats) (Trust for Public Land 2021). The commercial value of whale-watching activities specifically is described further in Subsection 3.6.3.3.2, below.

Table 3-24. Estimated annual household spending on sport, recreation, and related equipment in the North Olympic Peninsula.

Spending Category	Average amount spent per household	Total Spending (Millions)
Sports, recreation, and exercise equipment	$214.00	$33.1
Bicycles	$30.10	$4.7
Camping equipment	$19.40	$3.0
Hunting and fishing equipment	$71.20	$11.0
Winter sports equipment	$5.62	$0.9
Water sports equipment	$8.22	$1.3

Source: Trust for Public Land (2021). Amounts are in nominal 2020 dollars.

3.6.3.1.4 Commercial Shipping

Next to fishing, the predominant use of waters off the Olympic Coast is commodities transportation to and from port facilities in Puget Sound. In 2013, the U.S. Customs District of Seattle (which includes all ports in Puget Sound, as well as some border crossings along the Canadian border) handled more than $90 billion worth of international trade (Maritime Administration 2023). Included in the commercial shipping traffic are tug boats with barges carrying hydrocarbon products along the coast. The entrance to the Strait of Juan de Fuca is highly congested by oil tankers, freighters, tugs and barges, and fishing vessels (Ecology 2021b). Management of commercial vessel traffic near the action area and marine vessel traffic regulations adopted during the Makah Tribe's previous whale hunt are discussed in Section 3.13, Transportation. Similarly, data on transits into Washington State waters through the Strait of Juan de Fuca by large cargo and passenger vessels, tank ships, barges, and commercial fishing vessels are presented and discussed in Section 3.13, Transportation.

Commercial shipping routes in the Strait of Juan de Fuca and nearby waters, including Haro Strait, Boundary Pass, Rosario Strait, and the Strait of Georgia, are managed jointly by the United States and Canadian Coast Guards, primarily through the Cooperative Traffic System. This system allows for management of vessel traffic in a waterway segment without regard to the international boundary that separates the waters of the United States and Canada. A vessel separation scheme, similar to a divider median on a highway, is used to maintain a safe distance between opposing vessel traffic (Ecology 2021a).

The Strait of Juan de Fuca traffic separation scheme encompasses five sets of traffic lanes, including the western and southwestern approaches to and from the Pacific Ocean, the western lanes in the Strait of Juan de Fuca, the southern lanes to Port Angeles, and the northern lanes to

Victoria. Each set of lanes consists of inbound and outbound traffic lanes with separation zones. The traffic lanes encompassed by the Strait of Juan de Fuca traffic separation scheme generally run through the center of the Strait of Juan de Fuca, near the boundary line separating the waters of the United States and Canada (Ecology 2021a). The southern boundary of the traffic separation scheme generally lies about 4 nautical miles (7.4 km) offshore of Clallam County along the Strait of Juan de Fuca and extends further away from the coast as it leaves the Strait of Juan de Fuca and enters ocean waters. The Makah Tribe's U&A (Figure 3-1) overlaps the traffic separation scheme near the international boundary line in the Strait of Juan de Fuca and encompasses the commercial traffic lanes that provide a southwestern approach to and from the Pacific Ocean near the mouth of the Strait.

Commercial traffic largely honors the OCNMS area to be avoided (Figure 3-1), discussed in more detail in Subsection 3.1.1.1.3, Current Issues (OCNMS), and Section 3.13, Transportation. The Coast Guard RNA, which was established to enforce vessel activities near any Makah whale hunt, falls within the area to be avoided, except for the portion of the RNA that wraps around Cape Flattery and Tatoosh Island (Figure 3-1). The commercial shipping traffic lanes appear to avoid the RNA, indicating that most commercial traffic avoids this area.

3.6.3.2 Local Conditions on the Makah Reservation, Including Neah Bay

Demographic data presented in the Employment and Personal Income parts of this subsection differ from employment and personal income data that will be presented in Section 3.7, Environmental Justice. The data in this subsection apply to all (non-native and Native American) residents of the Makah Reservation, whereas the data presented in the Environmental Justice subsection apply only to Native American residents of the Makah Reservation; therefore, the data do not match.

3.6.3.2.1 General Description of the Local Economy

The Makah Reservation, which includes the community of Neah Bay, is extremely isolated from other communities within Clallam County and the Olympic Peninsula. The reservation has been accessible by road only since 1931, and Neah Bay is a 75-mile drive from the closest commercial center in Port Angeles (Sepez 2001; NPAIHB 2023). The economy in the coastal region that includes the Makah Reservation is inextricably linked to its natural resources, based primarily on seafood, timber harvesting, pulp and paper production, and tourism (Vleming 2022). Neah Bay, the Makah Reservation's central town, is primarily a commercial fishing and timber community, as well as a tourist and sport fishing destination (Neah Bay Chamber of Commerce 2023a).

Similar to other locations on the Olympic Peninsula that depend on resource-based industries, the Makah Reservation and Neah Bay have experienced economic difficulties in recent decades as demand for goods-producing products have decreased (Vleming 2022). The remote location of the reservation further reduces the value of already relatively low per capita income (see Section 3.6.3.2.3 Personal Income, below) due to the additional cost of transporting food and supplies to the area (Renker 2018). In order to meet the needs of its people, the Makah Tribe has made a commitment to diversifying and expanding its access to and use of traditional resources. Among these endeavors was a program that facilitated the sharing and enhancement of tribal members' knowledge and skills in management of non-timber forest resources, such as floral supplies and materials for basketry (Renker 2018). The Tribe has also diversified its marine fisheries over the past two decades, particularly in the development of its trawl and longline fisheries, focus on increasing the shellfish resource (specifically aquaculture of geoduck clams), and opportunities for small vessels to engage in Dungeness crab and Lingcod fisheries in seasons when other tribal fishing opportunities are limited. Despite these successes, fluctuations in the reservation's natural resources, commercial fishing, tourism, and sport fishing continue to present challenges to the Tribe's ability to ensure reliable incomes and subsistence sources for its members (Renker 2018).

Most reservation residents live in Neah Bay, the location of the public school, post office, general store, health clinic, and other services (Renker 2018). Commercial activity on the Makah Reservation includes the businesses shown in Table 3-25, which mainly are located in Neah Bay. Tribal artisans also produce carvings, jewelry, and silk screen designs for sale in local shops and regional galleries (Sepez 2001; Neah Bay Chamber of Commerce 2023a). All businesses on the reservation are owned by tribal members or leased by the Tribe to non-tribal members (B. Denney, Makah Community Planning and Economic Development, pers. comm., July 2012).

3.6.3.2.2 Employment

In 2021, the estimated labor force residing on the Makah Reservation was 691 persons of the 1,140 residents ages 16 years and older. Of the total population (1,519), 1,139 identified as American Indian or Alaska Native (primarily Makah tribal members), representing 75 percent of the reservation's population (United States Census Bureau 2023a). Unemployment trends and industrial employment data specifically for the Native American population residing on the Makah Reservation are presented and discussed in Section 3.7, Environmental Justice.

According to the 2017 to 2021 American Community Survey estimates, 587 of the 691 Makah Reservation residents in the labor force were employed in 2020. Of the 587 Makah Reservation residents with jobs in 2020, 68 percent were employed by government entities, 12 percent were

self-employed, and 20 percent were employed by private businesses (United States Census Bureau 2023). This employment distribution points to the importance of the government sector to the economy of the Makah Reservation and Neah Bay. In addition to state and federal employment, the Makah Tribe, which is the largest employer on the reservation, employs approximately 300 people (K. Vogel, Makah Tribe, Human Resources Director, pers. comm., April 21, 2023). Management and professional occupations, many probably related to government employment, accounted for 39 percent of the jobs held by reservation residents in 2021 (Table 3-26). Service, sales, and office occupations together accounted for an additional 32 percent of total jobs. Construction, maintenance, and occupations related to the area's natural resources provided jobs for 16 percent of the reservation's employed labor force (Table 3-26). The United States Census data may undercount the reservation's employment associated with fishing occupations. According to the Makah Tribe, commercial vessels owned and operated by Makah tribal members generated approximately 515 jobs in 2011, including vessel skippers, deckhands, and river set-net fishermen (J. Johnson, Makah Fisheries Management Data Manager, pers. comm., July 11, 2012). The number of participants in treaty commercial fisheries is variable by year due to factors such as weather, catch limits, market valuation of fish and shellfish, and regulations. Other employers on the Makah Reservation include the Indian Health Service medical center, the wellness center, and dental clinics, with 22 employees, and the Cape Flattery Public Schools, with 113 employees between the Neah Bay and Clallam Bay schools (Norman et al. 2007; Office of Superintendent of Public Instruction 2023).

Table 3-25. Businesses on the Makah Reservation.

Accommodations Apocalypto Motel Butler's Motel The Cape Resort and RV Park Good Night Irene's Harmony Cabins Hide-Away RV Park Maggie's Ocean Retreat Hobuck Beach and Cabin Resort Raven's Corner Guest House The Village RV	**Restaurants** Bigginz Burgers and Seafood Calvin's Crab House Cousins Food Truck The Hideaway Cafe Linda's Wood-fired Kitchen Native Grounds Coffee Pat's Place Washburn's Deli Warmhouse Restaurant
Retail Goods/Services and Fuel Big Salmon Resort (fuel and rentals) Honey Hollow Coffee Co. Makah Mini-Mart/Fuel Station Museum Store at the Makah Cultural and Research Center Neah Bay Food Sales	**Fishing Charter Businesses** Excel Fishing Charters Windsong Fishing & Whale Watching Ling Daddy Charters (Note: several other fishing businesses charter trips seasonally out of Neah Bay)

Raven's Corner Gallery and Gift Shop Take-Home Fish Company Washburn's General Store	**Active Makah Fishing Vessels In 2022 By Gear Type**
Other Businesses Big O's Skookum Firewood Burley Construction Cape Flattery Fishermen's Co-op Harmony Seafood Makah Marina Washburn's Native Art & Gifts	37 longline vessels 51 summer troll vessels 13 winter troll vessels 1 bottom/mid water trawlers 1 whiting trawlers 16 drft gillnet vessels 11 set gillnet vessels 8 crab vessels 18 hook and line vessels 10 Individual (tribal members) registered fish buyers 12 individual (tribal members) river fishermen (salmon)

Sources: Makah Tribe 2023; Neah Bay Chamber of Commerce 2023c; R. Buckingham, Port of Neah Bay Port Director, pers. comm., July 11, 2012; J. Johnson, Makah Fisheries Management Data Manager, pers. comm., April 21, 2023.

Table 3-26. Employment by occupation of Makah Reservation residents in 2021.

Occupation	Number	Percent (%)
Management, business, science, and arts occupations	228	38.8
Service occupations	138	23.5
Sales and office occupations	52	8.9
Natural resources, construction, and maintenance occupations	93	15.8
Production, transportation, and material moving occupations	76	13.0
TOTAL	**587**	**100.0**

Note: The table includes both non-native and Native American residents of the Makah Reservation.
Source: United States Census Bureau 2023a.

The distribution of employment by industry for residents (non-native and Native American together) of the Makah Reservation in 2021 is presented in Table 3-27.

Table 3-27. Employment by industry of Makah Reservation residents in 2021.

Industry	Number	Percent
Agriculture, forestry, fishing, hunting, and mining	99	16.9
Construction	23	3.9
Manufacturing	27	4.6
Wholesale trade	2	0.3
Retail trade	18	3.1
Transportation, warehousing, and utilities	24	4.1
Information	0	0
Finance, insurance, real estate, and rental and leasing	14	2.4
Professional, scientific, management, administrative, and waste management services	7	1.2
Educational, health, and social services	174	29.6
Arts, entertainment, recreation, accommodation, and food services	38	6.5
Other services (except public administration)	0	0
Public administration	161	27.4

Industry	Number	Percent
TOTAL	**587**	**100.0**

Note: The table includes both non-native and Native American residents of the Makah Reservation.
Source: United States Census Bureau 2023.

3.6.3.2.3 Personal Income

Personal income levels of Makah Reservation residents (non-native and Native American together) lag behind those of residents throughout Clallam County. According to the U.S Census Bureau (2023a and 2023b), the median income of reservation households was $47,167 in 2021, representing only 79 percent of the median countywide household income of $60,044. In addition, 21 percent of all residents had income that was below the poverty level in the prior 12 months in 2021, a much higher rate than the 12 percent at or below the poverty level in 2022 across Clallam County (U.S. Census Bureau 2023a and 2023b).

Because Neah Bay is isolated, most of the earnings of local residents come from the wage and salary payments of local businesses. Based on an informal survey of businesses in Neah Bay, local businesses generate an estimated annual total payroll of about $21 million (Arnold 2005).

3.6.3.2.4 Contribution of Tourism to the Local Economy

Tourism is one of the key elements of the economy of Neah Bay and the Makah Reservation. Visitors are attracted to Neah Bay and the reservation by several activities associated with the area's cultural, scenic, and recreational offerings.

In the village of Neah Bay, the Makah Cultural and Research Center houses the Makah Museum, which includes permanent exhibits featuring artifacts from the Ozette archeological site (Ozette was an ancient Makah village discovered in 1970 on the Pacific Coast side of the reservation). The museum, which houses the nation's largest collection of Native American artifacts, is connected to a gift shop that offers visitors carvings, basketry, and jewelry made by Makah artists. The Makah Cultural and Research Center also houses the Makah language program, which is designed to preserve and teach the Makah language.

Neah Bay also offers visitors opportunities for sport fishing charters and guided tours. Several visitor-dependent businesses are located in Neah Bay, including businesses providing accommodations, restaurants, several retail shops providing fuel and supplies, and sport fishing charter businesses (some of which may offer whale watching if requested; Table 3-25). Many people travel to the coast to watch the annual migration of gray whales. Most whale-watching on and near the Makah Reservation is from land-based locations, with few businesses offering

whale-watching tours or charters. For more information on whale-watching tourism see Section 3.6.3.3.2, Commercial Value of Whales, below.

Several other tourist and recreation activities are available elsewhere on the Makah Reservation, including vehicle sightseeing tours along forested State Route 113 and the irregular Strait of Juan de Fuca coastline accessed by State Route 112. Beach activities are available to reservation visitors at sandy beaches near Neah Bay and along Hobuck Beach Road on the Pacific Ocean coast side of the reservation. Camping is available at Hobuck Beach, as well as in Neah Bay, and Shi Shi Beach is a popular destination for campers during summer months (Neah Bay Chamber of Commerce 2023b; Table 3-25).

Hiking is a popular activity for recreationists visiting the reservation. Popular trails include the 0.75-mile (1.2-km) Cape Flattery Trail and the 3.3-mile (5.3-km) Shi Shi Trail. The Cape Flattery Trail, with observation decks for viewing Tatoosh Island, sea stacks and sea caves, and the Pacific Ocean, is popular with ecotourists and those interested in wildlife viewing opportunities. Wildlife viewing also is available at Flattery Rocks National Wildlife Refuge and the Olympic Coast National Marine Sanctuary. Additionally, the public can view migrating salmon at the Makah National Fish Hatchery, located on the Tsoo-Yess River on the west side of the reservation (Neah Bay Chamber of Commerce 2023b).

Based on estimates of the number of people who may come to the area for various tourist activities (including fishing, surfing, hiking, and visiting museums), Parametrix (2006) generated an estimate of 25,000 to 40,000 annual visitors to Makah lands. Specific activities and sources of revenue included:

- the Makah Cultural and Research Center, which includes the Makah Museum, accommodated an annual average of roughly 14,000 non-Makah visitors (J. Bowechop, Makah Cultural and Research Center Director, pers. comm., April 20, 2021).
- Between March 14, 2022 and April 1, 2023, the Tribe sold 24,600 recreational use permits (J. Cooke, Makah Tribe, pers. comm., April 21, 2023). Sales of permits peak during summer months and are lowest during the winter. Recreational permits are required for non-tribal persons on the reservation. Permits are sold on a per vehicle basis and are good for a calendar year; this number of permits does not capture the total number of non-tribal persons visiting the reservation in a calendar year, nor does it capture the length of a visit and the number of visits an individual may make to the reservation under a single permit.

- In 2022, the Makah Tribe sold 25 recreational fishing permits (Makah Tribe 2022b). This is down from 2006-2011 when the Makah Tribe sold an average of 363 recreational fishing permits per year, generating an annual average of $7,261 in revenue. The number of permits sold ranged from 496 in 2009 to 181 in 2010 (J. Johnson, Makah Fisheries Management Data Manager, pers. comm., July 11, 2012). The permits, which are sold on an individual basis, allow visitors to fish on rivers within the reservation.

Visitation trends over the past five years are unlikely to be indicative of future tourist travel and activity. From March 2020 through 2022, tribal leaders decided to close the reservation to outsiders for two years to protect the health of their community during the COVID-19 pandemic (Pailthorp 2022). Given the rate of recovery of the Clallam County economy and tourism sector, it is likely visitor numbers to the reservation will also rebound quickly in the coming years.

Persons visiting the Makah Reservation for tourism and recreational purposes generate revenues for businesses in Neah Bay, all of which are owned by tribal members or leased by the Tribe to non-tribal members (B. Denney, Makah Community Planning and Economic Development Planner, pers. comm., July 11, 2012). The amount of revenues annually generated by reservation tourism and recreation, as well as the number of jobs and amount of personal income that depend on visitor spending, is not known. According to the U.S. Census, 56 reservation residents were employed in 2021 in the retail trade sector and the arts, entertainment, recreation, accommodation, and food services sector, two sectors that depend directly on tourism (Table 3-27). These jobs account for approximately 10 percent of the employment in the local area (Table 3-27). Many other local jobs likely are either directly or indirectly supported by tourist spending.

3.6.3.2.5 Contribution of Ocean Sport Fishing to the Local Economy

The diversity and abundance of fish species along the coast are important recreational and commercial resources. Salmon and groundfish (including halibut) fisheries are the primary recreational fisheries within the action area, including the Makah U&A, the OCNMS area to be avoided, and the Coast Guard RNA (Figure 3-1). Recreational fishing for groundfish is concentrated primarily seaward of the entrance to the Strait of Juan de Fuca. The ocean recreational fishery for salmon, which operates out of both Neah Bay and La Push, occurs offshore (e.g., Swiftsure Bank) and in the protected waters of the Strait of Juan de Fuca.

Ocean sport fishing seasons vary according to species, with seasons adjusted from year to year based on fishery management considerations. The recreational salmon fishery from Cape Alava (near Ozette) north to the United States/Canada border and for the Strait of Juan de Fuca near Neah Bay is generally open from early July until early or mid-September each year, and in 2022

the Neah Bay subarea was open from June 18th through September 30th (PFMC 2022g). The recreational groundfish fishery is generally open year-round, although the season is limited for certain species. For example, in 2023, the recreational season for lingcod north of Cape Alava is set to be open from mid-March through mid-October (WDFW 2023a), while the halibut season is set to be open for a total of 19 days in May and June (WDFW 2023b). Periodic openings and closings for specific species may occur during the normal fishing season period.

Several fishing derbies and tournaments also draw visitors to Clallam County's sport fisheries each year. Annual derbies and tournaments in Clallam County include the Olympic Peninsula Salmon Derby in February, the Port Angeles Halibut Derby over Memorial Day weekend in May, the Sekiu Halibut Derby in June, the Sekiu "No Fin, You Win" Salmon Derby in mid-September, and the La Push Last Chance Salmon Derby in late September or early October.

Sport fishing facilities located in Neah Bay include the Makah Marina, which is managed by the Makah Tribal Council. The marina provides permanent moorage slips for about 200 commercial and sport fishing vessels and pleasure craft. The marina also provides utility hookups, restrooms and showers, and a pump-out facility for boats. Boat launching ramps and trailer parking facilities also are available at Big Salmon Resort in Neah Bay (Makah Tribal Council 2023).

Between 2016 and 2020, the annual number of recreational salmon angler trips in Marine Area 4, offshore from Neah Bay and Cape Flattery, ranged from 6,885 trips in 2020 to 10,791 trips in 2017 (Kraig and Scalici 2019 and 2022). The annual number of angler trips targeting groundfish and halibut in the same area are not similarly reported in annual WDFW catch reports, although landings from sport fishing over the same period suggests angler trips continued at roughly the same magnitude over the past five years, with the exception of 2020 (Table 3-28). This information on landings suggests that demand in the area has remained, and recreational fishing remains a viable source of income for communities on the Makah Reservation. Due to pandemic-related Neah Bay port closures in 2020 and 2021 there were no charter trips originating from Neah Bay in those years, although salmon angler effort ranged from 8,700-10,700 trips and bottomfish effort ranged from 17,500-22,600 trips leaving Neah Bay each year from 2017-2019 (Pacific Fisheries Management Council 2022). Following the lifting of port closures in 2022 and continued landings in the area, angler trips appear likely to resume at levels approaching those of 2019, following trends in the rest of the economy.

As described above, there was no recreational fishing based out of Neah Bay in 2020 and 2021, however expenditures associated with recreational fishing from 2017-2019 indicate it is and will continue to be an important source of revenue for the community. Over this period, expenditures

associated with recreational ocean salmon fishing generated between $601,000 and $721,000 of personal income (in 2021 dollars) in Neah Bay each year (Pacific Fisheries Management Council 2022). No directly comparable information is available for local spending associated with the recreational groundfish fishery. Estimates presented in the 2008 Makah Whale Hunt DEIS indicate that spending associated with the recreational groundfish fishery was of a similar magnitude to spending associated with the recreational salmon fishery.

Table 3-28. Sport fishing catch of select species near Neah Bay 2016 to 2020.

Catch Reported (Areas including Marine Area 4)	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021*
Total salmon	3,415	11,732	8,225	10,930	5,115
Halibut	6,003	5,683	6,365	8,011	3,328
Black rockfish	63,708	56,716	59,138	56,707	18,946
Lingcod	13,813	13,650	10,076	13,652	7,799
Spot shrimp (lbs)	1,300	1,300	1,300	1,300	1,300
Dungeness crab (lbs)	1,420	1,612	782	873	1,173

Source: Kraig and Scalici 2018, 2019, 2020, 2021, and 2022.
*Demand for and availability of recreational fishing charters likely affected by COVID-19 restrictions

3.6.3.2.6 Contribution of Ocean Commercial Fishing to the Local Economy

High levels of commercial fishing occur throughout the Strait of Juan de Fuca and near the approach to the Strait over Swiftsure Bank. Fish harvested by commercial vessels in the North Puget Sound Ports include five species of salmon, bottom fish, and shellfish (Dungeness crab and pink shrimp). Salmon fisheries, particularly the ocean troll fisheries for Chinook salmon and coho salmon, are managed to safeguard against over-harvest of the least viable individual stocks. Salmon harvest restrictions have severely constrained harvest levels in some years.

Commercial landings for various species vary widely, although overall remain a critical source of revenue for Washington State. Based on data derived from the Pacific Fisheries Information Network (PacFIN) commercial catch database, the value of commercial fish landings in the North Puget Sound Port Group (which includes the Port of Neah Bay) between 2016 and 2020 ranged from $42.5 to $69.4 million annually (Table 3-29). During that period, crab fisheries were the largest contributor to total revenue, although the landings of salmon, halibut, sablefish, shrimp, and sea cucumbers also contributed significant portions of the total revenue in the port group (Table 3-29).

Table 3-29. Landings revenue from commercial fishing in the North Puget Sound Port Group from key species groups (in nominal dollars).

North Puget Sound Port Group	2016	2017	2018	2019	2020
Key Species					
Albacore tuna	585,600	153,693	0	118,958	376,231
Clams	6,875,235	0	0	0	0
Crab	33,863,829	37,772,359	30,512,017	30,261,918	28,072,582
Flatfish (sole & flounder)	1,253,583	1,474,283	1,566,631	1,268,661	148,026
Lingcod	217,419	443,516	233,536	84,347	50,969
Pacific halibut	2,440,274	2,239,528	1,572,996	2,071,974	1,584,634
Rockfish	415,309	439,512	299,243	594,753	34,131
Sablefish	4,231,733	5,545,124	4,113,262	3,288,775	1,859,182
Salmon	6,897,426	7,735,314	6,737,202	4,187,636	2,094,667
Sea cucumbers	2,254,045	2,064,079	1,011,717	1,230,375	608,395
Shrimp & prawns	3,060,521	2,997,718	2,485,528	3,100,296	3,292,722
Total	**64,609,123**	**69,416,358**	**54,435,434**	**53,843,289**	**42,532,508**

Note: Not all species included in the total are listed. Also, because virtually no whiting is landed and sold at the ports but is instead processed offshore, the value of this fishery is not reflected in catch data reported by port group.
Source: PSMFC 2023.

Commercial ocean fishing seasons vary according to species, with seasons adjusted from year to year. The non-tribal commercial salmon troll fishery from Cape Falcon (near the Oregon/Washington border) north to the United States/Canada border generally is open from early May until late June for all salmon species except coho salmon. During some years, the fishery is open for all salmon species from early July until early or mid-September. For tribal commercial fishing, including the Makah Tribe, salmon fishing is generally open from early May until mid- to late June, and then again from early July until mid-September. Commercial groundfishing is generally open year-round for some species, with seasonal limits imposed on certain species. During the course of any year, periodic openings and closings for specific species may occur during the season (PFMC 2022f).

The tribes are co-managers of the fisheries resources and are involved in management plan development, monitoring, licensing, and enforcement. Based on the Boldt decision (*United States v. State of Washington* 1974), the tribes and non-tribal fishers are apportioned salmon and steelhead by region of origin. The tribes also have recognized treaty rights to other species. Since 1986, the tribes have received a direct halibut allocation from the International Pacific Halibut Commission. Since approximately 1994, the Washington State coastal tribes have received an allocation of black cod (sablefish) from the PFMC. That tribal allocation of both halibut and black cod subsequently is divided among the tribes by intertribal agreement. Pacific whiting,

rockfish, and groundfish tribal harvest allocations are established on a year-to-year basis by the PFMC. Refer to Subsection 3.1.2.1, Makah Tribal Departments, Agencies and Commissions, and Subsection 3.1.2.1.1, Makah Fisheries Management Department, for more information on tribal fisheries management programs.

Commercial fishing is one of the mainstays of the Makah Reservation economy. The Makah Tribe conducts a marine gillnet fishery along the shore near Cape Flattery and in the Strait of Juan de Fuca for Chinook salmon and sockeye salmon. The Makah also participate in a variety of groundfish fisheries. Rockfish, sablefish, Pacific halibut, and whiting are the targeted species and are taken by trawl and longline gear. These fisheries occur year-round, and are centered off the north coast of the Olympic Peninsula.

As of 2011, 188 commercial vessels, all operated by Makah tribal members, were based out of Neah Bay. Tribal employment related to commercial fishing amounts to approximately 515 jobs (Subsection 3.6.3.2.2, Employment).

The Makah Tribe also participates in the Pacific whiting fishery. Between 2018 and 2022, the allocation to the Tribe ranged from a low of 64,645 metric tons in 2021 to a high of 70,463 metric tons in 2022, although in some years unharvested tribal amounts are later reapportioned to non-tribal fleets (86 FR 62804 and 87 FR 33442). This fishery usually opens around the middle of May and closes at the end of December. Most of the whiting caught in the tribal fishery is processed at sea on a processing vessel. Smaller portions of the allocation are delivered to a shoreside processing facility in Westport, Washington.

3.6.3.3 Gray Whale Economic Values

3.6.3.3.1 Summary of Economic Effects of the Makah Gray Whale Hunts

No quantitative information is available concerning the economic effects of the Makah Tribe's practice whale hunt exercises in late 1998, or their whale hunting in the spring of 1999 and in 2000, but anecdotal information from media coverage of the hunts on protest and media activity and subsequent tourism-related effects provides some indication of the impacts on the local economy.

As described in more detail in Section 3.13, Transportation, news accounts indicate that protests and media coverage of the practice whale hunt exercises in 1998 and the hunts in 1999 and 2000 temporarily generated an increase in the number of people seeking accommodations and services in the communities of Neah Bay, Clallam Bay, and Sekiu. The change in local economic activity during these periods is, however, difficult to assess based on available information. For example,

based on one account (Sullivan 2000), rooms at the Cape Motel and all other motels in Neah Bay were booked by television stations and newspaper staff during the attempted whale hunts in October 1998. In an article published in the *Seattle Times* on October 8, 1998 (Mapes 1998a), however, it was noted that, "One of the biggest surprises of this hunt has been the small turnout of protesters," although the article may have been referring to the demand for accommodations in and near Neah Bay rather than the actual number of protesters near the hunt. According to the article, which noted that protesters were primarily staying in Sekiu, "Campgrounds are empty, and some motels still have vacancies." The same article reported that about 40 media representatives from all over the world were in the Neah Bay area covering the possible whale hunt during October 1998. During the May 1999 whale hunt, which occurred on 4 days of 1 week, the journalists who took up temporary residence on the reservation hired a boat to transport them to the hunting grounds (Sepez 2001). Protesters again arrived in the Neah Bay area during whale hunts in spring 2000 (Oldham 2003). Comparing the spring 1999 and 2000 hunts, the number of protesters decreased from a peak of 50 people during the 1999 whale hunt to a core group of less than 24 people (Welch 2000). Groups of protesters (numbering up to 40 people) staged weekly protests near the Makah Reservation boundary and sometimes temporarily blocked State Route 112, the only paved route to the Makah Reservation, during the 1999 and 2000 hunts (Mapes and Solomon 1999a; U.S. Coast Guard 1999b; Seattle Post-Intelligencer 2000).

In addition to onsite protests, the Makah whale hunts generated calls for boycotts of Makah tribal enterprises and Washington State products by some groups and individuals opposing the hunts. For example, as early as 1997, members of the Sea Shepherd Conservation Society, an opponent of the hunts, reportedly suggested calling for a boycott of tourism on the Olympic peninsula (Westneat 1997). Again, in 1998, it was reported that some activists threatened to organize a boycott of Olympic Peninsula tourism (Simon 1998), although organized boycotts apparently never materialized. In March 1999, an Australian-based animal-rights group called Australians for Animals launched an international boycott of apples produced in Washington State to protest the Makah Tribe's whale hunts, with the group's president claiming that over 1 million people had signed onto the boycott; however, the boycott apparently had no immediate effect on sales of Washington apples (Mapes 1999). Additionally, the Makah Tribe was reportedly listed as the target of a boycott by Co-Op America, an economic action group that teaches individuals how to invest in environmentally responsible ways (Dougan 2001). No information is available to determine whether any of the individual or group calls for boycotts had any effect on Makah tribal enterprises, Olympic Peninsula tourism, or Washington State commerce.

Anecdotal information suggests that any economic effects on tourism may have been minor, as reported in a *Seattle Times* article in August 1999 (Associated Press 1999). Gordon Bentler, the owner of the Cape Motel in Neah Bay, was quoted in the article as saying, "I've noticed no drop. In fact, I think we're probably up this year over last." Also quoted in the article was Rick Hert, executive director of the North Olympic Peninsula Visitor and Convention Bureau, who indicated that room-tax figures from Clallam County hotels and motels appeared relatively flat during the summer of 1999. Bob Buckingham, manager of the marina in Neah Bay, was quoted as saying, "We haven't seen any sign of that [the hunt] affecting us out here. Our actual marina revenue is up from last year so far. We're getting quite a bit of tourism up here." It is unknown whether businesses experienced a decrease in sales because of negative attitudes toward whaling by whale-watchers or other tourists, but it is possible that some businesses were affected.

3.6.3.3.2 Commercial Value of Whales

In the past, whales were valued worldwide as a commercial resource, primarily to satisfy the global demand for whale oil but also for human and animal foods, fertilizer, leather, and pharmaceuticals (Freeman and Kreuter 1994). Commercial whaling resulted in widespread depletion of many whale species, and governments began to develop regulations and policies to sustain and conserve the whale resource (refer to Subsection 3.4.3.1.3, Population Exploitation, Protection, and Status, for more information about the development of legal protections). Though a moratorium on commercial harvest of gray whales and right whales had been in place since 1937 and was reaffirmed in the 1946 ICRW, commercial harvests of other whale species occurred as late as the 1970s and early 1980s. In December 1971, the United States banned all commercial whaling by U.S. nationals and sought, starting in 1972, an international moratorium on the commercial killing of all whales in the IWC arena (16 USC 916 note, PL 96-60, August 15, 1979). As noted in Subsection 3.12, Aesthetics, Congress found that "whales are a unique marine resource of great aesthetic and scientific interest to mankind" and declared that "the protection and conservation of whales are of particular interest to citizens of the United States" (16 USC 916 note, PL 96-60, August 15, 1979). Congress also found that "marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic" (16 USC 1361(6)). The IWC adopted a 5-year commercial whaling moratorium in 1982 and implemented it in 1986. Some commercial whaling does exist today; Norway under an objection to the ICRW's commercial whaling moratorium (see information about Article V.3 objections in Subsection 1.2.4.1.1, Functions and Operating Procedures of the IWC) and Iceland under a reservation to the moratorium. Iceland and Japan conduct scientific whaling under Article VIII of the ICRW, but not for gray whales.

More recently, whales have become a commercial resource for the whale-watching industry, a fast-growing tourist activity in several regions of the world (Freeman and Kreuter 1994, O'Connor et al. 2009, Hoyt and Parsons 2014). In 1994, Kalland reported that participants at a marine mammal conference in 1980 estimated the non-lethal commercial value of cetaceans to be about $100 million dollars, approximately the same value as commercial whaling industries of the day (Kalland 1994). He noted that commercial whaling had largely ceased, and the non-lethal commercial value of whales had increased. About a decade later, Hoyt (2001) reported that whale watching (including vessel-based whale watching and whale-based tourism out of 'dolphinaria,' where some places market swimming with whales) was still on the rise. The number of whale watchers worldwide more than doubled between 1991 and 1998, from 4 to 9 million people per year, and the total expenditures increased from $504 million in 1994 to $1 billion in 1998 (Hoyt 2001). By 2008, participation had increased to 13 million people worldwide, generating total expenditures of $2.1 billion (O'Connor et al. 2009). In the Salish Sea, the number of whale-watching companies remained relatively stable from 2009 to 2019, although the number of active whale watching vessels has doubled in that timeframe (Industrial Economics 2020).

Some people who commented during public scoping for this FEIS expressed their concerns that a gray whale hunt would affect revenues of the local, regional, and west-coast-wide whale-watching industries by causing whales to avoid boats, as whale-watching is among the attractions that draws visitors to Clallam County (Forks Washington Chamber of Commerce 2013; Olympic Peninsula Tourism Commission 2023c). However, there is no evidence to suggest that whales would begin avoiding whale watching vessels as a result of the hunt (see Subsection 3.4.3.5.2, Whale Response to Being Pursued). Furthermore, while some operators in Clallam County advertise whale-watching tours (e.g., Windsong Fishing Charter & Whale Watching), and charters may be available through some sport fishing boat operators, much of the whale-watching in Clallam County is done from land-based locations along its seashore (Olympic Peninsula Tourism Commission 2023c). In Puget Sound, an estimated 230,000 people participated in land-based whale-watching, compared to 70,500 who participated in boat-based whale-watching in 2017. Combined, whale-watching contributes an estimated $113 million annually to Puget Sound's GDP, supports nearly 2,000 jobs and $67 million in wages in the Puget Sound Region, and contributes more than $12 million in state and local taxes (Van Deren et al. 2019).

Whale watching primarily occurs during autumn and spring, corresponding with the annual southern and northern migrations of the gray whale. Poor weather conditions often make viewing difficult during the winter southward migration. During the spring northward migration, land-

based whale-watching opportunities are good from several locations on the Pacific Ocean coast, including Cape Flattery on the Makah Reservation; Shi Shi Bluffs, south of the Makah Reservation; Cape Alava, near the Ozette Indian Reservation; and at La Push, and orcas and gray whales can occasionally be seen along the Strait of Juan de Fuca from Sekiu Overlook, Salt Creek Recreation Area, and Freshwater Bay County Park (Bermant 2010; Olympic Peninsula Tourism Commission 2023c).

Outside of Clallam County, whale-watching is an important tourist activity off Westport, located on Washington's Pacific coastline at Grays Harbor, approximately 80 miles (129 km) south of the Makah U&A. Whale-watching trips originating from Westport occur from March to May when gray whales can be viewed just off the coast during their annual migration to northern feeding grounds. Some of Westport's charter boat businesses offer gray-whale focused whale-watching trips during this period, along with halibut, bottom fish, salmon, and tuna fishing charter trips at various times throughout the year (Westport-Grayland Chamber of Commerce 2023). Other locations in Washington advertising whale watch tours/charters (although often focused on killer whales) include: Anacortes, Bellingham, Friday Harbor, Port Townsend, Seattle, and Vashon Island. (GoNorthwest 2014). Along the Oregon coast, the following ports were identified by the Oregon Coast Visitors Association (2014) as offering charter-boat businesses: Brookings, Charleston, Depoe Bay, Garibaldi, and Newport, and the Oregon State Parks Oregon Whale Watch website also maps several locations along the coast for land-based gray whale-watching (Oregon State Parks 2023). In California, most whale-watching charters appear to be concentrated from Fort Bragg south, but a few charters advertise gray whale trips out of Eureka and Crescent City (Trekaroo 2014). There are also several national parks and monuments and state parks and reserves in California from Mendocino to San Diego identified as locations for prime land-based gray whale watching (Visit California 2023).

Whale watching is also an important tourist activity in the inland waters of Washington State and British Columbia. The peak season for whale watching in this region is usually April through October, with the target species primarily being killer whales. Some operators offer year-round tours as weather permits. Other species targeted include humpback whales, gray whales, and minke whales (Gless and Krieger 2023). The number of active vessels in the U.S. and Canadian commercial whale watching fleets in the boundary waters of Haro Strait increased steadily from 2012-2019 before declining precipitously in 2020, likely due to restrictions associated with the COVID-19 pandemic. Visitorship to Lime Kiln State Park on the west side of San Juan Island—a

popular site for land-based viewing of marine wildlife—followed similar trends during this time period (Frayne 2021).

3.7 Environmental Justice

3.7.1 Introduction

The primary issue of concern addressed in this section is the extent to which the alternatives would disproportionately affect minority and low-income populations. United States Census data from 2020 are used to describe existing conditions for population, employment, personal income, and poverty characteristics of minority and low-income populations in Clallam County, with particular focus on tribal communities within the county. These data form the basis for identifying minority and low-income populations, as well as assessing the relative severity of the impacts of the action alternatives on these communities and economies regarding changes in income, employment, net economic value, and direct and indirect sociological impacts. Unlike Section 3.6, Economics, the information and data provided in this Section focuses on tribal members. Although non-native persons also reside on reservations in Clallam County, we consider the statistics for employment, income, and povery on these reservations to be representative of those for tribal employment, income, and poverty given the high proportion of Native American residents.

3.7.2 Regulatory Overview

Executive Order 12898, Environmental Justice, requires that federal agencies "identify and address the . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Based on assessment of the demographic data presented later in this section and preliminary analysis of the type and location of effects potentially resulting from the alternatives, the environmental justice analysis for the alternatives focuses on residents of Native American reservations in Clallam County, the majority of whom are Native Americans.

The EPA Office of Civil Rights and Environmental Justice developed guidance for all federal agencies conducting environmental justice analyses. This environmental justice analysis follows the EPA guidelines. The EPA environmental justice guidelines offer a range of categories to indicate the presence or absence of environmental justice effects (EPA 1998; EPA 2015). Consequently, this indicator-based assessment draws topically from the range of indicator categories EPA (1998) outlined, from information provided in other sections of this environmental impact statement, and from other information relevant to the circumstances of the tribal communities.

3.7.3 Existing Conditions

Existing conditions for the environmental justice analysis are based on information on minority populations in Clallam County. This includes information on demographics, employment, personal income, and poverty characteristics of these populations.

3.7.3.1 Minority Populations

The following subsections provide information on the size and demographic characteristics of minority populations in Clallam County, including Native American populations and the Makah Tribe.

3.7.3.1.1 Clallam County

In 2020, Clallam County's population totaled 77,155 residents (U.S. Census Bureau 2021a), with 41 percent of the population residing in Callam County's three incorporated areas (Port Angeles, Sequim, and Forks). The largest of these is Port Angeles, with 20,120 residents, followed by Sequim (8,125 residents), and Forks (3,335 residents) (Vleming 2022, U.S. Census Bureau 2020).

The population of Clallam County is largely white, with whites accounting for 86.3 percent of the county's residents in 2020 (Table 3-30) (U.S. Census Bureau 2021a). American Indians and Alaska Natives (hereafter referred to as Native Americans) are the only other relatively large racial group in the county. The 4,346 Native Americans residing in Clallam County in 2020 accounted for 5.6 percent of the countywide population. Together, all other racial groups accounted for 19.1 percent of the population. Hispanics, who can be categorized as members of other racial groups for the purposes of the U.S. Census, accounted for 7.4 percent of the county's population in 2020.

Table 3-30. Racial distribution of Clallam County population in 2020.

Race	Number	Percent (%)
White	62,450	80.9
Native American[1]	4,346	5.6
Asian[1]	1,263	1.6
Black[1]	615	0.8
Native Hawaiian and other Pacific Islander[1]	119	0.2
Some other race[1]	1,676	2.2
Two or more races	6,686	8.7
Total	**77,155**	**100.0**
Hispanic or Latino[2]	5,710	7.4

[1] This only includes persons reporting a single race.

[2] For purposes of the United States Census, Hispanics or Latinos may be of any race, thus,they are already included in other applicable race categories in the table.

Sources: U.S. Census Bureau 2021a and 2021b

3.7.3.1.2 County Tribal Demographics

Four Native American reservations are located in Clallam County: the Makah Reservation, encompassing Neah Bay; the Jamestown S'Klallam Reservation and off-reservation trust lands at Blyn near Sequim; the Lower Elwha Reservation and off-reservation trust lands west of Port Angeles; and the Quileute Reservation at La Push. Additionally, the Hoh Tribe maintains a business committee office in Forks (in Clallam County), although the Tribe's reservation is located in Jefferson County near the mouth of the Hoh River. The Quinault Tribe, whose reservation is in Grays Harbor County, also has an administrative office in Forks.

Together, the population of Clallam County's four reservations totaled an estimated 2,782 persons, including an estimated 1,962 persons of Native American ancestry alone, in 2021 (Table 3-31). Non-tribal members also live on reservation properties, including those married to tribal members and those with jobs on the reservation. According to U.S. Census data, an estimated additional 2,384 Native Americans in Clallam County lived outside of reservation and trust land properties in 2021. Among the four reservations in the county, Native American populations ranged from 5 people on the Jamestown S'Klallam Reservation to 1,139 people on the Makah Reservation.

Table 3-31. Population of American Indian reservations and trust lands in Clallam County, estimated for 2017-2021.

Reservation	Total Population	American Indian[2]
Makah	1,519	1,139
Quileute	336	291
Lower Elwha[1]	717	527
Jamestown S'Klallam[1]	210	5
TOTAL	**2,782**	**1,962**

[1] This includes the population on off-reservation trust lands.
[2] This only includes Native Americans reporting one race.
Source: U.S. Census Bureau 2021c

Table 3-32 presents selected demographics for Native Americans and non-Native residents residing on the four reservations in Clallam County. The most notable characteristic of reservation demographics is the youthful nature of their populations. The median age of the populations was estimated to be well below the median age of 50.8 years for all residents in Clallam County in 2021 (U.S. Census Bureau 2021d). The median age of reservation populations ranged from 30.4 years for the Makah Reservation to 31.6 years for the Quileute Reservation (Table 3-32).

Differences also exist in the average household sizes of the reservation populations, which were higher than the countywide averages of 2.25 persons per household in 2021 (U.S. Census Bureau 2021e). Excluding the Jamestown S'Klallam Reservation, average size of renter-occupied units ranged from 2.50 on the Lower Elwha Reservation to 4.68 on the Quileute Reservation. The average size of owner-occupied units ranged from 2.91 on the Quileute Reservation to 3.25 on the Makah Reservation (Table 3-32).

Table 3-32. Selected demographics of Native Americans and non-native residents residing on reservation and trust lands in Clallam County, estimated for 2017-2021.

Category	Makah Reservation[1]	Quileute Reservation[1]	Lower Elwha Reservation and Trust Lands[1]	Jamestown S'Klallam Reservation and Trust Lands[1]
American Indian and Alaska Native (%)	87.6	86.6	73.5	2.3
Male (%)	47.8	48.2	49.4	43.3
Female (%)	52.2	51.8	50.6	56.7
Median age (years)	30.4	31.6	30.9	66.4
Age under 18 years (%)	28.3	33.0	26.1	1.4
Age 65 years and over (%)	11.5	17.6	11.7	71.9
Average size of renter-occupied unit (persons)	2.28	4.68	2.50	2.50
Average size of owner-occupied unit (persons)	3.25	2.91	3.00	1.93
Owner-occupied housing units (%)	73.4	59.8	47.3	98.1
Renter-occupied housing units (%)	26.6	40.2	52.7	1.9

[1] Data represents Native Americans reporting only one race and non-native residents living on the reservations .
Source: U.S. Census Bureau 2021c

3.7.3.1.3 Makah Tribe

The U.S. Census Bureau (2021c) reported that an estimated 1,139 Native Americans lived on the Makah Reservation in 2021, reflecting a slight increase from the previous two census reports (1,083 in 2000 and 1,066 in 2010) and from the number of Native American residents reported in 1990 (940) and 1980 (803). An estimated additional 380 non-tribal persons lived on the reservation in 2021, including those married to tribal members and others who work for government agencies. Not all members of the Makah Tribe live on the Makah Reservation. Tribal enrollment, which includes the total number of tribal enrollees certified as being tribal members by the Tribe's leader or designee, was 3,357 members in 2022-2023 (the most recent year for which data are available) (B. Denney, Makah Tribe Planning Office Manager, pers. comm., March 21,2023). Table 3-32 shows selected demographics for American Indians living on the Makah Reservation.

Neah Bay, an isolated fishing and timber community of 1,079 persons, is the population center of the Makah Reservation, accounting for more than 70 percent of the reservation's population in 2021 (U.S. Census Bureau 2021f). Most of the Makah residing on the reservation live in Neah Bay, though some live in the reservation's hilly regions and along the road that runs south along the Pacific Ocean side of the reservation (Sullivan 2000).

3.7.3.2 Minority Employment

The subsections below provide information regarding minority employment potentially affected by the Makah's proposed gray whale hunts.

3.7.3.2.1 Clallam County

In 2021, Clallam County's minority civilian labor force totaled an estimated 5,404 persons (Table 3-33), representing 8.3 percent of the county's civilian labor force. Hispanics, who, for the purposes of the U.S. Census, may be categorized as members of other racial groups, had an estimated 2,495 persons in the labor force, accounting for 3.8 percent of the county's total labor force.

Unemployment for minorities in Clallam County is generally higher than for those in the overall countywide population. In 2021, the estimated unemployment rate for the county's minority population was 14.1 percent, compared to a countywide unemployment rate of 6.2 percent. Hispanics had lower unemployment figures than other minorities, at 6.7 percent.

Table 3-33. Labor force, employment, and unemployment for Clallam County minority and Native American populations, estimated for 2017-2021.

	Clallam County		Reservation Lands			
Category	**All Minority Persons[1]**	**Hispanics or Latinos[2]**	**Makah[3]**	**Quileute[3]**	**Lower Elwha[3]**	**Jamestown S'Klallam[3]**
In civilian labor force	5,404	2,495	691	104	289	145
Employed	4,872	2,276	587	87	249	145
Unemployed	761	241	104	17	40	0
Unemployment rate (%)	14.1	6.7	15.1	16.3	13.8	0

[1] This includes African Americans, Native Americans, Asians, Native Hawaiian and other Pacific Islanders, persons of some other race, and persons of two or more races.
[2] For purposes of the United States Census, Hispanics or Latinos may be of any race, so they are already included in other applicable race categories in the table.
[3] Data represent Native Americans on reservations reporting only one race and non-native residents living on the reservations .
Source: U.S. Census Bureau 2021c and 2021g

3.7.3.2.2 County Tribal Employment

Native Americans and non-native residents residing on the reservations of Clallam County's four tribes had a labor force of an estimated 1,229 persons in 2021, with an estimated 1,068 of these

persons employed (Table 3-33). About 56 percent of the labor force resided on the Makah Reservation, 23.5 percent on the Lower Elwha Reservation, 11.8 percent on the Jamestown S'Klallam Reservation, and 8.5 percent on the Quileute Reservation. Together, populations on the four reservations had an estimated unemployment rate of 13.1 percent in 2021, higher than the 6.2 percent rate countywide but lower than the 14.1 percent rate for all minority groups combined in Clallam County. The difference in unemployment rates between populations on the four reservations and the general population in the county may be higher than that reported by the U.S. Census because some residents on the reservations may have been available for work but dropped out of the labor force because of the lack of nearby employment opportunities.

Government employment is important to populations living on the county's four reservations (Table 3-34). Two industrial sectors linked to government (the public administration sector and the educational, health, and social services sector), generated about 44 percent of all jobs for reservations in 2021, including 57.1 percent of the jobs for the Makah Reservation, 33.3 percent of the jobs for the Quileute Reservation, 30.1 percent of the jobs for the Lower Elwha Reservation, and 22.1 percent of the jobs for the Jamestown S'Klallam Reservation. Industries related to agriculture, forestry, fishing, hunting, and mining are also important to the reservations, accounting for 12.5 percent of all job opportunities in 2021 (Table 3-34).

3.7.3.2.3 Makah Tribe

In 2021, the labor force of residents (primarily Makah but including non-native residents) on the Makah Reservation totaled an estimated 691 persons, representing 60 percent of the population 16 years old or older living on the reservation (U.S. Census Bureau 2021c). This labor force participation rate was about the same as the rate in 1990 and 1980 (U.S. Census Bureau in Northwest Area Foundation 2005).

As Table 3-33 shows, 587 residents on the Makah Reservation had jobs in 2021. The census data indicate that 15.1 percent of the labor force on the Makah Reservation was unemployed that year, an unemployment rate substantially higher than the 6.2 percent rate countywide. While relatively high, the unemployment rate suggested by the census data is much lower than the 70 percent and 54 percent unemployment rates reported by the Makah Tribe and the Bureau of Indian Affairs as recently as 2001 and 2003, respectively (Bureau of Indian Affairs 2001; 2003). Because of the seasonal nature of the reservation's tourist and fishing industries, unemployment is generally much higher during winter months than during the summer (Sullivan 2000).

Table 3-34. Employment by industry of Native American residents in Clallam County, estimated for 2017-2021.

	Makah Reservation[1]		Quileute Reservation[1]		Lower Elwha Reservation[1]		Jamestown S'Klallam Reservation[1]	
Industry	**Number**	**Percent (%)**	**Number**	**Percent (%)**	**Number**	**Percent (%)**	**Number**	**Percent (%)**
Agriculture, forestry, fishing, hunting, and mining	99	16.9	12	13.8	22	8.8	0	0.0
Construction	23	3.9	3	3.4	10	4.0	0	0.0
Manufacturing	27	4.6	1	1.1	14	5.6	0	0.0
Wholesale trade	2	0.3	2	2.3	3	1.2	0	0.0
Retail trade	18	3.1	7	8.0	17	6.8	3	2.1
Transportation, warehousing, and utilities	24	4.1	0	0.0	9	3.6	0	0.0
Information	0	0.0	0	0.0	0	0.0	0	0.0
Finance, insurance, real estate, and rental and leasing	14	2.4	5	5.7	7	2.8	0	0.0
Professional, scientific, management, administrative, and waste management services	7	1.2	2	2.3	8	3.2	0	0.0
Educational, health, and social services	174	29.6	10	11.5	46	18.5	32	22.1
Arts, entertainment, recreation, accommodation, and food services	38	6.5	23	26.4	28	11.2	62	42.8
Other services (except public administration)	0	0.0	3	3.4	56	22.5	48	33.1
Public administration	161	27.4	19	21.8	29	11.6	0	0.0
TOTAL	**587**	**100.0**	**87**	**100.0**	**249**	**100.0**	**145**	**100.0**

[1] Data represent Native Americans on reservations reporting only one race and non-native residents on reservations

Source: United States Census Bureau 2021c

According to the 2017-2021 American Community Survey estimates, three industrial sectors of the local economy provided almost three-quarters of the jobs held by residents on the Makah Reservation in 2021. As discussed previously, two sectors associated with government activity (the public administration sector and the educational, health, and social services sector) together generated more than half of the employment opportunities for reservation residents (Table 3-34). Additionally, the industrial sector most closely related to the area's natural resources (the agriculture, forestry, fishing, hunting, and mining sector) provided 16.9 percent of the jobs held by residents on the Makah Reservation. Note that the survey, which estimated 99 jobs in this sector, may have underestimated the fishing-related employment in this sector. As noted in

Subsection 3.6.3.2.2, Employment, commercial vessels owned and operated by Makah tribal members generated approximately 515 jobs in 2011; because only Makah tribal members may participate in the Tribe's treaty fisheries, these jobs were only held by tribal members. This fisheries-related employment is seasonal in nature.

3.7.3.3 Personal Income and Poverty Levels

The subsections below provide information on personal income and poverty levels in Clallam County.

3.7.3.3.1 Clallam County

The income of minority populations in Clallam County is generally lower than that of the countywide population. According to the 2017-2021 American Community Survey estimates, the median household income (household income includes the income of all persons considered part of an individual household) for the overall population in Clallam County was $60,044 in 2021. The median household income was lower for all minority populations for which county-level data were available (Table 3-35). For Native Americans, the county's largest minority group, the median household income was approximately 35 percent lower than it was countywide. For Hispanics and Latinos, the next-largest group, the median household income was also approximately 35 percent lower than it was countywide (Table 3-35). County-level data were not available for two minority populations, African Americans and Native Hawaiian and other Pacific Islanders, because the sample size was too small (U.S. Census Bureau 2021h). Comparable data at the state level indicate that the median household income for African Americans in 2021 was 26 percent lower than the statewide median, while the corresponding value for Pacific Islanders was slightly higher (<1 percent higher) than the statewide median (U.S. Census Bureau 2021i).

The income differences between Clallam County's minority populations and its countywide population were even greater on a per capita income basis (per capita income is the total income of an area or population averaged across all persons within an area or population). In 2017-2021, per capita incomes of minority populations for which county data are available ranged from $20,214 (for Hispanics) to $28,391 (for Asians), compared to per capita income of $34,647 for the countywide population (Table 3-35). For Native Americans and Hispanics, per capita income levels were 35 percent and 42 percent lower, respectively, than the countywide per capita income. Similar to median household income, 2017-2021 county-level per capita income data for Native Hawaiians and other Pacific Islanders are unavailable because the sample size was too small (U.S. Census Bureau 2021j). Comparable data at the state level indicate that the per capita income

for Native Hawaiians and Pacific Islanders was 34 percent lower than the statewide value (U.S. Census Bureau 2021k).

Table 3-35. Income and poverty status of minority populations in Clallam County estimated for 2017-2021.

Racial Category	Median Household Income ($)	Per Capita Income ($)	Individuals Below Poverty Level
			Percent
Native American[1]	38,950	22,539	25.8
Asian[1]	71,094	28,391	21.7
Black or African American[1]	NA	26,441	19.1
Native Hawaiian and other Pacific Islanders[1,2]	NA	NA	5.9
Some other race[1]	48,667	25,898	8.5
Two or more races	52,411	25,156	15.5
Hispanic or Latino[3]	39,356	20,214	23.3

NA = not applicable.
[1] This only includes persons reporting a single race.
[2] Because of small sample sizes, county-level data were not available for Pacific Islanders.
3 For purposes of the U.S. Census, Hispanics or Latinos may be of any race, so they may already be included in other applicable race categories in this table.
Source: U.S. Census Bureau 2021h, 2021l, and 2021j

With the exception of the Native Hawaiian and other Pacific Islanders population and the population of some other races, the poverty rates (the poverty rate is the percentage of families or individuals living below the poverty thresholds established each year by the U.S. Office of Management and Budget) of all minority populations for which county-level data were available in Clallam County exceeded the countywide rate of 12.3 percent in 2021. The Native American population (25.8 percent) and the Hispanic or Latino population (23.3 percent) experienced the highest poverty rates (Table 3-35).

3.7.3.3.2 County Tribal Income

As discussed in Subsection 3.7.3.3.1, Personal Income and Poverty Levels for Clallam County, median household income and per capita income were lower for the Native American population in Clallam County than for the general countywide population in 2021. Additionally, the poverty rate for all Native Americans residing in Clallam County, at 25.8 percent in 2021, was higher than the countywide rate of 12.3 percent (Table 3-35).

For those living on Clallam County's four tribal reservations, median household and family income were much lower than countywide income levels in 2021. Median household income for those living on reservations was 21 to 51 percent lower than the county's median household income of $60,044 (Table 3-36). Similarly, median family income for reservation families was 21 percent to 52 percent lower than the countywide median family income of $72,025.

Table 3-36. Income and poverty status of residents on reservations in Clallam County, estimated for 2017-2021.

Category	Makah Reservation[1]	Quileute Reservation[1]	Lower Elwha Reservation and Trust Lands[1]	Jamestown S'Klallam Reservation and Trust Lands[1]
Median household income ($)	47,167	29,500	29,444	NA[2]
Median family income ($)	57,000	34,167	34,375	NA[2]
Per capita income ($)	21,371	16,016	18,693	NA[2]
Percent of families below poverty level (%)	17.2	43.9	9.6	2.7
Percent of individuals below poverty level (%)	20.6	40.6	31.1	3.3

[1] Data represents Native Americans reporting only one race and non-native residents living on the reservations.
[2] For the Jamestown S'Klallam Reservation and trust lands, there were either no sample observations or too few sample observations available to compute an estimate.
Source: U.S. Census Bureau 2021c, 2021m-r

A larger disparity between tribal and countywide income exists for per capita income. From 2017-2021, estimated per capita income for tribal reservation residents ranged from $16,016 for the Quileute Reservation to $21,317 for the Makah Reservation (Table 3-36). These income levels are approximately 57 to 68 percent lower than the $49,718 per capita income for the countywide population in 2012 (Vleming 2022).

Given the disparity in incomes, poverty rates for families and individuals living on the reservations are substantially higher than for the general countywide population, except for those living on the Jamestown S'Klallam Reservation and Trust Lands. Excluding the Jamestown S'Klallam Reservation and Trust Lands, the percentage of reservation families with incomes below the federal poverty threshold ranged from 9.6 percent to 43.9 percent in 2021 (Table 3-36), compared to 8.0 percent of families countywide in 2021 (U.S. Census Bureau 2021s). For individuals living on the reservations (excluding the Jamestown S'Klallam Reservation and Trust Lands), poverty rates ranged from 20.6 to 40.6 percent in 2021, much higher than the countywide poverty rate of 12.3 percent.

3.7.3.3.3 Makah Tribe

Native Americans and non-native residents living on the Makah Reservation have substantially lower incomes and experience higher poverty rates than residents throughout Clallam County. According to the United States Census Bureau, the median household income of those living on the Makah Reservation was $47,167 in 2021 (Table 3-36), 21.5 percent lower than the countywide median household income. Relative to median household income on reservations throughout the United States, the median income of tribal households on the Makah Reservation has been falling over the past three decades. In 1979, the median household income of American Indians on the Makah Reservation was 48 percent higher than the median household income of all United States reservations. By 2021, this was no longer the case: the median household income of those living on the Makah Reservation was approximately 11 percent lower than the median household income of Native Americans and Alaska Natives nationwide ($53,149) (U.S. Census Bureau 2021t).

Similar to household income, the per capita income of Makah Reservation tribal members is lower than per capita income countywide, registering 43 percent of the countywide level in 2021. The disparity in income levels explains the relatively high poverty rates for Native Americans residing on the Makah Reservation. In 2021, 17.2 percent of the families residing on the Makah Reservation fell below the federal poverty level (Table 3-36) compared to 8.0 percent of all families in Clallam County (U.S. Census Bureau 2021s). Poverty figures for individuals were similar to those for families, with 20.6 percent of the Makah Reservation's residents living below the poverty level compared to 12.3 percent of all individuals in Clallam County. During the 2022 to 2023 school year, 75 percent of the students in the Cape Flattery School District qualified for free or reduced lunch programs, based on family incomes below the federal poverty threshold (Office of Superintendent of Public Instruction 2022). The comparable value statewide was 52 percent. Approximately 56 percent of the students in the school district (which includes schools in Neah Bay and Clallam Bay) are identified as American Indian or Alaskan Native, compared to 1.3 percent statewide. As another indicator of the level of need in the community, approximately 152 households on the reservation rely on food banks and federal food programs to feed their families (Renker 2018).

3.7.3.4 Outreach to Minority and Low-Income Populations

Outreach to minority and low-income populations was part of the overall scoping process NMFS conducted for this FEIS. Subsection 1.5.1, Scoping Process, of this EIS contains a description of the scoping process, as does the scoping report associated with this EIS.

3.8 Social Environment

3.8.1 Introduction

This section discusses the social environment, including the apparent emotions and attitudes of people and communities potentially affected by the Makah whale hunt. The range of emotions and attitudes, as well as the resulting tensions, are described below in the context of the various groups that have expressed an interest in the hunt. The information in this section primarily comes from the period prior to release of the 2008 DEIS, as no Makah hunt has been authorized during the intervening period and there has been no unauthorized hunting.

3.8.2 Regulatory Overview

No specific regulations directly address social tensions in the action area. However, the Coast Guard has established an RNA that allows it to enforce vessel activities (including protesters' vessels) near any Makah whale hunt and reduce the danger of loss of life and property (Subsection 3.1.1.3, Coast Guard Regulated Navigation Area).

3.8.3 Existing Conditions

3.8.3.1 Makah Tribal Members

The Makah Tribe values whales for their ceremonial and subsistence uses, including the spiritual role they play in Makah culture. According to the Application for a Waiver of the Marine Mammal Protection Act Take Moratorium to Exercise Gray Whale Hunting Rights Secured in the Treaty of Neah Bay, the Makah Tribe has attempted to revive its cultural traditions for the past three decades (Makah Tribe 2005). The Tribe believes it must revive these traditions to combat the social disruption resulting from the rapid changes of the last century and a half. The document states that rates of teenage pregnancy, high-school dropout, substance abuse, and juvenile crime indicate that the Makah community is still in flux and that the enormous social disruption caused by epidemics, boarding schools, and federal acculturation policy still exists. To reverse these trends, the Makah have reinstituted numerous song, dance, and artistic traditions. The Tribe currently operates a program to restore the Makah language to spoken proficiency on the reservation. Given the centrality of whaling to the Tribe's culture, the Makah Tribe believes that a revival of subsistence whaling is necessary to pursue its spiritual renaissance (Makah Tribe 2005).

In preparation for the 1999 whale hunt, tribal participants engaged in both spiritual and physical training for the hunt. Overall, Makah tribal members experienced an increase in tribal pride (Bowechop 2004) through this preparation. This revival of Makah whaling rituals and traditional knowledge occurred after a voluntary 70-year hiatus (Section 3.10, Ceremonial and Subsistence

Resources) in whale hunting. Hunters reported that the activities accompanying the hunt strengthened tribal member identity as descendants of Makah whalers (Tweedie 2002). One of the elders who grew up speaking Makah reported that Makah language class attendance swelled after the hunt (Oldham 2003). Many community members were present when the first whale was landed at Neah Bay in 1999, and 80 percent of the community attended the tribal celebration of the first whale hunt (Makah Tribe 2005). Most Makah felt that the restoration of whaling had improved social and cultural conditions on the reservation. Subsistence whaling, both in the historic and contemporary contexts of the Makah culture, is further discussed in Subsection 3.10.3.4, Makah Historic Whaling, and Subsection 3.10.3.5, Contemporary Makah Society, respectively.

Although most Makah tribal members support the hunt, some do not. According to a 2001/2002 household whaling survey the Makah Tribe conducted, 93 percent responded that the Makah Tribe should continue to hunt whales, 6 percent responded that the Tribe should not hunt whales, and 1 percent was undecided (Renker 2002; 2007). This and subsequent surveys are described further in Section 3.10, Ceremonial and Subsistence Resources. One Makah tribal member has publicly opposed the hunt and spoke at the 1996 annual IWC meeting. She reported encountering harassment and hostility from pro-whaling tribal members (Mapes 1998b). According to a newspaper account, other members who did not approve of the hunt were less vocal about their dissent (Mapes 1998c). The article indicated that those who spoke out were criticized for disloyalty to their leaders and for exposing tribal dissention to the outside world. According to Keith Hunter, a Neah Bay resident who is not a Makah tribal member, there has been no opposition to whaling of the sort portrayed by many of the anti-whaling advocates (CERTAIN 2000). Hunter claimed that disagreements, concerns, or differences almost entirely healed, and those remaining disappeared on the day the Makah took the whale.

Many people beyond the reservation do not support whaling, and protests were common during the hunting periods (Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007, and Subsection 3.15.3.4, Behavior of People Associated with the Hunt). Makah tribal members have expressed frustration with protesters and others who oppose the whale hunt. They believe that protesters, like missionaries and government Indian agents preceding them, are pushing their cultural values on the Makah people and telling them how and how not to be Makah (Johnson 1999).

The Makah Tribal Council provided financial support to both the whaling captain and whaling crew as they were training for the hunts in 1998 and hunting in 1999 and 2000. In 2002, the

Council decided not to provide financial support, leaving it up to whaling families to support any hunts, consistent with tribal tradition. In 2002, at least three families were interested in a hunt, and two were actively training (Mapes 2002). The Makah Tribal Council has not indicated whether it would financially support future hunts if they were authorized. In the years since the 2008 DEIS was released and those involved in the unauthorized hunt were prosecuted, the Makah Tribe has continued to demonstrate its desire for a whale hunt; for example, by renewing its requests at the IWC and continuing to ask NMFS to complete its consideration of the waiver request.

3.8.3.2 Other Tribes

Many other tribes supported, and continue to support, the Makah's right to hunt whales, in part because they want the federal government to uphold the rights enshrined in the Treaty of Neah Bay. In 1999, the *Peninsula Daily News* reported that thousands of Native Americans from Canada to New Mexico anticipated journeying to Neah Bay for a feast to celebrate the successful hunt (*Peninsula Daily News*, the *Associated Press*, and *Seattle Times* 1999). The hunt was supported by the Northwest Indian Fisheries Commission, an organization of 20 member tribes in western Washington, and the president of the Northwest Indian Fisheries Commission gave a speech at the celebratory feast after the whale was killed (Bowechop 2004). In 2003, the Affiliated Tribes of Northwest Indians passed Resolution 03-13 in support of the Makah whaling treaty rights. In 2004, the National Congress of American Indians passed Resolution MOH-04-025, stating the following:

> . . . go on the record in full support of the right of the Makah to freely exercise their treaty right to hunt whales while supporting the rights of Fishing Tribes to marine mammal management without threats, intimidation, harassment, or interference.

The National Congress of American Indians also expressed support for the Makah after the *Anderson v. Evans* (2004) decision. It called upon the U.S. Government and all of its agencies to "support the efforts of the Makah Tribe and affected tribes to restore its full treaty whaling rights." In a 2005 scoping letter on the DEIS, Honor Our Neighbor's Origins and Rights registered its support of the treaty-protected right of the Makah to pursue whaling. A Puyallup Tribe member supported this idea in an interview with the *Seattle Times* by noting the importance of Makah whaling in the context of tribal rights. He mentioned the importance of solidarity, saying "One of the ways we were conquered was by dividing us" (Hamilton 1999a). The Northwest Indian Fisheries Commission, Jamestown S'Klallam Tribe, Squaxin Tribe, Lower Elwha Klallan Tribe, Suquamish Tribe, Tulalip Tribes, Puyallup Tribe, and Swinomish Tribe also submitted public comments in support of the Tribe's waiver request during a public comment

period on the ALJ's recommended decision in 2021. Some individual Native American commenters for this EIS did express opposition to the hunt; a summary of the views of these and other individuals is encapsulated below in Subsection 3.8.3.3, Other Individuals and Organizations.

Immediately after the successful 1999 whale hunt, anti-whaling activists targeted the Muckleshoot, Puyallup, and Tulalip Tribes for their support of the Makah's whale hunt (Burkitt 1999a). The tribes received verbal threats and insults, including a bomb threat to a tribal school (Burkitt 1999a).

3.8.3.3 Other Individuals and Organizations

This section covers the range of attitudes about Makah whale hunting held by Clallam County residents, Washington State residents, U.S. residents, foreign nationals, and people affiliated with non-governmental organizations. Both local and out-of-state residents have expressed support for and opposition to the Makah whale hunt. This section also covers the attitudes of potential tourists who may or may not choose to visit the area because of their perceptions of the whale hunt.

Although the debate can often be characterized as polar extremes of whaling proponents and whaling opponents, the complicated views cannot be reduced to two simple perspectives (Sepez 2002). Some people believe, for instance, that all whaling, including commercial whaling, is acceptable as long as the whale resource remains at a sustainable level based on scientific, principled management. Some people believe that commercial whaling is unacceptable but that subsistence whaling for aboriginal cultures is acceptable. Some people believe that whaling for any purpose is unacceptable and should not be allowed. The debate about how to manage whales involves culturally-based values (Freeman 1994).

In the 1970s, the popular Save the Whales conservation movement began, with the objective of preventing the extinction of whale species (Sepez 2002). Information about whales and whaling was advertised by media releases, films, television programs, aquarium shows, videos, books, magazines, paintings, and whale-watching businesses, among other things (Barstow 1996; Sepez 2002). Over time, stemming from the unsustainable commercial whaling practices in the past, an ideological debate has emerged concerning the appropriateness of any whale hunting (Freeman 1994; Stoett 1997). Whales have become symbolic of the need to protect the natural environment, at least in western societies (Barstow 1996; Stoett 1997).Specific to the Makah's past and proposed whale hunting activities, we received public comments on the 1997 EA, the 2001 EA, the 2008 DEIS, the 2015 DEIS, the 2019 ALJ hearing transcript, the 2021 ALJ recommended

decision and proposed rule, and the 2022 SDEIS. The commenters are not necessarily divided along cultural lines (people from indigenous cultures versus people from western societies). Some Native American commenters and individual Makah tribal members interviewed in the past disagree with the hunt. Some commenters who did not identify themselves as Native Americans support the hunt. Commenters who have supported or would support the Makah hunt give many reasons for their support, including, but not limited to, their perception of the established treaty whaling right of the Makah Tribe and federal obligations to the Makah Tribe (Subsection 1.2.2, Treaty of Neah Bay and the Federal Trust Responsibility); the relative health of the gray whale population (Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates); and the historical and contemporary cultural meaning ascribed to whaling by the Makah (Section 3.10, Ceremonial and Subsistence Resources).

Commenters who did not or would not support the Makah's hunt of gray whales also gave a multitude of reasons, some of them related to social and economic values attributed to the gray whales. Several people, for instance, commented on the beauty of the whales and the emotions they inspire. Many people oppose the killing of whales because they believe whales are intelligent (comparable in this regard to humans) and have sophisticated forms of community and communication. One review states, "stranger than fiction is fact that there already exists a species of animal life on earth that scientists speculate has higher than human intelligence. The whale has a brain that in some instances is six times bigger than the human brain and its neocortex is more convoluted" (D'Amato and Chopra 1991). In a letter to the *Seattle Post-Intelligencer* editor, one person wrote ". . . I believe whales and other marine mammals are intelligent, and for lack of opposable thumbs, might be creatures equal to humans on the evolutionary ladder" (*Seattle Post-Intelligencer* 1999). In addition, human-like characteristics of whales, such as humpback whales' complicated communication system and the strong family grouping of orcas, particularly endear whales to people (Sepez 2002). Some people also believe that whales are sentient beings that should be allowed to exist free from human harm.

People both inside and outside of the United States have said that they value the existence of gray whales in the action area as fellow mammals, and they want to know that whales exist unmolested. Many people (mostly local residents) who watch whales in the analysis area on a regular basis attach existence values to individual PCFG whales who regularly visit the area. Many people were also concerned about the pain individual whales experience if struck or killed in a hunt. Some people believe that cruelty is unavoidable in methods for a whale hunt (Freeman 1994).

After the 1999 hunt, many people expressed remorse and anger about the whale hunt in protests in Seattle and Port Angeles in letters and calls to local and regional newspapers such as the *Peninsula Daily News*, the *Seattle Times*, and the *Seattle Post-Intelligencer*. The *Seattle Times* reported that they received almost 400 phone calls and emails running about 10-to-1 against the hunt within hours of the Makah Tribe's successful kill of a gray whale (*Seattle Times* staff 1999). Many people's comments were reactions to the images of the killing of the whale on the morning television news. Some thought the coverage of the killing was inappropriate for television news (Levesque 1999). Some protesters and comment writers expressed violent feelings and displayed racism towards the Makah.

Some comments on the 2008 DEIS suggested that people would boycott products and not participate in tourism on the peninsula and throughout the state as a result of whaling. They were concerned that whaling would cause economic impacts on hotels, restaurants, stores, and tourist-related businesses. Some people opposed using modern technology for the hunt, suggesting that a traditional hunt should be conducted using traditional technology (Subsection 2.4.5.1, Hunt Using Only Traditional Methods). While most letters and calls received by newspapers after the successful 1999 whale hunt opposed the whale hunt, many commenters expressed support for the Tribe and the hunt. One letter said, "It is the right of the Makah to keep their culture alive and if whale hunting is part of it, so be it!" (*Peninsula Daily News* 1999). Some comments on the 2008 DEIS also expressed support for the hunt, remarking on tourist interest in whaling, cultural diversity, and the importance of upholding treaty rights. One comment received during scoping for the 2008 DEIS indicated that the Pacific Northwest embraces all cultures and practices and that people come to the area because of this diversity.

Organizations that oppose whaling in general include animal-rights and marine conservation organizations, the whale-watching industry, and anti-treaty constituents. Some of these groups are opposed to the Makah whale hunt, while others think that aboriginal whaling is an acceptable form of whaling if conducted in a sustainable manner. More than 350 groups from 27 countries have expressed opposition to the Tribe's whale hunt (Oldham 2003).

In 2002, after the IWC renewed the gray whale catch limits in response to the joint request from Russia and the United States, some anti-whaling groups announced they would not obstruct the Makah hunt directly (Watson 2002), and one group expressed concern that opposition to the hunt might be misinterpreted as opposition to treaty rights (Mapes 2002).

Most whale-watching tour operators are opposed to whale hunting primarily for economic reasons. Some scoping comments expressed concerns that a gray whale hunt would affect local

and regional whale-watching industry revenues by causing whales to avoid boats. The West Coast Anti-Whaling Society, made up of professional whale-watching tour guides, is one group that has opposed Makah whaling (Hamilton 1999b). More information on the whale-watching industry is available in Subsection 3.6.3.2.4, Contribution of Tourism to the Local Economy.

Of the 49 self-identified Washington State residents that submitted public comments on the ALJ's recommended decision in 2021 (not including Tribes), 37 indicated strong opposition to the proposed waiver. While Clallam County residents have expressed the range of attitudes about Makah whale hunting described above, a more intense debate about the issue seems to be occurring in and near Clallam County because of proximity to Neah Bay. This intense debate, which includes strong disapproval of and support for the hunt, is evident in the many interactions with Clallam County residents, including scoping letters for the 2008 DEIS; verbal scoping comments recorded at the Port Angeles DEIS scoping meeting; letters and calls from Clallam County residents received after the successful 1999 whale hunt; written and verbal comments on the 2008 DEIS; and whaling protests in Port Angeles. Of those Clallam County residents who expressed a view during scoping and on the 2008 DEIS, more expressed disapproval of the hunt than those expressing support for the hunt.

A local group called Peninsula Citizens for the Protection of Whales actively opposes the hunt and participated as a party to the 2019 ALJ hearing. The group's 2006 scoping letter and comments on the 2008 DEIS expressed fear that continued whaling will divide the community and the many tribes in the area will be drawn into the controversy. Members of the group protested near the Makah reservation border in the spring of 1999 (Porterfield and Denn 1999). Another local group, Washington Citizens Coastal Alliance, based in nearby Friday Harbor, sent out a travel advisory to several hundred travel organizations, media groups, and individuals, expressing opposition to whaling (Hamilton 1999b). The advisory warned potential tourists to Neah Bay of recent conflicts and violence stemming from the whaling issue. The *Seattle Times* reported that other activists have said that the controversy was ripping apart rural Clallam County and Washington as a whole (Welch 2001).

Several incidents involving violent or near-violent confrontations between whaling opponents and members of the Makah Tribe have occurred in Clallam County since the Tribe first announced its intention to hunt whales in 1995. It is difficult to determine which protesters are local residents and which are representatives of anti-whaling organizations based outside the area. An anti-whaling activist meeting in Port Angeles in 1998 was the scene of a near-riot when Makah tribal members arrived to support whaling (Peterson 2000). One incident in 1999 involved two animal-

rights activists tossing ignited smoke canisters at a tribal motorized support boat and throwing an ignited flare into the water near the boat (Porterfield and Denn 1999). Another incident involved a protest boat being pelted with rocks and bottle rockets after a group of protest boats converged inside the Neah Bay Marina (Gottlieb 1999). One man burned the American flag and tires in a Port Angeles park in protest of the whale hunt (Gottlieb 1999). During and after the successful 1999 whale hunt, Makah tribal members and the Coast Guard received emails and phone calls with death threats and anti-whaling messages (Hamilton 1999c). Some tribal members have been refused service at businesses in Port Angeles (Hamilton 1999c). Refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007, and Subsection 3.15.3.4, Behavior of People Associated with the Hunt, for a more complete description of protest activities.

Other evidence of heightened local tensions can be found in a 2001 letter from the Port Angeles Chief of Police and Clallam County Sheriff to NMFS, asking NMFS not to hold public hearings on the whaling issue in Port Angeles for the 2001 EA. The request was made because of concerns that violent demonstrations would overwhelm the resources of local law enforcement (Port Angeles Police Department 2001).

3.9 Cultural Resources

3.9.1 Introduction

The following section discusses the cultural resources in the action area that may be affected by the action alternatives.

3.9.2 Regulatory Overview

Federal and state laws protect and preserve cultural resources. The United States' first preservation law, the Antiquities Act of 1906, was updated and expanded in 1966 when Congress enacted the National Historic Preservation Act, declaring that "the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people." Thus, the National Historic Preservation Act established a national historic preservation program that has operated as a decentralized partnership between the federal government and the states. The National Historic Preservation Act, amended in 1980 and again in 1992 (16 USC 470 *et seq.*), identified a leadership role for the federal government in historic preservation. Through a partnership with the states, in addition to relationships with Indian tribes, local governments, and private organizations, the National Historic Preservation Act fosters conditions "under which our modern society and our prehistoric and historic resources can exist in productive harmony." These relationships provide broad participation in national historic preservation programs, while

maintaining standards consistent with the National Historic Preservation Act and the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, September 29, 1983).

Federal agency requirements to consult with Indian tribes are clarified in the Advisory Council on Historic Preservation's regulations, Protection of Historic Properties (36 CFR Part 800), implementing section 106 of the National Historic Preservation Act. These regulations emphasize participation in this process by state historic preservation officers and the public, including Native American groups. The federal agency must consult with the tribal historic preservation officer for projects occurring on Indian reservations or potentially affecting a tribe's off-reservation traditional cultural properties.

Archaeological resources on federal lands received federal protection under the 1979 Archaeological Resources Protection Act and the 1990 Native American Graves Protection and Repatriation Act. Federal law applies to all federal and Native American lands, and Washington State law applies to all other lands within the action area. Washington State Executive Order 05-05 provides for the Department of Archaeology and Historic Preservation to review certain projects not undergoing section 106 review to determine potential impacts to cultural resources. With respect to cultural resources within the Makah Tribe's traditional territory, the Tribe takes an active role in the documentation and preservation of these resources, including the assessment of potential impacts to its cultural resources.

3.9.3 Existing Conditions

3.9.3.1 National Historical Register Sites

There are two historic sites listed on the National Register of Historic Places near the action area where a whale could be landed (i.e., the Makah U&A waters and shoreline). The first is Tatoosh Island, which was a summer home to the Makah Tribe. The Makah landed whales on Tatoosh Island. A lighthouse was erected there in 1857. The second listed site is Wedding Rock Petroglyphs, located on the beach between the Ozette and Sand Point Trails in the coastal strip of the Olympic National Park (i.e., Ozette Triangle). The Wedding Rock Petroglyphs are located in the rocks near the high tide line, and they attract many visitors each year.

3.9.3.2 Archaeological Sites

Around 1750, a substantial section of the Ozette village on the outer coast of the Olympic Peninsula was encased in a spring mudslide. This anaerobic environment preserved wood, bone, textile, and cordage to create unprecedented archaeological preservation. More than a decade of archaeological excavations at this site, beginning around 1970, yielded 55,000 artifacts,

12,000 structural remains, and more than 1 million faunal remains. These archaeological investigations revealed about 2000 years of human occupation along the Olympic Peninsula in the Late Period of the Northwest Coast (Wessen 1981).

3.9.3.3 Other Culturally Important Sites

Of particular assistance in determining the presence and location of traditional cultural properties was the "Makah Traditional Cultural Property Study," prepared for the Office of Archaeology and Historic Preservation, State of Washington, Olympia, in cooperation with the Makah Cultural and Research Center, Neah Bay (Renker and Pascua 1989). That study recognized the entire Makah traditional territory as a traditional cultural property. For the purposes of this FEIS, however, the definition of a traditional cultural property was narrowed to include only those sites known to be directly associated with whaling for which the location has been reported. Makah elders identified First Beach, situated immediately adjacent to Neah Bay, as a site associated with butchering whales. A review of the ethnographic literature did not locate other sites that would meet the criterion of a traditional cultural property for this FEIS.

First Beach, situated next to Neah Bay, was where the chief of the Neah Bay village towed whales for flensing. It was known in the Makah language as *čiʔ·ʔawa·ʔiyak*, "place for butchering whales." Renker and Pascua (1989, no. 190) listed this site as a traditional cultural property retaining significance to the Makah Tribe. Other chiefs towed harvested whales to beaches closer to their villages.

There are several, unlisted shell midden sites in the Olympic National Park, and these are actively exposed along eroding beach terraces. There are also unlisted whaling sacred sites where Makah Tribe whaling families and members would prepare for whaling. The locations of such sites are regarded as private knowledge that is not generally divulged to non-family members. There are no specific known locations that the Tribe uses continually and that could be considered historical sites.

In May 2008, the Fort Núñez Gaona – Diah Veterans Park was dedicated in Neah Bay. The monument, a collaboration of the Makah Tribal Council, the Spanish government, the Washington Office of Lt. Governor, Neah Bay area veterans, and members of the local community, is located at the site where the Spanish anchored in Neah Bay and laid claim to Cape Flattery in 1790. The monument also serves as a memorial to the Neah Bay veterans who served in the U.S. military.

3.10 Ceremonial and Subsistence Resources

3.10.1 Introduction

The following subsection presents the cultural aspects of the Makah Tribe's proposal to hunt gray whales for subsistence and ceremonial purposes (refer to Section 3.16, Human Health, for further information about the nutritional aspect of subsistence and ceremonial hunting). This section also includes a discussion of the symbolic value of the whale to the Makah people's cultural identity.

3.10.2 Regulatory Overview

The American Indian Religious Freedom Act of 1978 (42 USC 1996) contains the following language:

> . . . it shall be the policy of the United States to protect and preserve for American Indians . . . their inherent right of freedom to believe, express and exercise [their] traditional religions,. . . including but not limited to access to sites, use and possession of sacred objects and the freedom to worship through ceremonials and traditional rites.

Additionally, the Religious Freedom Restoration Act of 1993 (42 USC 2000b) provides protections for religious practice. The statute places the initial burden on a person to establish that religious practices have been substantially burdened. The Makah have asserted that the spiritual and ceremonial practices associated with whaling are protected by these two statutes (Makah Tribe 2006b).

In the Treaty of Neah Bay, the Makah Indian Tribe reserved its right to engage in subsistence activities, including hunting, fishing, whaling, and sealing in its usual and accustomed grounds (Subsection 1.2.2, Treaty of Neah Bay and the Federal Trust Responsibility). In the Ninth Circuit decision in *Anderson v. Evans*, the Court of Appeals expressly stated that ". . . [w]e need not and do not decide whether the Tribe's whaling rights have been abrogated by the MMPA." The court also noted that ". . . [u]nlike other persons applying for a permit or waiver under the MMPA, the Tribe may urge a treaty right to be considered" during review of the Makah Tribe's request (*Anderson v. Evans* 2004).

3.10.3 Existing Conditions

The Makah call themselves *qʷidičča7a·tx,ˇ* which is generally thought to mean "residents of the place of rocks and seagulls." They are, however, best known by the current anglicized name which is an incorrect pronunciation of a Salish term *máqaʔa* that means "generous with food" (Renker 2013). The Makah Tribe continues to reside on lands within their traditional territory situated on the northwest tip of the Olympic Peninsula, bordered by the Strait of Juan de Fuca and

the Pacific Ocean. Tribe members maintain a strong orientation to the sea and the resources it provides.

Both linguistically and culturally, the Makah people were closest to the Ditidaht and Nuu-chah-nulth peoples of western Vancouver Island, with whom they shared the occupation of whaling. While ties to these Canadian neighbors continue, the people of the contemporary Makah Tribe participate with other western Washington tribes as members of the Northwest Indian Fisheries Commission, whose mission is the conservation of fisheries (Northwest Indian Fisheries Commission 2023).

3.10.3.1 Makah Archaeological Resources Connected with Whaling

Much of the archaeological and historical evidence of the Makah whaling tradition was obtained through a large excavation of a Makah whaling village (Ozette) that was occupied by the Makah Tribe from 400 B.C. to 1920 (Subsection 3.9.3.2, Archaeological Sites). These archaeological investigations revealed about 2000 years of human occupation along the Olympic Peninsula in the Late Period of the Northwest Coast (Wessen 1981).

Aboriginal people began moving from interior riverine sites to the bays along the Pacific Ocean around 400 B.C., where they then adapted to a maritime orientation. This adaptation brought about an increase in sea mammal hunting, including whaling, which, along with deep sea fishing, necessitated the development of the large, seagoing canoes described ethnographically by Waterman (1920). An archaeological walking survey of Makah territory, complemented with test excavations at six additional sites representing divergent environmental zones, indicated that all of the investigated sites shared an orientation towards sea mammal hunting that was seen most clearly at Ozette (Friedman 1976).

Based on the recovery of whaling equipment and whale bones with embedded fragments of harpoon blades at the Ozette excavation, archaeologists determined that, for at least 1,500 years, the Makah Tribe paddled out to sea to hunt whales. Earlier, as evidenced by butchered whale bone in archaeological deposits, the Makah Tribe harvested drift and stranded whales (Huelsbeck 1994). Moreover, the number of whale bones recovered from different areas of the site which represented different time periods did not vary, suggesting that whaling remained stable. Artifacts recovered archaeologically indicate that whaling techniques described ethnographically by Drucker (1951) were used prehistorically (Huelsbeck 1994). Canoe fragments, harpoon shafts, harpoon heads, sinew ropes, and wooden plugs from seal skin floats have all been found (Huelsbeck 1994).

The skeletal remains of the gray whale and humpback whale were both equally represented and were the dominant whale species recorded in the deposits when the whale species could be identified, suggesting that they were actively pursued by Makah hunters. Most of the excavated bones identified as whale could not, however, be identified to species because of limitations of the comparative material available (Huelsbeck 1994).[71] From the skeletal material that could be identified, archaeologists concluded that, at Ozette, whales represented much more food than all the other kinds of animals combined (Huelsbeck 1994). Researchers estimated that as much as 85 percent of the pre-contact (i.e., before the first arrival of Europeans in the late 18th century) diet of the Makah Tribe could have been composed of whale meat, oil, and blubber (Huelsbeck 1988). Archaeological evidence in the form of roughly cut and gouged bones suggests that the Makah, in addition to rendering blubber for oil, extracted oil from bones, a practice not reported ethnographically (that is, through interviews with Makah elders) or through observation of their practices. In addition, partially burned bone suggested roasting as a method of cooking the meat (Huelsbeck 1994). Fragments of whale skin were also found inside the remains of houses at Ozette, a finding consistent with Koppert's (1930) remark that whale skin was eaten. While Koppert (1930) thought that the entire whale was used, other reports differed on the extent of carcass used and/or consumed by the Makah (Waterman 1920).

3.10.3.2 Makah Cultural Environment

At the time of the Treaty of Neah Bay, the Makah Tribe permanently occupied five villages situated on the northwestern tip of the Olympic Peninsula: *di·ya·* or Neah Bay; *bi?id?a* or Biheda; *wa?ačˇ* or Wayatch; *čˇu·yas* or Tsoo-Yess; and *?use·?iɬ* or Ozette. In addition to these five semiautonomous winter villages, Makah families occupied seasonal sites, such as fishing camps on the outer coast (Friedman 1976; Renker and Gunther 1990).

Anthropologists classify the Makah Tribe within the Nootkan (Nuu-chah-nulth) subdivision of the Northwest Coast Cultural Area, a cluster of societies that share certain traits and trait complexes. Drucker (1951) defines these traits as:

- A marine and riverine orientation that permeated not only subsistence practices but ideology and outlook.
- An emphasis on fishing and marine mammal hunting, as well as the gathering of shellfish, other marine invertebrates, and plants.

[71] More recently, Alter et al. (2012) identified DNA of gray, humpback, blue, and sperm whales from bones excavated at sites on the Makah and Quileute Reservations.

- A highly developed woodworking technology.
- A tripartite system of social stratification that included nobles, commoners, and slaves.
- An emphasis on property, both tangible and noncorporeal.
- The integration of rank and kinship as the basis for social interaction.

The Makah Tribe's location and wealth in natural resources placed tribal members at the hub of a far-reaching trading network that extended north to Vancouver Island, south to the Lower Columbia River, and east to the tribes of the Strait of Juan de Fuca. Whale oil and other coastal products passed along this network (Swan 1870; Renker and Gunther 1990).

3.10.3.3 Historic Makah Community

The Makah winter village was the primary residential community. The people lived in large, shed-roofed, cedar plank dwellings during the rainy winter months when resource harvesting activities were low and ceremonial life was more active. People identified themselves primarily with their winter village, but individuals maintained kinship ties with several villages, not all of them Makahs. Kin units among the Makah were organized on the basis of non-unilinear descent, meaning that members all acknowledge descent from a common ancestor traced through either males or females. Leadership tended to be controlled by a patrilineal core of elite residents, generally consisting of a father and his sons with their families, resulting in households being quasi-lineages that controlled production, consumption, and resources. Hence, these elite groups of kinsmen were the headmen of the households who owned the resources and organized the work of others for resource harvest and distribution.

The elite members of Makah society were the titleholders, the chiefs or nobles who held rights to inherited leadership positions. Despite their considerable prestige and ritual authority, however, they held limited political power. Chiefs had influence but could seldom compel other individuals to act against their will. Commoners and slaves formed the lower two strata of society. Commoners enjoyed the privileges of membership in their descent group and had access to resources and ceremonial prerogatives, although commoners did not have rights to ranked titles. Slaves, obtained through capture or purchase from other tribes, were human property devoid of rights (Drucker 1951; Colson 1953; Renker and Gunther 1990). Such distinctions in rank and status declined following guidelines set forth in the Makah Tribe's 1855 Treaty and the establishment of the Neah Bay Indian Agency in 1863. Under the influence of Indian agents who promoted assimilation, the Makah Tribe's pre-contact, visible sociopolitical organization was weakened. In 1879, the community of Neah Bay held its first election for headmen, the result of

which was recorded by James Swan, who noted that similar proceedings were soon to be held at the other Makah villages (Goodman and Swan 2003).

3.10.3.4 Makah Historic Whaling

At least seven species of whale are distinguished in the dialects of the Makah Tribe and their Nuu-chah-nulth neighbors (Swan 1870; Sapir 1910 to 1914; Waterman 1920; Densmore 1939; Stonham 2005), and archaeological remains have been found for at least eight cetacean species (Etnier and Sepez 2008), including blue, gray, humpback, and sperm whales (Alter et al. 2012). From review of the ethnographic record, especially the work of Drucker (1951), whales, from the perspective of the Makah Tribe and neighboring indigenous groups on the Northwest Coast, differed little from humans: both have human form, live in houses (although the whales' home is at the bottom of the ocean), and travel about in canoes. The Tribe and neighboring indigenous people believed that the familiar bulbous gray form observed as whale (gray or humpback) was merely a whale spirit riding in its canoe while fishing (Sapir 1910 to 1914). By means of the whaler's ritual supplications, the whale's spirit was enticed to leave its canoe, which allowed the whale's body to be caught (Jonaitis 1999).

Ethnographic reports indicate that Makah tribal hunters pursued mostly gray and humpback whales (Waterman 1920; Drucker 1951), while skeletal remains in archaeological sites suggest that right whales and fin whales may have been taken occasionally, and sperm and killer whale remains probably represent salvaged drift whales (Huelsbeck 1988). The unifying characteristic of those whale species the Makah pursued was a slow swimming speed, enabling their capture by men in canoes. The hunting season for gray whales began in March, when they appeared in numbers off Tatoosh Island on their coastal migration north, and resumed in November during their migration south. Pods of humpback and gray whales may have remained in the area all summer (Huelsbeck 1994), permitting whale hunting to occur from early spring through the fall.

The killing of whales was the prerogative of titled men among the Makah Tribe (Swan 1870), largely because of the necessary elaborate rituals associated with whale hunting, the cost of outfitting an expedition, and the authority needed to assemble a crew (Drucker 1951). The success of the hunt relied upon the whalers' strict observance of ritual knowledge, which only the elite possessed and which the Makah Tribe believed to be the essential basis of a whaler. Knowledge of and adherence to the rites, along with spiritual assistance received through prayer to the ancestors, was reflected in a chief's wealth. Thus, in Makah theory, the rituals were responsible for one having wealth, and wealth demonstrated the presence and efficacy of a man's spiritual power. Wealthy men married the daughters of powerful chiefs, perpetuating the presence

of an elite class and, by selecting spouses from other communities, creating a social and economic network through which wealth, people, and information passed. Drucker (1951) describes the Nuu-chah-nulth groom's harpooning of the door of the bride's house during the marriage ceremony, using an imitation whaling harpoon, complete with floats. The association of whaling with wealth and rank was also evident during marriage ceremonies such as one witnessed at Neah Bay in the 1850s, when the groom's party reenacted a whale hunt upon arrival (Hancock 1927).

In preparation for hunting, Makah whalers trained themselves to acquire spiritual strength and power so that the whale could be killed more easily. Training consisted of ritual bathing, praying, rubbing the skin with boughs or nettles, and imitative performances. Such practices took place at selected, secret locations that were regarded as spiritually powerful places, some of which included elaborate shrines adorned with carved figures and human skulls said to represent the whaler's ancestors (Waterman 1920; Gunther 1942; Drucker 1951; Jonaitis 1999). Each family or extended family had its own secret spot, usually no larger than a room, but kept private from all other families. Even the details of the bather's costume, the prayers, and the type of branches the whaler used were private knowledge that was passed from one generation to the next according to the rules of inheritance. The absence of centralized dogmatic control of spiritual and ritual practices was characteristic of Makah society. Thus, the practices described as general to the Makah in this document and recorded by anthropologists and other early observers may have been the practices of a particular extended family group, because ritual practice varied from family to family. The widow of one Makah whaler recalled how her husband visited a specific place immediately before the hunt and his training continued throughout the whaling season to be ready whenever whales were sighted (Gunther 1942).

Chiefs had two methods of obtaining whales: either hunting them from a canoe on the open water and harpooning them, or using ritual to entice them to die and float ashore. A focus of the whaler's ritual activity at his shrine was to entice the whale to relinquish its spirit and allow its body to drift ashore, thereby permitting the chief to avoid the dangers of hunting at sea (Drucker 1951; Jonaitis 1999).

The whale had a special relationship to the noblewomen and, during the hunt, the whaler's wife would act as if she had become the whale. Her movements would determine the behavior of the whale—if she moved about too much, the whale her husband was hunting would be equally active and difficult to spear; if she lay quietly, the whale would give itself to her husband. Towing chants often reflected this association, and the whalers addressed the dead carcass using a term

that refers to a chief's wife. His wife greeted the whale when the hunters towed the carcass to shore, and she led the procession to the chief's house (Drucker 1951). This transformation that occurs during the ritual (i.e., noblewoman becoming a whale) has an empirical connection, as the presence of the whale in the village validates the chief's spiritual power, authority, and wealth, including his bond to noblewomen who are themselves descendants of great whalers (Gunther 1942; Drucker 1951).

Hunting crews were led by the titled nobleman who owned the 30-foot (9.1-m) cedar canoe and its specialized equipment and acted as harpooner. There were typically seven other crew members, including a steersman and six paddlers, one of whom was also a diver who fastened shut the whale's mouth after it had been killed. Each of the eight-man crew was physically fit and either possessed hereditary access to the position and its complementary ritual knowledge or obtained such knowledge through a supernatural encounter (Curtis 1916; Waterman 1920). Each man dressed in special skin clothing adorned with feathers (Sapir 1910 to 1914). A number of canoes hunted together, each outfitted with harpoons, sealskin floats, harpoon lines of whale sinew and others of cedar, and a variety of knives (Waterman 1920). Several ethnographic reports containing information based on accounts from whalers have described the hunt (Curtis 1916; Drucker 1951). In one hunting strategy, lookouts were stationed at coastal high points to alert hunters of the presence of a whale. When a whale was sighted from shore, the Makah hunters set out in previously equipped canoes that were kept ready for use. Whales could often be observed close to Umatilla Reef and Swiftsure Bank, near the entrance to the Strait of Juan de Fuca, where the migrating whales would be feeding. A hunt could last for several days and take the hunters far out to sea, a journey that required considerable navigational skills (Waterman 1920).

Curtis' (1916) description of the hunt conveys some of the hunters' specialized knowledge and finely tuned skills that were the necessary complement to the rigorous spiritual training each hunter endured. Yet there was likely no skill more important than that of the chief who wielded the immense harpoon and, only several feet from the whale, thrust it into the flesh of the submerging prey, after the whale's flukes went underwater and could not upset the hunters' canoe. Once harpooned, the Makah hunters threw several other harpoons into the injured animal, until it was finally exhausted. Then the whale hunters began singing to the whale, imploring it to head shoreward as they started the arduous task of towing home their immense catch. When the hunters followed the prescribed rituals, the whale spirit left the body of its host, and the hunters successfully towed the whale to the chief's village for butchering. As they traveled, the hunters

continued to sing chants encouraging the whale to move to shore (Curtis 1916; Waterman 1920; Drucker 1951).

First Beach, situated next to Neah Bay, was where the headman towed his whale for flensing. It was known in the Makah language as *čiˀ·ʔawa·ʔiyak*, "place for butchering whales." Renker and Pascua (1989, no. 190) listed this site as a traditional cultural property retaining significance to the Makah Tribe. Other chiefs towed harvested whales to beaches closer to their villages (Subsection 3.9.3.3, Other Culturally Important Sites).

The villagers hauled the catch as high on the beach as possible. In some communities, all the village children helped pull the whale the last few yards (Drucker 1951). Butchering procedures depended on the species, but ritual and ceremony always accompanied the initial steps as an elderly whaler made the first cut into the whale, now decorated by the Makah with eagle feathers and white down taken from waterfowl, and the men began to strip away square slabs of the valuable blubber. The dorsal section, richest in oil, was reserved for the chief hunter, though he is reported often to have sold or given it away. Choice morsels were reserved for the hunters and for those leading men who had rights to particular pieces of the whale. The chief whaler, dressed in ceremonial gear, also entertained the villagers with his songs and imitations. He provided the villagers with freshly cooked blubber from his catch and distributed the remainder. The villagers, in turn, sang songs honoring the chief's and the whale's prowess and generosity. For as many as four nights, the chief led the community in ceremonial performances marked by imitations of the whale, the hunt, and songs that praised the whale. Individual whalers owned different songs (Swan 1870; Waterman 1920). Drucker (1951) noted that the Nuu-chah-nulth carried the concept of ownership to "an incredible extreme," with the result that all ceremonial privileges, such as the right to use certain songs and dances, perform certain rituals, or certain acts within them, were owned property.

The Makah probably regarded the whale as a guest in the village in the same way as the Nuu-chah-nulth of Vancouver Island. Thus, once the community had feasted, the hunters had to return the whale's spirit to the sea by casting small pieces of flesh and blubber into the ocean where it could not wash up on shore (Curtis 1916). The whale carcass was then left for the villagers to help themselves (Drucker 1951). This activity was shared by "the entire tribe, great and small, male and female," according to one observer in the 1850s (Hancock 1927), after which the birds and other scavengers picked at the remains on the beach (Waterman 1920). Thus, once the chief had directed the removal of all the blubber, to be eaten fresh or rendered into oil, the villagers took most of the flesh, also for consumption, in addition to the bones and baleen, as needed.

Drift whales—those whales that drifted to shore after death—were reported to the beach owner by messengers who were paid for the find. The drift whales were examined to identify any signs of ownership, indicated by specific marks on any harpoon heads embedded in the whale's flesh or on seal skin floats attached to the harpoon. Whales that had been identified as lost after being harpooned, or that had been cut free when bad weather threatened the hunters' return home, belonged to the hunter unless another chief's mark was identified. The villagers would congregate on the beach to strip the whale's blubber for their respective chief, after which the people would help themselves to the meat and blubber, again leaving the carcass with most of the bones (Drucker 1951).

Meat that was decayed, which sometimes occurred with drift whales, or whales caught too far from shore on which the flesh began to rot, was left on the beach along with the bones. The villagers took the bones from the beach only when they could serve some purpose; thus, the skeleton with any remaining morsels of meat remained on the shore or was washed out to sea (Waterman 1920; Drucker 1951). Blubber, however, seldom deteriorated to the extent that it could not be used, if only for technological purposes, and it was not consumed (Waterman 1920; Drucker 1951).

Whale products provided enough blubber and oil for the village, as well as a surplus of oil to be traded with neighboring tribes (Huelsbeck 1988). An account of exchange included in the journal of John Jewitt, a crewman from an American vessel taken captive by the Nuu-chah-nulth chief Maquinna in 1803, noted that Maquinna's trade with neighboring tribes was "principally train oil," and from the Makah he received "great quantities of oil" and whale sinew (Jewitt 1993). The oil was stored in boxes specially made for the purpose or in bladders or stomachs of marine mammals and certain large fish (Curtis 1916). Whale oil was a standard condiment served with meals, typically used as a dip for dried foods such as salmon and berries (Drucker 1951). Whale oil was also thrown on central fires to fuel the blaze during rituals, and at least one visitor to the area in the mid-1800s observed shell lamps in which whale oil was burned (Drucker 1951). The Makah Tribe made offerings to the supernatural world by burning feathers and whale oil, an act accompanied by prayers from the head of the household (Curtis 1916). In the 1840s, Makah traders provided whale oil to the Hudson's Bay Company's Fort Victoria for shipment to England (e.g., Fort Victoria Journal, December 7, 1846). Additionally, Makah craftsmen used bones and baleen as raw material for tool manufacture and bones as building material (Huelsbeck 1994).

The ethnographic literature is inconsistent regarding the consumption of whale meat, the dark flesh found under the thick layer of blubber (Waterman 1920). Stories recorded by Edward Sapir

in the early 1900s tell of Nuu-chah-nulth villagers boiling fresh whale meat, drinking the broth (Arima et al. 2000), and giving feasts of meat and blubber (Sapir 1910 to 1914). Drucker (1951) confirmed Curtis' (1916) earlier report that the whale flesh could be both sun and smoke dried, although statements by Drucker's Nuu-chah-nulth consultants indicate that the meat was dried in smaller quantities than the valuable blubber. So rich was the partly dried blubber that pieces of it were given to suckling newborns until the child's mother could produce enough milk, generally by boosting her own nutrition with extra servings of blubber (Curtis 1916). Swan (1870) reported that only the vertebrae and offal were left unused. Among the whale bone artifacts recovered from the Ozette site are spindle whorls, bark shredders and beaters, cutting boards, clubs, wedges, and tool handles (Huelsbeck 1994). Drucker (1951) also reported the historic use of whale bone for such implements.

Historical and ethnographic accounts provide only rough calculations of the numbers of whales taken annually. The catch of 15.99 and 36.9 tons of blubber was reported and likely a similar amount of meat, depending upon whether the whales were Pacific grays or humpbacks, respectively (Huelsbeck 1988). Another source, writing specifically of the Makah Tribe, estimated that an average whaler might take one or two whales a year but that a skilled and fortunate hunter might catch as many as five in the same period (Densmore 1939). This is a higher estimate than the numbers harvested between 1889 and 1892 when the entire Makah Tribe (including all whalers) averaged 5.5 whales a year (Huelsbeck 1988).

Reassessments of the role of whaling in indigenous society indicate that whaling had great economic significance (Huelsbeck 1994) and was not simply a "symbol of chieftains' greatness," with "little economic importance," as anthropologist Philip Drucker (1951) once described whale hunting, in light of the few whales caught by Nuu-chah-nulth men he interviewed in the mid-1930s. Ceremonies, music, and dance associated with this occupation, based on chiefly ownership and rank, held a central role in the maintenance of the Makah social system. A titled family maintained its standing by hosting ceremonies, particularly intervillage potlatches, performing hereditary songs, displaying owned prerogatives, and giving away food and gifts, all of which required great wealth. Even before a successful hunt, whaling chiefs held potlatches at which they made gifts of sticks said to represent strips of blubber to be given at a later date (Drucker 1951). The hereditary privileges owned by whalers and displayed at significant events were games and songs associated with the whale (Goodman and Swan 2003), among them a performance in which the dancers wore gear and imitated the motions of a whale (Densmore 1939).

3.10.3.4.1 Cessation of the Hunt

Historical and ethnographic records indicate that the Makah Tribe hunted whales until the 1920s when this practice went into abeyance. However, this period represented the conclusion of a gradual decline in whale hunting that had taken place since the 1855 Treaty, when 30 Makah canoes hunted together, and each canoe was said to have processed 1,000 gallons (3,785 L) of oil (Swan in McDonald 1972). Swan (1870) noted that, even in the 1850s, the Makah Tribe was whaling less than in the past, but he could provide no clear explanation for the decline.

An account of one of the last Makah Tribe whale hunts was reported to the *Victoria Daily Colonist* in 1905, largely because of the observer's fascination with the Makah Tribe's use of new technology for whaling. In that hunt, 60 Makah hunters in six large canoes stalked a whale. Once the main harpooner hit the prey, his fellow hunters thrust a large number of iron-tipped harpoons into the injured animal. A steam-powered commercial tow boat then pulled the whale into Neah Bay for butchering (cited in Webb 1988).

By 1916, Curtis (1916) observed that the Makah Tribe had recently revived the practice of whaling. It is clear, however, that the hunt had been untenable for a number of years and had ceased completely by the 1920s. Social, economic, and biological factors all contributed to the Makah's cessation of the hunt. It was not the first time that the Makah Tribe interrupted a marine-based occupation. Makah witnesses appearing before the British Commissioners investigating the pelagic fur seal industry in the 1890s reported "for about twenty years the hunting was practically given up" because of the loss of lives at sea while hunting (cited in Crockford 1996). The Makah Tribe resumed this activity in the early 1900s when conditions improved.

Research by Jennifer Sepez (2001) reveals that some Makah families continued to use whale meat and oil after the 1920s, when the hunt was discontinued. However, Sepez hypothesized that the likely source would have been from beached whales, whales caught in fishing nets, or possibly aboriginal whale hunts that continued to occur in Canada in the 1930s. At this time, British Columbia canneries sometimes processed whale meat obtained by aboriginal hunts (Webb 1988).

3.10.3.4.2 Factors Responsible for Discontinuation of the Hunt

Robert L. Webb's (1988) history of commercial whaling documents a steady decline in all species of whale that became the target of commercial whalers. Historical evidence indicates that whaling in the lagoons of Mexico and Baja California in the 1840s and the shore-based commercial whaling that began off the California coast in 1851 significantly reduced the once-healthy stocks of migrating ENP gray whales along the western coast of Washington. One observer estimated that, around the mid-1850s, 1,000 whales could be seen each day between

December and February making their southern migration, suggesting to Scammon (1874) that whales migrating along the coast of California likely numbered about 30,000 a season. When Charles Scammon published his first edition of *The Marine Mammals of the North-Western Coast of North America* in 1874 only 20 years later, he estimated that the number of migrating gray whales did not exceed 10,000 whales.

With the development of the darting gun around 1870, which replaced the iron harpoon hurled by manual strength from the bow of a whaleboat, it became possible for commercial whalers to kill humpback whales (Webb 1988). This placed the industry in direct competition with the Makah Tribe, who hunted this species along with the gray whale.

The new whaling methods included steam-powered chaser boats on the sea and oil-fired steam rendering plants on shore, making easier, faster hunts possible and providing diverse new products from the raw materials. Although whale oil now competed with less costly petroleum products and vegetable and mineral oil, new ways of processing the oil kept it in demand and facilitated a renewed interest in whaling on the northwest coast in the early 1900s (Webb 1988). Humpback whales found in inlets and bays were hunted, along with blue and fin whales, and a new factory-ship technology permitted a resurgence of the gray whale hunt. Over a 10-year period, whale stocks dwindled. Thus, when the Makah Tribe and their Nuu-chah-nulth neighbors on Vancouver Island attempted to hunt whales in the early 1900s, few whales remained in the local waters (Webb 1988).

When World War I began, the government urged the public to consume whale meat without much success, as most Americans did not have a taste for the meat, although it appears that the Makah Tribe continued to enjoy it and consumed some whale meat processed by Canadian canneries (Goodman and Swan 2003). By the 1930s, with whale stocks almost entirely depleted, the whaling countries began to recognize the need to control the numbers of whales being taken. At a London conference in 1937, member countries adopted the International Agreement for the Regulation of Whaling, which applied stringent controls on the numbers and species of whales being killed. The gray whale became protected, along with right whales (except for a few taken by permit), by those countries participating in the agreement (Webb 1988). Commercial hunts depleted stocks of humpback whales as well, but international agreements did not protect this species until 1965 (Webb 1988).

In addition to depletion of whale stocks, the Makah's increasing involvement in the pelagic fur sealing industry also contributed to cessation of the Tribe's whale hunt. The skills that made the Makah successful whale hunters also made them valuable participants in the pelagic sealing

industry of the nineteenth century. This commercial industry was an outgrowth of the Makah Tribe's aboriginal subsistence and fur-trade sealing efforts. By the 1860s, commercial sealing substantially relied on a Makah wage-labor force with the knowledge of navigation and watercraft needed to succeed at sealing. The shore-based hunt was considered dangerous as the hunters followed the seals far from land in open canoes. In 1865, the Indian Agent at Neah Bay began chartering schooners to assist the Makah in their offshore hunts (Lane, cited in Crockford 1996). By the mid-1870s, the schooner owners benefited from the near-abandonment of the Makah people's shore-based seal hunt, as more men signed on to work from schooners and hunt seals (Crockford 1996).

The pelagic seal hunt relied upon certain elite tribal men continuing in their role as administrators of community economic activities. Whereas these men formerly organized the harvest and distribution of local resources, they now organized crews for the schooners. However, the more equitable distribution of the proceeds equalized the relative ranking of the participants, as the trade economy elevated the resource beyond the level of subsistence and put greater wealth directly in the pockets of crew members (Crockford 1996; Goodman and Swan 2003). Commoners were now ostensibly equal to chiefs, with opportunities available to them as individuals. Thus, the titled class could no longer expect the privileges that whaling had helped them maintain, except in ceremonial potlatches and social networks. By 1875, sealing for furs was the Makah Tribe's chief form of income. By 1893, Makah tribal members owned 10 sealing schooners. These vessels earned a healthy income for their owners but set these men apart from those who did not share in the profits of the new economy. Eventually, over-harvesting and government regulations led to diminished profits and, ultimately, the end of the seal hunting industry. In 1897, the U.S. Government signed an international convention that effectively banned pelagic seal hunting by its citizens, and the once-successful Makah hunters were left waiting for compensation for their lost business, which they believed had been secured to them by treaty. As late as 1957, Murray (1988) reports the Makah Tribe was still appealing to Washington for payment as a result of losses incurred because of the 1897 law and the seizure of a Makah sealing schooner operating in Alaska. Shooting harbor seals for food continued through the 1990s, long after the hunting of fur seals ceased, as seal oil provided the Makah Tribe with fat that was rendered into oil and used as a condiment (Sepez 2001).

Government agents among the Makah Tribe made considerable, yet ineffective, efforts to promote self-sufficiency through agriculture on the reservation. Some agricultural opportunities became attractive to the Makah Tribe, especially because crop production provided cash, was

open to all members of society, and, in the case of the hop and berry fields, permitted families to remain together while they worked as wage laborers. Unlike occupations such as sealing, in which only men were hired, and several Makah men became affluent, whole families could be employed on farms for low wages. Government agents also encouraged Makah children to adopt new values introduced through Christianity and education. In the 1870s, the U.S. Government made potlatching, bone games, and other ceremonial activities illegal, as these activities were regarded as primitive and backwards, resulting in the Makah Tribe's loss of hosted occasions that advanced and recognized the status of leading whaling families (Goodman and Swan 2003). By the early 1900s, the Makah Klukwali (wolf ceremony) and Tsayak (curing ceremony) secret societies involving dramatic reenactments that had been performed by such families, had faded from public view (Goodman and Swan 2003). These secret societies either relocated to offshore islands or adopted a European-like façade to avoid interference by American authorities.

Another direct effect of government policy occurred in 1879 when the first election of chiefs or headmen took place at Neah Bay, followed by elections in the other Makah communities (Goodman and Swan 2003). It is likely that the community elected men of high rank, thus undermining the Indian agents' efforts to equalize the position of all Makah tribal members. Introduction of the dominant American society's values, including the ideal of equality among all persons, was an expressed goal of U.S. Government Indian assimilation policy in the late nineteenth century (Goodman and Swan 2003). Yet the Indian agents' attempts to displace the authority, and consequently diminish the acquisition of wealth that accompanied chiefly positions, including that of the titled men who once carried out the whale hunt, took its toll on the community's recognition of traditional leadership. In the absence of the hereditary system, disagreements arose among those still claiming chiefly descent who expected recognition of the rights that flowed from these inherited positions (Goodman and Swan 2003). Despite changes in leadership positions, Makah families of high status kept alive some of the practical and ritual knowledge associated with the whale hunt, even in times of inactivity, although the relative influence of these families within the community declined with the changing economy (Drucker 1951; Goodman and Swan 2003). Drucker found similar retention of whaling knowledge among the Nuu-chah-nulth (1951). In the mid-1930s, he found that the chiefs of one group passed down "both ritual and practical features of the [whaling] complex" to four generations without whaling, before their resumption of the hunt. According to Renker (2012), this transfer of whaling knowledge within Makah families has continued to the present day. The Tribe's 2012 needs statement explains:

> . . . the Makah desire to reinvigorate the whaling tradition never dissipated. Households took advantage of drift whales for food and materials before federal communications and supervision began to prohibit this practice. Families pass on whaling stories, traditions, songs, and secrets from generation to generation. Whaling designs and crests still decorate public buildings and private homes. Makahs proudly display historical photographs of their whaling ancestors in their homes, and the public school on the reservation exhibits whaling artifacts and photographs. Accounts of Makah whalers are read again and again in school and homes. Whaling displays in the Makah Cultural and Research Center and other museums keep visual scenes in the heads and hearts of Makah people (Renker 2012).

3.10.3.5 Contemporary Makah Society

Several post-contact factors (i.e., influences brought about after the arrival of the first Europeans in the late eighteenth century), including epidemic disease and mandatory schooling, resulted in consolidation of the five traditional villages into the single community situated at Neah Bay where most of the on-reservation Makah population now resides. The Neah Bay community primarily consists of single-family dwellings, including mobile homes and Housing and Urban Development houses, with housing for seniors located in the center of the village across from the Senior Citizens Center. The churches, schools, public health facilities, Makah Cultural and Research Center, and a large community center, where revived potlatches, bone games, and other community functions are held, are located in the community of Neah Bay.

Since 1931, Neah Bay has been connected with communities to the east on the Olympic Peninsula by road, although Makah life remains oriented to the sea. Subsistence and commercial salmon and halibut fishing have remained central to the Makah economy, especially after the cessation of the pelagic sealing industry at the end of the nineteenth century, because of the reservation's proximity to some of the biggest halibut fisheries on the Pacific coast (Colson 1953; Sepez 2001). From the 1950s through the 1970s, Makah men worked as loggers cutting timber from the reservation and nearby hills (Colson 1953).

The Makah Air Force Base, established in the area in the 1940s, closed in 1988. Its facilities are now occupied by tribal agencies and Tribal Council offices (Goodman and Swan 2003). Notwithstanding personal preference, a chronic housing shortage at Neah Bay now requires some tribal members to live in neighborhoods outside of Neah Bay, specifically Wa'atch, Baadah, Pacific Beaches, Diah't, and a housing development at Eastern Bayview (Sepez 2001).

The lineage group, or Makah family, is the fundamental element of contemporary intratribal identity, according to Sepez (2001), who notes that it is also the basic social unit in which cultural traditions are passed between generations. Families hold divergent views of tradition, especially in spiritual and ceremonial activities, but also in the types of natural resources harvested and the amounts consumed. Most households, however, consume local subsistence foods during the year (Sepez 2001).

Logging that sustained the community relatively prosperously in the mid-twentieth century has now declined, although the Tribe operates Makah Forestry Enterprise, an expanding company engaged in forest management both on and off the reservation. Fishing, which had also declined, is now providing a higher total income than in the recent past because of the development of trawl fisheries. Apart from these industries and a few small business enterprises, government is the largest employer in the area. Makah tribal members no longer work in agriculture, because the hop and berry fields of western Washington turned into residential areas. Tribal artists produce jewelry, silk screen prints, and clothing with aboriginal designs for sale in local shops.

In response to the 1934 Indian Reorganization Act, the Makah Tribe wrote a tribal constitution and created the Makah Tribal Council, which replaced the former system of chiefs as the daily political arm of the Makah Tribe. Any enrolled member of the Tribe who resides on the reservation is now eligible to run for office, regardless of the class, rank, or status of particular ancestors (Goodman and Swan 2003). Other government policies were also reversed by the 1934 statute, particularly the previous practice of allotting tribal land to individuals. The act also supported Indian religious freedom and promoted a revival of Makah culture (Goodman and Swan 2003). Congress enacted the American Indian Religious Freedom Act in 1978 to further protect and preserve American Indians' inherent right to freedom to believe, express, and exercise their traditional religions (Trope 1994). This act was followed the next year by the Archaeological Resources Protection Act of 1979, which specifically mandates that the American Indian Religious Freedom Act be considered in the disposition of archeological resources. Subsequent legislation, the Native American Graves Protection and Repatriation Act of 1990, mandated the return of Makah and other tribes' sacred objects, objects of cultural patrimony, human remains, and associated funerary objects from federal agencies and federally funded museums (and universities) (Thornton 1994).

Makah Days, initially started in 1926 to celebrate the extension of American citizenship to American Indians, have evolved into a major 3-day event held each August. The event celebrates Makah culture and attracts hundreds of visitors, both aboriginal and non-aboriginal. Months of

community preparation culminate in a cultural festival highlighting traditional foods, dancing, singing, and games, in addition to more contemporary events such as a parade, fireworks, and sporting events (Tweedie 2002). For this occasion, families share their less prestigious songs and offer training in dancing to non-family members. The songs and dances are used for public performances that, along with displays of athletic excellence, generate feelings of Makah solidarity in friendly opposition to other tribes, reinforcing the Makah Tribe's identity (Bates 1987).

Traditional Makah ceremonials that had declined by the 1950s have had a resurgence, beginning in the 1960s, because of the diligence of a small group of elderly Makah women who were well trained as children and retained knowledge of ceremonial affairs. They guided a new generation of Makah tribal members who valued the cultural traditions of their people and began hosting community events (Goodman and Swan 2003). This coincided with the archaeological recoveries at the ancient Ozette site, which provided a material foundation for the revitalization of cultural activities. The Ozette investigations provided an important impetus for renewed respect of and interest in the knowledge of Makah elders who worked cooperatively with archaeologists in identifying artifacts. These individuals also provided the necessary guidance to establish the Makah Cultural and Research Center, a tribally owned and operated institution committed to the support of Makah cultural activities and the interpretation of the Ozette artifacts (Erikson 2002). The Makah elders decided to showcase the hunting of whales and seals in the Makah Museum's displays (Sepez 2001).

A number of clubs devoted to cultural activities also began in the 1950s and 1960s, including the Makah Club, the Sla-hal Club, the Makah Arts and Crafts Club, the Hamatsa Club, the Makah Canoe Club, and the Warrior's Club (that honored tribal members who served in the United States military). The re-valuation of Makah traditions that occurred during this time provided an impetus for families to bring out songs and dances that had not been performed in decades (Erikson 2002). Federal funds made supplementary cultural programs possible, including a comprehensive summer program with funds for elders to develop classes in traditional crafts, music, and the Makah language (with a Makah language K through 12 program in the schools) (Erikson 2002). The resurgence of these programs has provided new outlets for Makah traditions; community events are now common occasions for singing and dancing, and the museum provides ongoing educational programming (Erikson 2002).

Potlatching increased in the 1960s, along with the resurgence in cultural awareness. Among the Makah tribal members, this activity appears to fluctuate with economic times. When better

economic prospects returned with an improved United States economy in the 1990s, several families hosted potlatches, some costing as much as $15,000 per ceremony (Goodman and Swan 2003). Ceremonial affairs may lack the complexity of former events, Goodman and Swan (2003) observe, yet many potlatch elements described in the nineteenth century can still be seen today as singers perform family-owned songs, young people receive ancestral names, guests participate in group dances, and the hosts serve great quantities of traditional native foods. Many of these songs and dances are those passed down among high-status whaling families and are used to publicly display their family wealth gained and maintained through generations of whaling.

For traditionally minded Makah, a spiritual life is tied to the lands and waters of their territory; remote places devoid of human activity where private cleansing rituals can take place without intrusion, and initiates can draw near to the supernatural part of the world. Individuals perform rituals and seek proficiency in whatever endeavor they undertake by strengthening their relationship with particular spirits (Drucker 1951). The arduous requirements of whaling have led to the rejuvenation among some Makah hunters of whaling rituals, which are based on private family knowledge (Braund and Associates 2007).

3.10.3.5.1 Makah Whaling

The cultural role of whaling is demonstrated in the archaeological record and in the ethnographic accounts of the twentieth century that have been summarized above. These published accounts now supplement the Makah Tribe's oral traditions as they prepare for the contemporary whale hunt and consider past traditions for future manifestations of their culture. Many traditions related to whaling have waned, however, since the Makah Tribe's cessation of the hunt in the 1920s. Nevertheless, some of those individuals taking a leading role in revitalizing this occupation are from whaling families who trace their ancestry to men who formerly hunted whales (Tweedie 2002). At the same time, the Makah Tribe is actively revitalizing its language and cultural traditions. According to Renker (2012), "Makah people had never stopped educating their children about their respective familial whaling traditions." Furthermore, the public school included a whaling curriculum, and the Makah Cultural and Research Center supported whaling education efforts. Renker (2012) noted, "While non-Makahs perceived a large temporal gap in the whaling history of the Tribe, tribal members saw continuity. Many individuals were patiently waiting for the whaling traditions to be taken from storage and implemented in reality."

The day in 1997 that the IWC acted on the United States' request on behalf of the Makah Tribe was marked on the Makah Reservation with celebrations, including giving tribal employees a half-day off and 30 local vehicles forming an impromptu parade, some of the cars and trucks

appropriately decorated and horns blaring. An anthropologist observing the event later wrote, "It seemed that the entire village lined the parade route" (Tweedie 2002). The celebration continued the following week with a community potlatch at which tribal singers performed victory songs.

The Tribe sought to measure community opinions about whaling and involvement in the 1999 hunt in household whaling surveys conducted in 2001, 2006, 2011, and 2017 (Renker 2018). Surveyors canvassed the opinions of 32 percent of the on-reservation households concerning their views on the Tribe's resumption of whaling (Table 3-37). The expressed purpose of the survey was to better understand the opinions of tribal members about whaling hunting and related activities (Renker 2018). Anthropologist Ann Renker Ph.D., who since 1980 has worked with the Makah Tribe, designed the surveys with input from the Makah Cultural and Research Center. Dr. Renker also analyzed the results of the surveys, administered by a team of trained Makah tribal members.

For the 2001 survey, 217 households of enrolled Makah tribal members were randomly selected and contacted for the study, and 159 households agreed to participate. Four selected household heads who had publically opposed the hunt declined to participate in the survey. The survey instrument for each of these individuals was marked negative for all questions regarding support of the hunt or use of whale products and, thus, was included in the tabulation of results representing the views of 163 households. All respondents were at least 21 years old and enrolled Makah tribal members residing on the reservation. The respondents' confidentiality was maintained by using numbered surveys, keyed to a master list of households used for administration purposes, but not released to Dr. Renker during her analysis of the results. All three surveys had results that differed in some respects but were substantially similar in others.

Table 3-37. Makah Attitudes Toward Whale Hunting.

		Year			
		2001	2006	2011	2017
Number of Respondents		159[72]	152	170	168
Should the Tribe continue to whale hunt?	Yes	95.6	88.8	94.1	95.8
Motivation for support?[73]	Treaty Rights	46.1	40.8	37.6	94.1

[72] Four tribal members surveyed in 2001 declined to complete the surveys. The percentages report the percentage for each answer based on 159 respondents, except the question about support for the hunt, which counts the four as "no" responses, for a total of 163 respondents.
[73] Respondents could choose multiple answers; therefore, totals can exceed 100 percent.

	Diet/health	35.5	26.3	15.9	24.7
	Restore culture/tradition	36.2	44.1	56.5	-
	Spiritual benefits	20.4	-	-	-
Is the whale hunt a positive force for the Tribe?[74]	Yes	96.2	79.6	85.2	-
Would you like to have more access to whale products in the future?[75]	Yes	91.2	80.2	90.6	-
Have you or a member of your household engaged in ceremonial whaling activities since 1999?	Yes	28.3	42.2	23.8	39.9

Sepez (2001) also concluded that many tribal members desire whale products, with 73 percent of households planning to eat whale obtained from future hunts. Some household members clarified that, while they would not cook whale products themselves, they would consume whale if it were served at community feasts.

In the 2001 survey, 79 percent of the survey respondents reported that they watched television coverage of the whale being taken. A larger number, 81 percent of the 163 respondents, met the hunters on the beach when the whale was brought ashore. An estimated 1,400 tribal and non-tribal people witnessed the arrival of the whale and its hunters to Neah Bay. People traveled to Neah Bay from other communities to participate in the festivities and camped or stayed with relatives during festivities associated with the successful hunt (Renker 2002).

When asked about the positive benefits to be derived from continuing the hunt, 52 percent of the respondents reported a correlation between the hunt and a better lifestyle (Renker 2002). They viewed the hunt as a vehicle to reinforce traditional Makah values, such as pride, self-esteem, and male responsibility, in addition to combating the contemporary problem of substance abuse (Renker 2002; Braund and Associates 2007). As preparation for the 1999 and 2000 hunts, Makah whalers reported enduring intense physical and spiritual training, which culminated in a deep bond among whalers (Braund and Associates 2007). Such preparation is considered a private affair among the Makah families (Braund and Associates 2007). In some cases, whalers identified

[74] This question was changed in the 2017 to a self-assessment of the effect of whaling on six categories of Makah life, using a numerical scale of 1 to 10, negative to positive, to score the relative effect of whale on each category.
[75] This question was changed in 2017 to determine how many respondents would like to have more access to specific whale products, such as meat, oil, blubber, and bone.

individuals who underwent major life changes as a result of participating in the whale hunt (Braund and Associates 2007).

As in the past, the killing of a whale is a focal event in which many Makah people are directly or indirectly involved. Table 3-38 lists some of the activities involved in the 1999 whale hunt, with a tally of the numbers or percentages of Makah tribal members involved in each activity, based on data obtained during the household whaling survey and contemporary ethnographic literature (Renker 2002; Bowechop 2004; Bowechop 2005a). Some individuals are counted in more than one category in Table 3-38. Considering that 43 percent of the respondents also stated that the hunt fostered Makah and intertribal unity, the hunt seemed to be a means of bolstering social accord within the community.

Table 3-38. Numbers and percentage of participants in the 1999 Makah whale hunt.

Activity Associated with the 1999 Hunt	Numbers/Percentage of Participants
Members of the Whaling Commission	23 Makah men representing "all major families"
Preparation of equipment, including canoe	2 Makah men, plus Nuu-chah-nulth mentors who built a canoe, and 20 to 25 people making equipment
Training for hunt crew	18 to 20 Makah men
Whale hunt crew	1 canoe (1 head harpooner, 7 men) and 1 chase boat (5 people), all Makah
Towing crew	5 canoes (main canoe and 4 support canoes) and 1 fishing boat; about 60 people, 4 canoes from supporting Northwest tribes
Attendance on beach	1,400 people, mostly Makahs
Butchering	100 people, mostly Makahs
Distribution crew	50 Makahs
Consumption of meat/oil	81 percent of household whaling survey respondents
Attendance at post-hunt community feast	95 percent of household whaling survey respondents; approximately 3,000 people total "Thousands of other friends and relatives joined our tribe."
Attendance at parade	79 percent of household whaling survey respondents; about 400 people total
Participation in post-hunt ceremonials	38 percent of household whaling survey respondents
Use of bones	Approximately 60 school children, mostly Makah
Use of baleen	8 Makah hunters

Source: Bowechop 2004, 2005a.

The hunt, in conjunction with whaling-related discoveries made at the Ozette Village site and establishment of the Makah Cultural and Research Center, also provided the opportunity for the revival of Makah whaling rituals and traditional knowledge after a 70-year hiatus (Braund and Associates 2007). Hunters reported that the spiritual and physical training, the new-found whaling

knowledge and skills gained from the experience, and the activation of inherited whaling customs and attitudes from older Makah tribal members (obtained orally and through the ethnographic collaboration of previous generations) strengthened tribal member identity as descendants of Makah whalers (Tweedie 2002). Tribal members reported that whaling songs and rituals also resumed following the 1999 hunt, with more people participating in family songs and sharing traditional knowledge (Braund and Associates 2007).

Reintroduction of whaling activities also facilitated a specific vocabulary, now mostly in English but some in the Makah language, that encapsulates context-based traditional ecological knowledge that once was widespread in the community (Bowechop 2005a). Without engaging in the hunt, this knowledge lay dormant in the memories of the elders in a few families and in the ethnographic accounts of previous generations. Bowechop (2005a) reports a gradual increase in the attendance of language and cultural classes, with the highest attendance corresponding with the resumption of the whale hunt.

The whale hunt provided new experience-based educational opportunities that went beyond the current efforts of the Makah Cultural and Research Center to recover the language, crafts, and Makah ecological concepts that Sepez (2001) explains are offered in schools and at summer camps and underlie and sustain the elders' ecological teachings. The quest for knowledge relating to the ancient activity of whaling reached beyond the whaling crew and community children, for the majority of respondents in the Makah household whaling survey reported a desire to learn more about preparing whale products and using whalebone. They expressed a willingness to share such information with other Makah tribal members (Renker 2002). Seventy-six percent of Makah households expressed a desire for whale bones, presumably to revitalize certain crafts. The Makah Tribal Council, however, decided to offer the 1999 whale hunt bones to the local public school for a bone preservation project. Instructors taught Makah students how to clean skeletal remains and reassemble the whale skeleton for museum display. Early in December 2005, with the reconstruction completed, the whale skeleton was hung in the Makah Cultural and Research Center. Approximately 60 students participated in this project (Bowechop 2005a).

The trove of artifacts discovered around 1970 at the Ozette Village site (Subsection 3.10.3.1, Makah Archaeological Resources Connected with Whaling) and the more recent participation in the 1999 hunt has allowed residents to experience a connection to the past that would not otherwise have been possible (Braund and Associates 2007). The connection to their whaling ancestors and to the physical environment also renews Makah cultural and historical identity as whalers (Braund and Associates 2007). Renker (2012), discussing the importance of ceremonial

activities and practices related to the whale hunt in enhancing the spirituality of Makah tribal members, wrote "…48.4 percent of HWS [Household Whaling Survey] III respondents share an opinion that a proper whale hunt is linked to the clean/sober, healthy lifestyle that hunters and their families must have, and that these are a critical part of the Makah Tribe's spiritual profile." She also referred to the Makah whale hunt as "a spiritual manifestation of the connection between Makah and their Creator." Renker (2012) later suggested that because the activity of whaling is so closely linked with physical, spiritual, and ceremonial obligations, the lack of whaling, especially after already being reintroduced to Makah people in recent years, is harmful to the spirituality of the Makah Tribe. Renker (2012) wrote the following:

> Now that a quarter of the Makah Tribe's members participate in ancient religious ceremonies, the lack of an active hunt makes it impossible for certain spiritual rituals to be performed. A spiritual void of this nature is devastating for Tribal members.

Dr. Renker's tribal survey found that 81 percent of the respondents consumed whale products (blubber, meat, or oil) obtained from the 1999 hunt and 87 percent would like to have these products available in the future (Renker 2002). Sepez (2001) also quantified the consumption of whale products obtained from the whale taken during the 1999 hunt. The whale provided roughly 2,000 to 3,000 pounds (907 to 1,361 kg) of meat and 4,000 to 5,000 pounds (1,814 to 2,268 kg) of blubber, most of which was consumed at the community potlatch. Community households received approximately 1.8 pounds (0.81 kg) per capita distribution of blubber. Together with the estimated 0.55 pound (0.25 kg) of meat, Sepez calculated that the whale products consumed in 1999 equaled about 2.4 pounds (1.1 kg) per capita.

Members of other tribes attended the community's celebrations in 1999, witnessing the proceedings and sharing food—necessary components of traditional ceremonials by which a group establishes its status with other groups. When the Makah Tribal Council hosted the community potlatch after the 1999 hunt, the individual whalers received public recognition for their proficiency and commitment, and the Makah, as a tribal group, reaffirmed itself as people of wealth and history who maintain a relationship with the resources of their territory (Bowechop 2004). Within the cultural framework of the Makah people, no other activity besides the whale hunt and community feast is considered to embody such powerful metaphoric expression. Symbols are made meaningful through experience and action, and the whale is the Makah Tribe's symbol for cultural pride and independence. The Makah Tribe regarded the hunt as a means to revitalize and transfer its cultural knowledge associated with the activity.

The resumption of the hunt also provided the Makah Tribe with an opportunity to highlight the relationship with the related Nuu-chah-nulth people of British Columbia, Canada. Both engaged in hunting whales and practiced highly complex rituals believed to ensure the success of the hunt. Makah whalers traveled to Vancouver Island for several weeks before participating in the 1999 hunt to learn whaling techniques and traditions from knowledgeable Canadian elders. Some tribal members from Alaska and British Columbia attended the Makah Tribe's celebration of the 1999 kill (Braund and Associates 2007).

In 2006, 6 years after the last attempt by Makah whalers to hunt whales, the Makah Tribal Council commissioned a second whaling survey to gather information about residents' attitudes toward participation in whaling, including the actual hunt, ceremonial activities, and consumption and use of whale products. The 2006 survey was designed to follow the same methods used during the 2001 survey. The results of this survey are discussed in the Tribe's 2007 needs statement (Renker 2007).

Support for Makah whaling remained high in 2006, with 88.8 percent of respondents indicating that they supported the continuation of the Makah Tribe's efforts to hunt whales (Renker 2007). This percentage had decreased slightly since 2001, when 93.3 percent of respondents voiced support for the whaling efforts. However, the percentage of respondents opposing the effort to hunt whales increased by less than one percentage point, to 4.0 percent. The remaining respondents were unsure about whether whaling efforts should continue, citing reasons such as financial burdens on the village because of legal efforts, concerns about "racial animosity" that arose during and following the 1999 and 2000 hunts, and the effect of whaling efforts on fishing quotas and treaties.

Most respondents who supported whaling viewed the whaling efforts as being positive for the Makah Tribe (Renker 2007). They attributed the whaling efforts with helping to restore or maintain heritage and ceremonies, as well as increasing tribal unity and encouraging healthy living among youth.

A high percentage of respondents (80.3 percent) continued to desire whale products for consumption or use. Respondents also expressed interest in learning more about the butchering, processing, and use of whale products (Renker 2007).

One area in which positive responses increased significantly from 2001 to 2006 was in regard to participation in ceremonial activities (Renker 2007). The percentage of respondents participating

in ceremonial activities rose from 25.8 percent in 2001 to 41.5 percent in 2006. Regarding this outcome, Dr. Renker stated the following:

> The HWS II (Household Whaling Survey II) attests that the ceremonial aspects of the Makah whale hunt are once again becoming a standard part of the life of a majority of Tribal members, even when the Tribe is prevented from hunting because of outside legal struggles (Renker 2007).

Dr. Renker conducted yet another survey in 2011 and again in 2017, which is reported in the Makah Tribe's needs statement (Renker 2018). The results of those surveys were similar to previous surveys and are summarized in Table 3-37.

3.10.3.5.2 Makah Subsistence Consumption

An overview and analysis of contemporary Makah subsistence foraging, focusing on hunting, fishing, and shellfish collecting, indicated that the Makah people continue to rely on their U&A resource harvesting areas for a significant portion of their diet (Sepez 2001; Etnier and Sepez 2008). The survey by Sepez (2001) documented the use of approximately 80 species, with most of the diversity concentrated in the marine resources. While the author of the study was reluctant to rank the resources in terms of importance, largely because of the inability of statistics to discern nonquantifiable qualities of resources that make them important, harvesting and consumption patterns did emerge from the data.

Using household surveys from a randomly selected sample as the basis for her analysis, Sepez (2001) found that 99 percent of the households indicated some type of consumption of local resources for subsistence purposes during the study period. Fully 71 percent of households engaged in harvesting resources, while 94 percent received resources harvested by another household, indicating that sharing resources was a common practice among tribal members. Table 3-39 presents the percent of households using local resources obtained directly or through exchange during the 1997 and 1998 study period.

Table 3-39. Percentage of households using local resources during 1997 to 1998.

Food Resource	Percentage of Households (%)
Halibut, salmon, clams, crab	76 – 100
Mussels, deer, elk, gooseneck barnacles, seal, salmon eggs, barnacles	51 – 75
Steelhead, lingcod, olive shells, chitons, octopus, rockfish, smelt, blackcod, herring eggs, grouse	26 – 50
Urchins, lingcod eggs, local cow, petrale sole, trout, tuna, bear, scallop, oysters, sole/flatfish, sea cucumber,	1 – 25

squid, sturgeon, true cod, shrimp, rabbits, abalone, duck, pigeon, skate, sea lion, small gastropods, wolf eel	
Goose, porpoise, sea anemone, sea otter, sea turtle, shark, whale[1]	

[1] Resources currently used but not included in the survey.

Source: Sepez (2001).

Table 3-39 represents reported local use of the resource. The survey found that the widest range of households use marine resources. Further analysis indicated that fish accounted for 55 percent of meat and seafoods in the Makah diet, a figure that highlights the cultural significance of marine resources when compared to the average 7 percent of meat and seafoods that occupy the diet of other Americans (Sepez 2001).

Sepez (2001) concluded in her study of Makah subsistence that the tribal members' preference for fish and other resources produced through subsistence channels was specific to the type of food being chosen, but that several social and economic factors influenced the role of subsistence in the contemporary tribal lifestyle:

- Perception of subsistence foods as free for the taking.
- Link with cultural identity.
- Perception that seafoods taken from other places are unclean or mistreated.
- Pleasure in undertaking subsistence activities.
- Sense of connection to the local environment and to those who used the resource in the past.

Makah members articulated similar statements when asked about their desire for whale products (Renker 2002). According to Braund and Associates (2007), no food is more symbolic of the traditional Makah culture than whale, for its consumption serves as a metaphoric reminder of the wealth, history, and social structure of the community.

On July 16, 1995, a female gray whale was found entangled and drowned in a tribal marine set net salmon fishery in the Strait of Juan de Fuca outside of Neah Bay. NMFS biologists and the tribal fisherman who discovered the whale removed the carcass from the net, and the Tribe butchered the whale for subsistence use before the meat spoiled. The use of the female gray whale for subsistence represents the first time in recent times the Makah Tribe sought to exercise its treaty right to consume whale products (NMFS 1995).

The Tribe's 2018 needs statement provides a detailed account of current health issues present within the Makah's and other American Indians' communities and discusses the potential nutritional benefits of consuming whale products, suggesting that a return to eating whale could

lead to better overall health of Makah tribal members, both physically and spiritually (Renker 2018).

Sharing food in contemporary Makah society, Sepez (2001) observes, is "an accepted and expected aspect of subsistence" and recognizes a traditional obligation for generosity, particularly extended to those in need. Within a complex system of reciprocity and redistribution, sharing bolsters one's status within the community and serves to enact one's tribal identity. Table 3-40 charts the percentage of Makah harvesters who shared part of their gains during the 1997 to 1998 study year. Seal meat and oil emerged as the resources most likely to be distributed during the time of the survey, with all hunters of seal reporting distribution of the meat or rendered oil. Sepez (2001) notes that the resource column lists items in descending order of percent of harvesters giving some portion away.

Table 3-40. Percentage of Harvesters of Each Resource Who Gave Away Some Portion, 1997-1998.

Resource	Percentage of Harvesters (%)
Seal	100
Halibut, black cod, smelt, octopus, clams, salmon, gooseneck barnacles, fish eggs	99 – 67
Crab, elk, mussels, deer, steelhead, scallops, chitons, ling cod	66 – 34
Olive shells, barnacles, rockfish, grouse, urchins	33 – 1
Trout	0

Source: Sepez (2001).

3.10.3.5.3 Symbolic Expression of Whaling

In both traditional and contemporary Makah society, depictions of the whale and the whale hunt are very meaningful. These symbols were once used only on the property of elite members of Makah or Nuu-chah-nulth society and, therefore, appeared on items such as dance screens or curtains narrated visually with images celebrating the lineage's history, memorial posts to commemorate a chief's greatness, twined whalers' hats decorated with motifs of whaling scenes, wooden images used in ceremonials, and small personal amulets or charms imbued with spiritual power (Black 1999). Chiefs have also tattooed whales upon their chests (Koppert 1930). The traditional view is focused primarily on the relationship between humans and whales, the transformation of the whale into wealth, and the physical features underpinning the metaphors of strength, courage, and generosity.

Ethnomusicologist Frances Densmore photographed a dance curtain containing the large image of a thunderbird carrying a whale, along with other images, hanging in front of one of the walls of

the Neah Bay community hall where dances were performed for Makah Days in 1926 (Densmore 1939). James Swan, a New England pioneer who lived among the Makah in the 1860s, was impressed by a painting of a thunderbird on a chief's house at Neah Bay. He recorded the Makah Indians' description of thunderbird as a supernatural giant who killed whales with lightning fish tied around his waist, then carried them back to the mountains to eat (Quimby 1970). According to Janine Bowechop, current Executive Director of the Makah Cultural Research Center, a commonly held Makah belief is that during a time of starvation, Thunderbird brought a whale to the Makah people to eat and then showed them how to hunt whales. The symbolic use of whales within contemporary Makah society continues to be important (as Dr. Renker observed in the Makah Tribe's needs statements submitted to the IWC in 2002, 2007, 2012, and 2018).

Statements made by Makah participants after the 1999 hunt suggest that the contemporary whalers' association with the whale retains some of the qualities described in the ethnographic literature (Tweedie 2002) but the symbolic use of whales and whaling has extended beyond an association of a chief with his wealth to that of the community as a whole. Symbols of this traditional discourse that were rooted in the practice and experience of the elite now inform the contemporary model of tribal self-sufficiency. The cessation of the whale hunt and its associated privately-owned rituals and ceremonials, along with changes in the traditional Makah social organization, resulted in lessening the direct relationship between the whale and the whalers. Subsequent emergence of the whale as a secular image nevertheless represented the loss of a former way of life, one in which physical and mental strength brought glory and wealth to the chiefs and, thus, to the community at large. Whale hunting in the current discourse possesses symbolic properties and qualities that make it a potent vehicle for the strength of Makah identity, sovereignty, and cultural revitalization. Hence, resumption of the hunt, as Janine Bowechop (2004) concluded in her essay, *Contemporary Makah Whaling*, was necessary to help her people become healthier and stronger and to close the gap between the past and the present.

3.11 Noise

3.11.1 Introduction

The following section documents noise-related issues pertaining to the proposed Makah whale hunts. Included are discussions of relevant noise-related policies and jurisdictions, sensitive noise receptors in the human environment, and background noise conditions near the action area. Key parameters for analysis include ambient noise levels in the action area and the distance between sensitive receptors and noise-producing project activities. Refer to Subsection 3.5.3.3, Sensitivity

of Wildlife to Noise and Other Disturbance, for a discussion of the potential for disturbance to wildlife and key wildlife use areas, such as seabird rookeries and haulouts for marine mammals.

Noise is generally defined as unwanted sound (EPA 1971). Sound level is expressed in units called decibels (dB). The dB scale quantifies sound levels relative to a reference point of 0 dB, which is defined as the threshold of human hearing and is roughly equivalent to the sound of a mosquito flying 10 feet (3 m) away. [76] To account for the large range of sound pressures the ear can detect, the dB scale is logarithmic. A 10-dB increase in sound level is perceived as a doubling of loudness. The ear is not equally sensitive to sound at all frequencies or musical pitches; two sounds of equal intensity (i.e., with equal dB values) may be perceived as having different loudness levels if they have different frequencies. Very high-pitched whistles demonstrate the relative sensitivity of the human ear (as compared to the ears of other species) at certain frequencies; dogs readily hear these sounds, but they are nearly inaudible to humans.

Sound frequency is measured in terms of cycles per second, or hertz (Hz). The human ear is most sensitive to sounds in the frequency range of 1,000 to 5,000 Hz. To account for this sensitivity, a process called frequency weighting is often used in sound descriptions. The most widely used system is A-weighting, in which noise in the frequencies of maximum human sensitivity factors more heavily than other frequencies in determining the overall noise level. Decibel values in this system are commonly denoted as dBA. Most noise regulations use the A-weighted scale to define acceptable limits for noise levels. Refer to Subsection 3.11.3.2.2, for information specific to marine noise and Subsection 3.5.3.3.4, Marine Mammals and Underwater Noise, for a discussion of the frequencies at which the ears of marine mammals are most sensitive.

3.11.2 Regulatory Overview

The OCNMS management plan provides no specific direction regarding noise (NOAA 1993). Control of noise is, however, consistent with Sanctuary goals of resource protection and compatible public use. FAA regulations prohibit the operation of motorized aircraft less than 2,000 feet (610 m) above the Sanctuary and within one nautical mile (1.9 km) of the shoreline (see Subsection 3.1.1.1, Olympic Coast National Marine Sanctuary). In addition, USFWS enforces a 200-yard (183-m) exclusionary zone around islands in the Washington Island National Wildlife Refuges to avoid the flushing of nesting seabirds by boat and other vessel traffic (see Subsection 3.1.1.2, Washington National Wildlife Refuges).

[76] Acoustic scientists use different reference pressures for air and water, resulting in underwater readings that are higher than the same energy source measured in air (Bradley and Stern 2008).

The Olympic National Park, under federal jurisdiction, is managed consistent with enabling federal legislation to ". . . conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (National Park Service Organic Act, 16 USC 1). The control of noise by park authorities is relevant to leaving the natural and cultural resources and values of the park unimpaired. Noise control is particularly germane in portions of the park designated as wilderness; this includes the park area along the Pacific Ocean coastline. Specific regulations prohibit the operation of "motorized equipment or machinery in a manner that exceeds a noise level of 60 dB measured on the A-weighted scale at 50 feet (15 m); or, if below that level, makes noise which is unreasonable, considering the nature and purpose for which the area was established" (36 CFR 2.12). The Wilderness Act does not establish noise regulations, but it implies that noise should be minimized in designated Wilderness areas to achieve "outstanding opportunities for solitude" (PL 88-577).

State of Washington noise regulations in WAC 173-60-040 are in effect statewide. Clallam County has separate noise regulations for music only (County Code Chapter 15.30) and is subject to state standards. Maximum permissible environmental noise levels vary, depending on the land use categories of the noise source and the receiving property. Maximum permissible noise levels range from 55 to 60 dBA for residential properties, 57 to 65 dBA for commercial uses, and 60 to 70 dBA for industrial areas. WAC 173-60-050 specifies exemptions from maximum permissible noise levels in certain cases, including the following:

- Sounds created by the discharge of firearms on authorized shooting ranges (exemption applies only from 7:00 a.m. to 10:00 p.m.).
- Sounds originating from forest harvesting and silvicultural activity (exemption does not apply near residential and recreational areas from 10:00 p.m. to 7:00 a.m.).
- Sounds originating from aircraft in flight.
- Sounds created by emergency equipment and work necessary in the interests of law enforcement or for health, safety, or welfare of the community.
- Sounds created by safety and protective devices where noise suppression would defeat the intent of the device or is not economically feasible.
- Sounds created by the discharge of firearms in the course of hunting.

3.11.3 Existing Conditions

The following subsections identify sensitive noise receptors in the action area, followed by a discussion of existing noise levels in the two media of noise transmission (air and water) in the

action area. The discussion in this section focuses on sensitive noise receptors in the human environment. The sensitivity of wildlife to noise and other disturbance is discussed in Subsection 3.5.3.3, Sensitivity of Wildlife to Noise and Other Disturbance.

3.11.3.1 Sensitive Noise Receptors

Sensitive noise receptors include facilities and activities for which excessive noise may cause annoyance, increased stress, loss of business, or other adverse effects. Examples of sensitive receptors include residential areas, hospitals, schools, performance spaces, and businesses. Open space is also noise-sensitive if excessive noise would adversely affect potential recreational use of the space. Nearly all portions of the action area sustain residential or recreational uses, with maximum permissible noise levels between 55 and 60 dBA. Businesses in Neah Bay and the offices of the Makah Tribal Center meet the criteria of commercial property, while timber harvest areas would be considered industrial sites.

3.11.3.1.1 Olympic Coast National Marine Sanctuary

Staff at OCNMS have identified noise as a management issue for the Sanctuary, particularly with regard to disturbance of humans and wildlife (Parrish et al. 2005). Noise associated with aircraft overflights has been identified as a primary concern, but the extent of overflights within the Sanctuary is not known. It is also unclear whether, or how much, disturbance to Sanctuary-protected wildlife results from overflights (Parrish et al. 2005). OCNMS staff report that overflights occur primarily during the summer and that visitor complaints are rare (Parrish et al. 2005).

3.11.3.1.2 Makah Reservation

Sensitive noise receptors on the reservation occur primarily along trails and shoreline areas used for recreation by residents and tourists. Cape Flattery is a Makah Tribe designated wilderness area. South of Cape Flattery, the Pacific coastline is largely wooded; some inland areas are managed for timber harvest. There is little or no human settlement north of Wa'atch Point. The Makah Tribal Center on the north side of the Wa'atch River supports residential, administrative, and commercial uses. Areas farther south include low-density residential development, with several roads near the shoreline. South of Anderson Point to the Olympic National Park boundary, the shoreline is characterized by rocky bluffs and small pocket beaches. Primitive roads and trails provide recreational access.

3.11.3.1.3 Olympic National Park

Within the Olympic National Park, the shoreline is a designated wilderness area accessible only by foot. In most portions of this area, the total number of users is restricted by a wilderness permit system. A trail and boardwalk connect the parking area at Lake Ozette to the shoreline at Cape

Alava and Sand Point. The number of visitors to this area is restricted only by the capacity of the parking lot. Because the coastal shoreline portion of the park is a designated wilderness area, this entire area of the park is a sensitive noise receptor.

3.11.3.2 Existing Noise Levels

The following sections describe the baseline conditions of the acoustic environment in the action area, including atmospheric and underwater noise. Particular attention is given to sources of noise associated with a whale hunt, namely, aircraft (e.g., news helicopters and other aircraft observing the hunt and associated activities), and vessel traffic. Subsection 3.5.3.3, Sensitivity of Wildlife to Noise and Other Disturbance, addresses existing levels of noise and disturbance at marine mammal haulouts and seabird colonies in the action area. Where available, information from the previous hunts is included to provide a background for subsequent analysis of the potential effects of the alternatives.

3.11.3.2.1 Atmospheric Noise

The primary sources of ambient sound in the action area are natural, mostly wind and waves. Natural quiet found in wilderness recreation areas is characterized by the absence of human-made noise, which creates conditions that allow visitors to enjoy the intermittent sounds of animals, wind, water, and other natural sources.

In addition to natural sounds, human activities are a source of noise in the action area. Near Cape Flattery, people hear the Tatoosh Island foghorn. The acoustic environment in the area of the Makah Tribal Center is likely characteristic of residential and small town centers, with ambient noise levels ranging from 50 to 65 dBA. Settings where people congregate, such as commercial areas, school playgrounds, and sports fields, are additional local sources of noise. Throughout the area, the most pervasive noise source is traffic on local roads. Noise from individual automobiles and trucks can range from 70 to 90 dBA. Sirens of emergency vehicles are likely the loudest noise source; they produce noise at approximately 130 dBA at 100 feet (31 m). The occurrence of such noise is infrequent, irregular, and primarily affects areas next to arterial roads. Noise sources associated with active logging operations include chain saws (110 dBA) and other equipment (80 to 110 dBA). Most timber harvest units associated with the Makah logging operations are located away from residences to avoid noise impacts. However, the Makah Forest Management Plan (Makah Tribe 1999) does not mention noise as an issue to be addressed during logging operations.

Another source of noise in the area is airplane traffic, particularly near the three airports in western Clallam County (Subsection 3.13.3.3, Air Traffic). The most heavily used airport in the area is the

Forks Municipal Airport, which receives an average of approximately 40 operations every day (Federal Aviation Administration 2019). Noise from aircraft taking off and landing is unlikely to be a major issue in the U&A, however, because the airport is more than 15 miles (24 km) away from the southern extreme of the U&A. The Quillayute Airport, which has fewer than 20 takeoffs and landings per day, on average, is approximately 9 miles (15 km) away from the southern extreme of the U&A (Federal Aviation Administration 2019). The Sekiu Airport, which averages approximately 2 takeoffs and landings per day, is immediately adjacent to the portion of the U&A within the Strait of Juan de Fuca and approximately 20 miles (32 km) from the Pacific Ocean portion of the U&A (Federal Aviation Administration 2020).

In their study of overflights in west coast National Marine Sanctuaries, Parrish et al. (2005) gathered information about small, private, general aviation airplanes and helicopters. Such aircraft, typically flown by private pilots for sightseeing purposes, have the potential to disturb humans and wildlife by flying low over Sanctuary waters (Parrish et al. 2005). Other types of aircraft that may occur in the area include regularly scheduled tourist flights, such as those provided by National Park tour concessionaires, and Sanctuary-permitted research flights. Military and Coast Guard flights also occur over the area (Parrish et al. 2005). During field studies at Tatoosh Island in the summer months (June, July, and August) of 1997 through 2003, researchers from the University of Washington documented 106 instances in which aircraft violated overflight regulations by flying below 2,000 feet (610 m) within 1 mile (1.6 km) of shore in the Sanctuary. The frequency with which violations occurred ranged from approximately 0.1 to 0.75 per hour (Galasso 2005).

During the previous whale hunts, media helicopters and other aircraft likely created elevated noise levels. The Coast Guard used helicopters to enforce the exclusion zone around tribal vessels actively engaged in the hunt (Subsection 3.14.3.1, Coast Guard). During the successful hunt, three television news helicopters were present throughout the day (U.S. Coast Guard 1999a). No information is available to document noise levels associated with those sources. OCNMS regulations that require motorized aircraft to fly at least 2,000 feet (610 m) above certain portions of the Sanctuary probably limited the effects of aircraft noise on residents and recreational users near the hunt. Only one instance of an aircraft failing to observe these regulations was reported during the previous hunts (Subsection 3.13.3.3, Air Traffic).

Other noise sources associated with the previous hunt included marine vessels used by the whale hunters, protesters, and law enforcement personnel (Subsection 3.13.3.2.3, Marine Traffic During the Previous Hunt). Most hunt-related activities took place well offshore, and vessel noise was

likely inaudible to sensitive receptors in Olympic National Park and OCNMS. To avoid disturbance to resting and breeding birds and marine mammals, the Makah gray whale management plan prohibited the initial strike of a whale within 200 yards (183 m) of Tatoosh Island or White Rock between May and September. All three strike attempts during previous hunts occurred 1 to 2 miles (1.6 to 3.2 km) offshore (NMFS 1999). Increased vessel traffic was likely audible to local residents near the marina and Coast Guard station at Neah Bay and at Clallam Bay, where most protest vessels moored.

3.11.3.2.2 Marine Noise

Marine environments can be noisy. Natural noise sources include wind, waves, precipitation, earthquakes, lightning strikes, and surf. Biological sounds include whale songs, dolphin clicks, fish vocalizations, and the clicking of crustaceans (Urick 1983; National Research Council 2003). Noise sources associated with human activities include commercial shipping, geophysical surveys, oil drilling and production, dredging and construction, sonar systems, oceanographic research, acoustic deterrent and harassment devices, and power turbines (National Research Council 2003; Nowacek et al. 2007; Hildebrand 2009).

Open ocean ambient noise levels estimated from sound data collected in portions of the South Pacific with relatively low levels of human activity suggest that low-frequency sound levels range from 40 to 50 dB (relative to 1 microPascal at 3.3 feet (1 m)[77]) in calm seas (Cato and McCauley 2002; National Research Council 2003). In areas of the Pacific Ocean where commercial shipping is more prevalent, measured ambient sound levels have ranged between 80 and 90 dB (Andrew et al. 2002; McDonald 2006). A variety of natural processes increases these levels: precipitation on the ocean surface contributes sound levels up to 35 dB across a broad range of frequencies (Nystuen and Farmer 1987); an increase in wind speed from 5 to 10 knots causes a 5-dB increase in ambient ocean noise across most frequencies. The highest noise levels generally occur in nearshore areas where the sound of surf can increase underwater noise levels by more than 20 dB a few hundred yards/meters outside the surf zone across a frequency band from 10 to 10,000 Hz (Wilson et al. 1985; National Research Council 2003).

[77] Relative sound intensities (i.e., decibel values) in water are not directly comparable to relative sound intensities in air. This is primarily because the reference intensities used to compute sound intensity are different in water and air. A standard reference intensity must always be used when comparing relative intensities to one another. For underwater sound, the intensity of a sound wave with a pressure of 1 microPascal at 3.3 feet (1 m) from the source point is used as the reference intensity. In air, however, the reference intensity is 20 microPascals at 3.3 feet (1 m).

Among noise sources associated with human activity, surface shipping is widely considered the most widespread source of low-frequency (5 to 1,000 Hz) noise in the oceans (Wenz 1962; National Research Council 2003; Hildebrand 2009). At frequencies below approximately 200 Hz, commercial shipping is the primary source of ocean ambient noise. While natural forces (e.g., wind, rain, waves) are the primary factor determining ambient noise levels in higher frequency ranges, there is virtually no correlation between local sea state and ambient noise at lower frequencies (Hildebrand 2009). Noise levels in the marine environment have increased since the mid-twentieth century, likely in part because of increases in shipping traffic (National Research Council 2003). Andrew et al. (2002) collected ocean ambient sound data from 1994 to 2001 using a receiver on the continental slope off Point Sur, California. These data were compared to measurements made from 1963 to 1965 by an identical receiver. The data demonstrated an increase in ambient noise over the 33-year period of approximately 10 dB in the frequency range of 20 to 80 Hz, primarily because of commercial shipping; there were also increases as large as 9 dB in the frequency ranges 100 Hz up to 400 Hz, for which the cause was less obvious (Andrew et al. 2002). McDonald (2006) compared data sets from 1964 to 1966 and 2003 to 2004 for continuous measurements west of San Nicolas Island, California, and found an increase in ambient noise levels of 10 to 12 dB at 30 to 50 Hz.

Puget Sound experiences a concentration of commercial shipping in and out of United States ports, with the ports of Seattle and Tacoma collectively representing 9 percent of 20-foot-equivalent (6-meter-equivalent) container traffic in 2010 (United States Army Corps of Engineers 2011). The OCNMS has designated a large portion of the action area as an area to be avoided (OCNMS 2022). Under this voluntary ship traffic management program, vessels are advised to stay clear of this area if they carry cargoes of oil or hazardous materials or if they exceed 400 gross tons (Subsection 3.1.1.1.3, Current Issues, Area to be Avoided, for more information). Veirs and Veirs (2006) found that the broadband sound field (i.e., 100 to 15,000 Hz) in Puget Sound near Haro Strait was dominated by noise from large vessels. With high source levels and long pulse lengths, military sonar signals (e.g., from low-frequency active sonar systems) are also likely a major source of low-frequency ocean noise over wide areas (Hildebrand 2009).

Owing to the physics of underwater sound propagation, small vessels do not contribute substantially to ocean ambient noise on a global scale, but they may be important local sound sources in coastal areas (Hildebrand 2009). In Haro Strait, Veirs and Veirs (2006) found that small vessels raised overall sound levels about as much as commercial ships (15 to 20 dB), but for shorter periods and at higher frequencies (10,000 to 20,000 Hz). At the end of 2022, 218,916 motor

boats were registered[78] in Washington State (Washington Department of Licensing 2023), with the majority likely operating near heavily populated areas surrounding Puget Sound. Scientific vessels, which can operate in a given area for several days at a time, generate noise at levels ranging from 160 to 190 dB at the source (National Research Council 2003). Received sound levels for whale-watching boats measured at approximately 299 feet (91 m) ranged up to 127 dB across a broad band of frequencies (315 to 2,500 Hz) (Au and Green 2000). Erbe (2002) documented increased sound levels for high-speed operation. Small powerboats have peak sound intensities of 145 to 150 dB in the 350 to 1,200 Hz band (Barlett and Wilson 2002). Fishing vessels also have moderate sound levels. Vessel traffic associated with commercial and recreational fishing in the action area is heaviest and, therefore, probably loudest, from May to August (Subsection 3.13.3.2, Marine Vessel Traffic). In the Haro Strait study area, the prevalence of small vessels contributed to average sound levels during summer days that were 3 dB higher than during summer nights, winter days, or winter nights (Veirs and Veirs 2006).

3.12 Aesthetics

3.12.1 Introduction

This section discusses aesthetics as visual resources associated with the action area, a place where the Pacific Ocean, beaches, rocky tidepools and headlands, and adjacent forested wilderness meet. In the designation documentation for the OCNMS, Congress described the area as "one of the more dramatic natural wonders of the coastal United States, paralleling the majestic splendor of such terrestrial counterparts as Yosemite National Park and the Grand Tetons," (59 FR 24586, May 11, 1994). Key visual resources in the action area include natural landscapes and seascapes, wildlife, and tangible cultural resources and historic artifacts.

Peoples' opportunities to view past and proposed Makah whale-hunting activities in the action area are described by detailing access points where hunting and landing of a whale might be seen. Annual numbers of visitors and primary seasons of viewing are also described. Because whale hunts would take place offshore, and because the Makah practice exercises in 1998 and hunts in 1999 and 2000 were highly covered and televised events, most opportunities for viewing the hunt and hunt-related activities would occur through the media, including newspapers and television. For this reason, this section also describes media coverage of the previous hunts, along with public response to that coverage.

[78] In Washington, all boats 16 feet (4.9 m) or more in length or with 10 or more horsepower are required to be registered; registration is not required for boats under those thresholds not used on navigable waters.

3.12.2 Regulatory Overview

As noted in Subsection 3.1, Geographically Based Management in the Action Area, several federal and tribal managed areas occur and overlap within the action area. These include the OCNMS, the Washington Islands National Wildlife Refuges, the coastal strip of the Olympic National Park, and the Makah and Ozette Indian Reservations (Figure 3-1). Because of their proximity to the action area, these management areas provide possible vantage points to whaling activities under each of the alternatives. The laws and regulations governing the management of these areas include recognition of the importance of aesthetic resources. In some cases, specific policy or management documents expand upon the aesthetic qualities that lend importance or value to the managed areas.

The National Marine Sanctuary Act, and NOAA's implementing regulations under which the OCNMS is designated and managed, include aesthetic values as important to the sanctuary concept. Sanctuary resources are defined as "any living or nonliving resource that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the Sanctuary," (16 USC 1432(8), 50 CFR 922.3). Subsection 3.1.1.1, Olympic Coast National Marine Sanctuary, describes the multiple-use nature of the Sanctuary, NOAA's regulations establishing prohibitions on certain uses of the Sanctuary, and the biological and historic characteristics of the Sanctuary that give it particular value as identified by the OCNMS designation document. Aesthetic resources of the Sanctuary that give it particular value include its remoteness, its undeveloped character, and its marine life, as well as tangible, historical resources including Indian village sites, ancient canoe runs, petroglyphs, and Indian artifacts (59 FR 24586, 24604, May 11, 1994; NOAA 1993).

The National Park Service Organic Act, governing the management of all national parks including the Olympic National Park, states that the fundamental purpose of national parks is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations" (16 USC 1). Both the National Park Service and Ecology manage the aesthetics of the shoreline under federally-granted Coastal Zone Management Act authority. The Coastal Zone Management Act identifies beaches as aesthetic resources of the nation (16 USC 1451(b)). Washington State's Shoreline Management Act establishes a program to coordinate the protection and development of the state's shoreline, preserving to the greatest extent possible the public's opportunity to enjoy the physical and aesthetic qualities of state

natural shorelines (RCW 90.58.020). The Makah Tribe also has a coastal zone management plan for reservation shorelines.

Approximately 70 percent of Olympic National Park's coastal strip, including 36,000 acres mostly north of the Hoh River, is designated as wilderness (National Park Service 2008). Under the Wilderness Act of 1964 (PL 88-577), wilderness areas are managed for the "preservation of their wilderness character" for current and future generations of Americans (16 USC 1131). Both natural and cultural resources are contributing elements to the Olympic National Park Wilderness (National Park Service 2008). The principles applied to federal wilderness areas also apply to management of the Washington National Wildlife Refuges, which are all designated as wilderness areas, except for Destruction Island in the Quillayute Needles National Wildlife Refuge. Other protective regulations are described in Subsection 3.1.1.2, Washington Islands National Wildlife Refuges. Reservation lands along the shoreline around Cape Flattery are also designated wilderness.

Living marine resources within the action area, including, but not limited to, whales and other marine mammals, are also protected by federal and state statute and regulation as aesthetic resources. The Whaling Convention Act, for instance, includes the finding that whales are a unique marine resource of great aesthetic and scientific interest to mankind and notes that the protection and conservation of whales are of particular interest to citizens of the United States (16 USC 916 note, PL 96-60, August 15, 1979). The MMPA also includes the Congressional finding that "marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic" (16 USC 1361(6)).

3.12.3 Existing Conditions

The following sections describe the key visual resources in the action area, vantage points into the Makah U&A, and estimates of the number of visitors to these areas every year. Following the discussion of potential direct viewing opportunities is a summary of media coverage of previous hunts.

3.12.3.1 Visual Resources in the Action Area

The sea stacks, pillars, and islands that make up the Washington Islands National Wildlife Refuges within the OCNMS are a visual resource of statewide significance, representing the remote and rugged nature of the Olympic Peninsula's coastline (USFWS 2007). The islands rise out of the ocean in a variety of shapes and forms and are varying distances from the shoreline; formations in the foreground often appear as flat-topped cliffs rising out of the water, while formations in the background appear as clusters of often fog-shrouded stacks (USFWS 2007).

Many of the islands have vegetation, including small trees and shrubs, particularly the larger islands (such as Ozette Island). Other smaller islands have extensive steep grassy slopes or vegetated ledges (USFWS 2007). The islands also provide views of hauled-out sea lions and seals, migrating and feeding whales, and sea otters, among other species (Subsection 3.5.3.1.2, Common Species off Washington Coast). Many species of seabirds are visible in the marine waters, off the coastal headlands and islands, and along the shore, including raptors, gulls, petrels, cormorants, auks, murrelets, guillemots, common murres, auklets, and puffins, among others (Subsection 3.5.3.2.1, ESA-listed Species, and Subsection 3.5.3.2.2, Non-listed Marine Birds and Their Associated Habitats, for more information on marine birds that occur in the action area).

In the Olympic National Park, more than 650 archaeological sites document 10,000 years of human occupation, while historic sites reveal clues about the 200-year history of exploration, homesteading, and community development in the Pacific Northwest (National Park Service 2008). Maritime archaeological sites include stratified shell midden deposits and petroglyph sites and represent one of the Olympic National Park's most important and threatened classes of archaeological resources. Threats include coastal erosion and visitor use. Past mitigation at these areas has included excavation, bank stabilization, and revegetation (National Park Service 2008). Public education and interpretation, coupled with increased monitoring and ranger patrols, aims to curb the impacts of visitation and tidal debris on the coastal petroglyph sites, particularly at Wedding Rocks, a site on the beach near Cape Alava (National Park Service 2008).

3.12.3.2 Vantage Points and Viewing Opportunities

Visitors can view the portion of the Makah U&A in the Strait of Juan de Fuca by vehicle at several locations along Highway 112, including the towns of Sekiu, Clallam Bay, and Neah Bay. In contrast, vehicle-based viewing opportunities for the Pacific coastal portion of the U&A are limited to a few sites on the Makah Reservation, mostly in the Tsoo-Yess and Hobuck Beach area of Makah Bay. No roadways offer views of the southern portion of the Makah U&A. The La Push/Rialto Beach area is approximately 8 miles (13 km) south of the Makah U&A. The only scenic driving opportunity along the coast of the Olympic Peninsula is an 8-mile (13-km) stretch of United States Highway 101 in the Kalaloch area, which is more than 30 miles (48 km) south of the Makah U&A (National Park Service 2008).

Most of the land-based viewing access in the action area is from hiking trails and beaches (where camping opportunities exist), including the Cape Flattery Trail and Hobuck and Tsoo-Yess beaches on the Makah Reservation. The Olympic National Park also provides hiking and backpacking access to 50 miles (81 km) of beaches with views of the islands. The Ozette/Shi Shi

portion of the Olympic National Park, including the Point of Arches, is the most visible and photographed place in the Olympic National Park coastal strip. Many visitors also access the beach for 2.9 miles (4.7 km) between the Cape Alava and Sand Point trail heads (National Park Service 2008).

Around 3 million people visit the Olympic National Park on average every year, drawn by the beautiful scenery and the pristine wilderness, as well as opportunities to view wildlife and challenge themselves in a natural environment (National Park Service 2022). More than half of the visits occur during the months of July through September and an additional 25 percent of the visits occur during the months of March through June (National Park Service 2022). Part of the Makah U&A is visible to OCNMS visitors and overnight campers and to hikers on the Cape Flattery Trail.

In 2019, a sensor on the Cape Flattery Trail recorded 50,000 trips of hikers. After reopening the Reservation in March of 2022, the sensor recorded 73,500 trips over the next year (J. Cooke, Makah Tribe, pers. comm., April 21, 2023). Use of the Cape Flattery Trail is greatest from June through September.

Another driver of visitation to Neah Bay is the celebration of Makah Days (Subsection 3.10.3.5, Contemporary Makah Society). This celebration of Makah identity features a parade, street fair, canoe races, children's races, traditional dancing, a salmon bake, and fireworks (Tizon 1998a).

Previous authorized hunts in 1999 and 2000 occurred within the Makah U&A and OCNMS, along and adjacent to the coastal area of the Olympic National Park. Whale hunting activities were visible from Ozette Island, Cape Alava, and Sand Point to Father and Son Rock, the Point of the Arches, and Spike Rock near the Ozette Reservation and Shi Shi Beach (Gosho 1999) (Subsection 1.4.2, Summary of Recent Makah Whaling—1998 through 2007, for more information about the locations of the 1999 hunt). People on trails and beach vantage points of the Olympic National Park may have viewed the hunts, including the May 17, 1999 killing of a gray whale. The possibility that some viewers were caught unaware is extremely unlikely because May is not a peak visitor month, the hunts were well-advertised in the media, and the weather conditions were poor (Gosho 1999) at least some of the time. People on the shores of Neah Bay on the Makah Reservation could view the whale being towed to shore and flensed. These activities were also visible to protesters, enforcement personnel, and tribal members in vessels surrounding the hunts. Most of those viewing the whaling activities on the shore within the Makah Reservation were tribal members who supported the hunt and had favorable reactions. As reported by the *Seattle Times*, Makah tribal members in Neah Bay considered the visual effects of

the hunt as ". . . cause for celebration, a triumphant embrace of tradition and heritage, a culture's central symbol giving itself up for the kill" (Sorensen 1999).

During the May 1999 whale hunts, news reports indicate that vehicular access to State Route 112 paralleling the Strait of Juan de Fuca was blocked by protesters and tribal police for about 2.5 hours (Mapes and Solomon 1999a). Such blockages may have interrupted access to visual resources on the Olympic Peninsula. Traffic volumes on the land were otherwise normal (Subsection 3.13.3.1.2, Vehicle Traffic Patterns During the 1999 Hunt).

3.12.3.3 Media Coverage of Previous Authorized Hunts

The practice exercises, whale hunts, and associated protest activities that occurred in 1998, 1999, and 2000 were the focus of intensive media coverage in the region, including Seattle. In late summer and autumn of 1998, approximately 50 representatives of media organizations from all over the world arrived at Neah Bay to watch the Makah Tribe hunt whales (Mapes 1998a). Media coverage became an issue during the Makah Days celebration in August 1998, when its representatives crowded in front of tribal dancers, disrupting the formal welcoming ceremony (Clarridge 1998). From June 1998 to June 1999, whale-hunt-related news stories abounded in local newspapers. The *Seattle Post-Intelligencer* published 77 news items and three editorials on the topic during that period. The *Seattle Times* published 76 news items, 11 columnists' commentaries, and eight editorials during the same timeframe. Such intense attention was largely limited to the region, however. During the same period, the *New York Times* published 16 news items with the words 'Makah' and 'whale,' the *Los Angeles Times* published 13 related news items, and the *Washington Post* published three related news items.

Media coverage resumed when the Makah resumed hunting activities in April of 2000 but with less intensity than for prior hunts. Between April 1 and December 31, 2000, the *Seattle Post-Intelligencer* published 13 news items and one editorial about the hunt, protests and protesters, and associated legal actions. The *Seattle Times* published 15 news items and one editorial on hunt-related topics during the same period. As before, the hunt received considerably less attention outside of the Pacific Northwest. The *New York Times* published two hunt-related news items from April through December of 2000, the *Los Angeles Times* published four, and the *Washington Post* published a single hunt-related news item.

News of the Makah Tribe's successful hunt on May 17, 1999 received attention in local print and broadcast media. Locally, the Seattle *Post-Intelligencer* printed five photographs showing the whale in the water or on the beach; the *Seattle Times* printed four photographs, and the *Peninsula Daily News* printed seven photographs. At least two local television stations, KING-TV and

KOMO-TV, sent helicopters to collect video footage of the hunt and subsequent activities. KING-, KOMO-, and KIRO-TV all extended their morning news shows to cover the story of the successful hunt, which occurred shortly before 7 a.m. (Levesque 1999). KCPQ-TV, which did not have a morning news show at that time, interrupted regular programming with occasional updates. Northwest Cable News network, a sister station of KING-TV, ran near-constant footage and commentary on May 17, and 10 hours of live broadcast of the previous day's unsuccessful hunt (Levesque 1999; McFadden 1999).

Nationwide, the story of the successful hunt received considerably less attention. Most newspapers simply published the Associated Press wire story. There was no international Web site coverage by well-known news sources such as the *London Times*, *Le Monde*, *Asahi Shimbun*, and the *Japan Times* (Barber 1999). The story was broadcast on nationwide television, however, accompanied by commentary by Peter Jennings, ABC Network, and Tom Brokaw, NBC Network. Some observers characterized the images of the dying and dead whale as brutal and suggested that footage of the whale killing would pose a public relations problem for the Makah Tribe (Sorensen 1999).

Local newspaper reader response to the hunt was substantial. The *Seattle Times* received nearly 500 letters on the topic during the latter half of May 1999, nearly one-third of the total number of letters received for that month (Anderson 1999). On the day following the successful hunt, the *Seattle Post-Intelligencer* received more than 50 e-mail messages and more than 100 telephone calls voicing opinions about the hunt (Barber 1999). The *Peninsula Daily News* also reported an unusually large volume of letters and devoted a special letters page to the topic on the Friday following the hunt (Brewer 1999). KING-TV reported that the issue generated three or four times the normal volume of phone calls and e-mail messages related to a news story (Levesque 1999).

The news director at KIRO-TV chose not to broadcast images of the actual killing of the whale because some viewers had said they did not want to see explicit footage (Levesque 1999). Nearly all public response focused on the issue of killing the whale. Only a few comments offered reactions to images of the event, for example, "I can't believe you think most of the population in Western Washington is remotely interested in viewing the graphic video" (Levesque 1999).

The *Seattle Post-Intelligencer* published excerpts of some telephone and e-mail messages received in response to their coverage of the whale hunt (*Seattle Post-Intelligencer* 1999). While most responses expressed support for or protest against the hunt, some included reactions to published images. One commenter expressed disgust at the image of Makah whalers jumping on the carcass of the whale. Another stated that the hunt of a whale should not be broadcast on

television. One letter to the editor read "tonight I refuse to watch any news program for fear I will see another replay of the Makah hunt" (*Seattle Post-Intelligencer* 1999).

Of more than 30 letters published in the *Peninsula Daily News* on Friday, May 21, two contained reactions to images of the hunt. One writer described the television footage as "the most disgusting sight" she had ever seen. Another expressed the opinion that the graphic coverage should prompt viewers to express their objections to their congressional representatives (*Peninsula Daily News* 1999).

A Google search indicated about 710 instances of media coverage in the 20 days following the September 8, 2007 unauthorized hunt, the majority in the first few days afterward. Media outlets all over the country reported the event, often using Associated Press information. Follow-up coverage included reports on the Tribe's apology and trip to Washington, D.C. The *Los Angeles Times*, *Washington Post*, and *New York Times* each ran one or two stories. Most of the coverage emanated from western Washington media. Seattle TV stations provided live reports from Neah Bay for the first few days. The *Seattle Times* had the most extensive coverage, with Lynda Mapes writing several in-depth articles. The *Times* also asked for reader feedback; 93 comments with a wide range of views were posted in response. The *Seattle Post-Intelligencer* and Port Angeles *Peninsula Daily News* ran multiple stories about the kill and activities following it. Other regional media had less extensive coverage. As news interest waned, there were several editorials and opinion pieces published, also with a wide range of views expressed.

Some anti-whaling websites that were active during the earlier authorized hunts are no longer in existence or are not current. The Humane Society of the United States, Whale Police, Sea Shepherd, and Animal Welfare Institute posted press releases on their websites condemning the September 8, 2007 whale kill. The few blogs covering this issue linked to or extracted from various media reports on the Internet, with limited commentary. Views seemed to be about equal between condemnations of the kill and of whale-hunting in general, and support for tribal rights and culture.

The intensity of media coverage moderated over the following years as attention turned to the Tribe's pursuit of a waiver under the Marine Mammal Protection Act. In August 2019, news outlets reported on the Tribe's ceremonial and subsistence use of a humpback whale killed by a ship strike in the Tribe's Usual and Accustomed Fishing Area. The coverage highlighted the role of whales in tribal culture and the tribal celebration surrounding the traditional uses of the whale carcass. When NMFS convened a hearing in Seattle on the proposed waiver and regulations in November 2019, several local media outlets covered the start of the hearing, describing the

Tribe's longstanding pursuit of the waiver to authorize tribal hunts. Much of the coverage explained that the Tribe's treaty with the U.S. Government provides for whaling and gave voice to tribal leaders who described the cultural and spiritual importance of whaling. News reports appeared across the region and in national media including the *Los Angeles Times* (Rust 2019) and *New York Times* (Eligon 2019), explaining tribal culture and practices, which reflected the proposed waiver and the Tribe's position more positively than earlier reports focusing on past hunts.

3.13 Transportation

3.13.1 Introduction

The following section documents several transportation-related issues pertaining to the Makah whale hunt. Transportation resources near Neah Bay include federal and state highways, marine vessels, and airports. Key parameters for analysis include the patterns of highway, marine vessel, and air traffic near Neah Bay.

3.13.2 Regulatory Overview

At the federal level, the Federal Highway Administration within the Department of Transportation is responsible for the management of the national highway system, which includes United States Highway 101 near Neah Bay (23 USC 101). The national highway system consists of interconnected urban and rural principal arterials and highways that serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities, and major travel destinations; meet national defense requirements; and serve interstate and interregional travel (23 CFR 470A).

The Federal Highway Administration is responsible for stewardship and oversight of the federal-aid highway funds allocated to Washington State. The Washington State Department of Transportation is the state agency responsible for delivering these federal-aid funds. Under the Statewide Multi-Modal Transportation Plan (RCW 47.06), the Washington Department of Transportation is responsible for developing a statewide multi-modal transportation plan in conformance with federal requirements. The highway system includes both state and federal highways. Neah Bay is reached via United States Highway 101 to State Route 113 north and then to State Route 112 northwest along the western coast of the Makah Indian Reservation and terminating at the center of Neah Bay.

In the marine environment, the Washington State Department of Transportation has the responsibility to oversee the national transportation system, which includes the marine

transportation system (49 USC 101). The Coast Guard is responsible for enforcement and administration of laws governing vessels, cargo, and passengers. The Coast Guard has established a permanent RNA along the northwestern Washington coast and in a portion of the entrance to the Strait of Juan de Fuca (33 CFR 165.1301). Within the RNA, a moving exclusionary zone restricts the movements of vessels near a Makah vessel that is actively engaged in a whale hunt. Coast Guard restrictions for marine vessels engaged in whale hunting activities are described in greater detail in Subsection 3.1.1.3, Coast Guard Regulated Navigation Area, and Subsection 3.15.2.1, Vessel Safety Regulations and Authorities.

The International Maritime Organization has designated a formal area to be avoided for the OCNMS. Vessels advised to stay clear of this area include all ships and barges carrying cargoes of oil or hazardous materials and all ships 400 gross tons and larger (Subsection 3.1.1.1.3, Current Issues, Area to be Avoided, and Subsection 3.2.3.3, Spill Prevention).

Air traffic safety is the responsibility of the Federal Aviation Administration (FAA). In 2012, NOAA's Office of National Marine Sanctuaries announced collaborative overflight regulations with the FAA that prohibit flying motorized aircraft less than 2,000 feet (610 m) above certain portions of the Sanctuary (77 FR 3919, January 26, 2012; Subsection 3.1.1.1.2, Designation and Regulatory Overview [OCNMS]). These include all areas within 1 nautical mile (1.9 km) of the coastal boundary of the sanctuary, as well as areas within 1 nautical mile of any of the islands that constitute the Flattery Rocks, Quillayute Needles, or Copalis National Wildlife Refuges (15 CFR 922.152). These prohibitions do not apply to activities in response to emergencies threatening life, property, or the environment, or those for valid law enforcement purposes.

3.13.3 Existing Conditions

3.13.3.1 Highway Vehicle Traffic

Primary access to the isolated community of Neah Bay is via State Route 112, a narrow, winding highway that parallels the Strait of Juan de Fuca through rolling, forested terrain. An alternative route is along the closest primary highway, United States Highway 101, to Sappho and then north on a separate highway (State Route 113) that ends at State Route 112. In recognition of its outstanding scenic, recreational, and cultural qualities, State Route 112 has been designated as a national scenic byway by the U.S. Secretary of Transportation.

3.13.3.1.1 Typical Vehicle Traffic Volume Patterns

The Washington State Department of Transportation conducts traffic counts occasionally on State Route 112 at the boundary of the Makah Reservation. The most recent traffic counts were

conducted in 2022. The Traffic Count Database System (TCDS)[79] reported an annual average two-way traffic volume at the Makah Indian Reservation boundary of 865 vehicles in 2022. The Department of Transportation reported a high annual average daily traffic volume of 956 in 2015 for this area and a ten-year low of 795 in 2020 (Washington Department of Transportation TCDS, accessed March 10, 2023).

The closest permanent, full-time automated data collection station is located on United States Highway 101, near the State Route 113 turnoff to Neah Bay. Data from this station provide an indication of highway traffic patterns and trends near Neah Bay. Daily traffic counts at that station vary with the day of the week, with Fridays typically 10 percent higher than average and Sundays 7 percent below average (Washington Department of Transportation, TCDS, accessed April 10, 2023). In 2022, traffic counts showed a strong pattern of seasonal variability, with the highest daily averages occurring during the summer months (July and August) and the lowest occurring in winter (November, December, and January) (Figure 3-12). This pattern is characteristic of locations where recreational travel represents a substantial component of total annual traffic volumes (Washington Department of Transportation, TCDS, accessed April 10, 2023). Over the past 10 years, average daily traffic counts at this station have varied between approximately 2,500 and 3,300 vehicles per day, with no strong increasing or decreasing trend (Figure 3-13).

[79] See https://wsdot.public.ms2soft.com/tcds/tsearch.asp?loc=Wsdot&mod=TCDS for publicly-available traffic count data through the Washington State Department of Transportation.

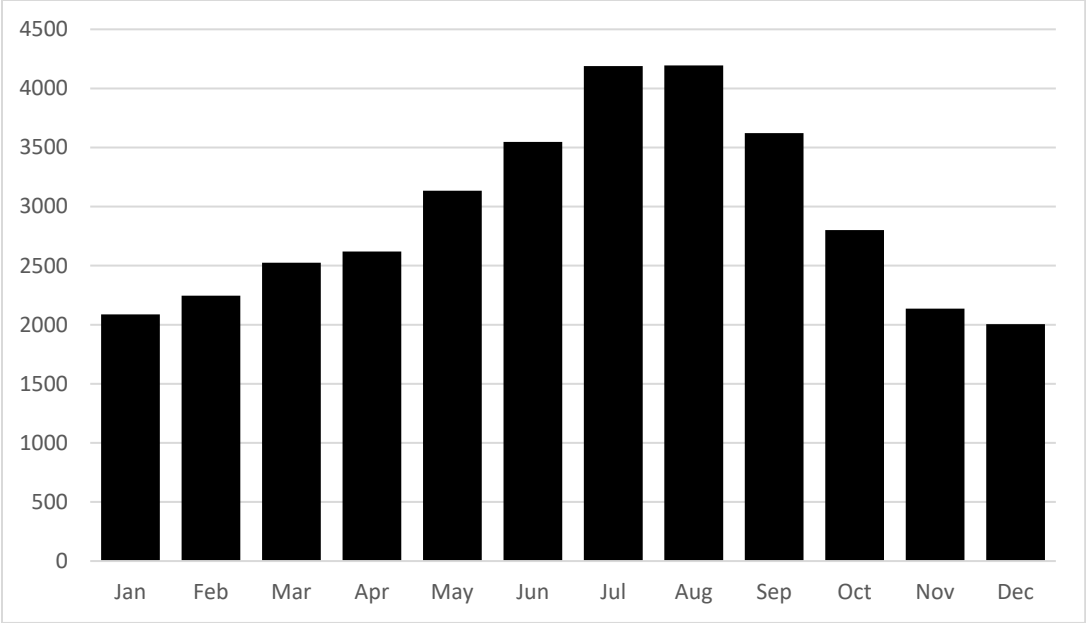


Figure 3-12. Average weekday traffic counts on Highway 101 near State Route 113, Station R073, by month (Washington Department of Transportation, TCDS, accessed April 10, 2023).

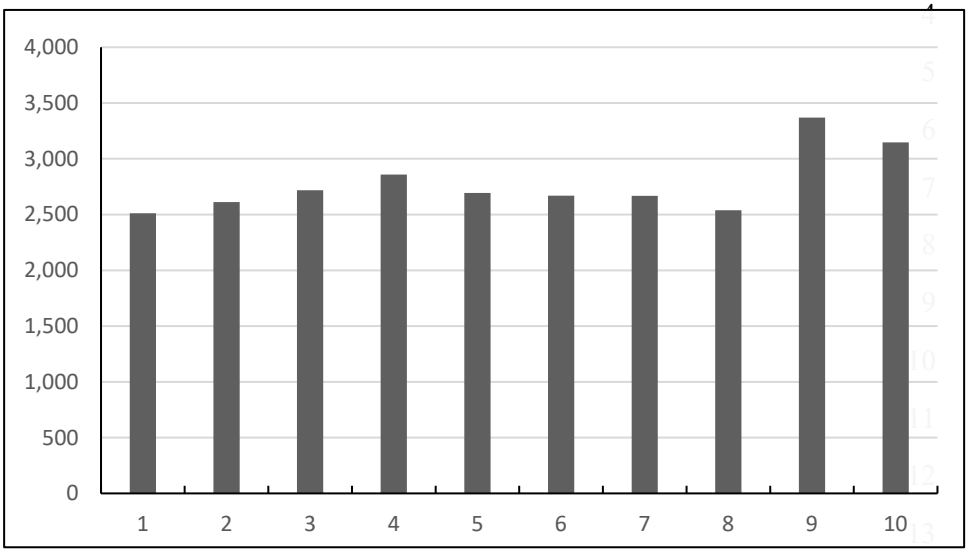


Figure 3-13. Annual average daily traffic counts on Highway 101 near State Route 113, 2013 to 2022 (Washington Department of Transportation, TCDS, accessed March 10, 2023).

Visitation data for the Cape Flattery Trail and the Makah Museum may serve as indirect indicators of the amount of vehicle traffic on the Makah Reservation. In 2004, a natural resource interpreter at the Cape Flattery Trail recorded visitor numbers in July, August, and September. The interpreter was present from roughly noon until 6:00 p.m.; visitors who arrived before and departed after the counting period were not counted, so these data represent an underestimate of actual visitation. Based on these data, the trail received an average of 169 visitors per day in July,

189 per day in August, and 93 per day in September (Bowechop 2005b). Additional data obtained during 2005 to 2011 (excluding 2007) indicate that over 16,500 people per year visit the Cape Flattery Trail (J. Bowechop, Makah Cultural and Research Center, pers. comm., June 26, 2012). More than 60 percent of the annual visitors to the Makah Cultural and Research Center/Makah Museum arrive during June, July, and August (North Olympic Peninsula Visitor and Convention Bureau 2005). Annual numbers of non-Makah visitors to the Makah Cultural and Research Center ranged from 6,405 to 10,678 people during 2007 through 2011 (J. Bowechop, Makah Cultural and Research Center, pers. comm., June 26, 2012). Additional information about tourist visitation to the Makah Reservation can be found in Subsection 3.6.3.2.4, Contribution of Tourism to the Local Economy.

3.13.3.1.2 Vehicle Traffic Patterns During the 1999 Hunt

News accounts of the 1998 and 1999 whale hunts described one occasion on which highway traffic was affected by activities associated with the hunt. Two days before the successful hunt on May 17, 1999, highway traffic was stopped for approximately 2.5 hours after the road was blocked by protesters and tribal police (Mapes and Solomon 1999a). No other highway blockages are described in news accounts or law enforcement records from the previous hunt, although Coast Guard records mention the occurrence of weekly protests on State Route 112 at the Makah reservation boundary (U.S. Coast Guard 1999c). Refer to Subsection 3.14.3.2, Police, for a discussion of traffic stops near Neah Bay.

Automated traffic count data for Highway 101 for the month of May 1999 do not indicate any anomalous spikes in traffic volume during the days surrounding the events of May 17, 1999. Traffic volume data for that date, along with May 22, the date of the Tribe's celebration of the successful hunt, are denoted in bold font in Table 3-41. Two trends are evident in the data. First is a steady increase in traffic volumes throughout the month, peaking on Memorial Day weekend (May 31). Second is the weekly pattern described above, wherein Friday volumes typically exceed those on Sundays. This pattern is evident in the data from the months of May 1998, 1999, and 2000; Friday volumes typically exceed those of the subsequent Sunday by at least 15 percent (Washington Department of Transportation 2005).

Table 3-41. Daily traffic counts on Highway 101 near State Route 113, May 1999.

Week Number	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1							2,340
2	2,002	2,376	2,393	2,420	2,382	2,618	2,422

3	2,143	2,432	2,458	2,486	2,530	2,764	2,558
4	2,318	**2,465**	2,502	2,635	2,680	3,159	**3,221**
5	3,161	2,994	2,647	2,782	2,954	3,431	3,446
6	3,569	3,150					

Source: Washington Department of Transportation 2005.
Note: Bold font indicates the dates of the successful hunt (May 17, 1999) and the subsequent celebration (May 22, 1999).

This pattern does not hold true on Memorial Day weekends, when Sunday volumes can approach or even exceed those of the preceding Friday. The only other exception to this pattern occurs during the weekend of May 21 to 23, 1999, when Sunday traffic exceeded traffic on the preceding Friday, although barely. This anomaly may be attributable to many factors, such as weather, and may also reflect trips by participants attending the May 22 feast and celebration.

3.13.3.2 Marine Vessel Traffic

Marine vessels that travel to Neah Bay may find moorage at the Makah Marina, where more than 200 fishing vessels (commercial and recreational) and pleasure craft can anchor. In addition, several thousand large vessels pass by Neah Bay each year on their way through the Strait of Juan de Fuca to ports in Canada and the United States.

3.13.3.2.1 Fishing Vessel Traffic

The amount of marine vessel traffic associated with commercial fishing activity can be estimated by counting commercial fish tickets for vessels that land at the Neah Bay Marina. Both tribal and non-tribal fishers are required by law to complete a fish ticket when they land their catch. Rarely, catch from a single trip might be listed on two tickets. In other cases, a vessel may engage in day-fishing trips for several days and then make a single landing. Statistically, these two circumstances offset one another and do not occur frequently enough to affect the overall total counts.

Estimates of vessel traffic associated with recreational fishing are based on vessel counts conducted by the Washington Ocean Sampling Program. Between mid-April (for 2005-2011) or mid-March (for 2012 onwards) and October, sport fishing vessels are counted either leaving the port (between 4:30 a.m. and the end of the day) or entering the port (between 8:00 a.m. and dusk).

Total vessel landings at Neah Bay decreased by 34 percent between 2005 and 2008, then rebounded almost to 2005 levels by 2011 (Table 3-42). In the last decade (2012 to 2022), recreational and commercial landings are lower, on average, as compared to previous years (Table 3-42). Most vessel traffic at Neah Bay is associated with recreational trips, which account for approximately 86 percent of all boat trips in the last 10 years. In most years, the peak of

recreational fishing activity occurs in the months of July and August (salmon fishing season), with a secondary peak during the halibut season in May (Figure 3-14). However, in the most recent decade, recreational fishing effort in May has eclipsed that of August (Figure 3-14). Recreational fishing trips decrease dramatically in September, and commercial trips exceed recreational trips by October (Washington Department of Fish and Wildlife 2012; 2023a; 2023b). On average (excluding 2020 and 2021 due to COVID restriction closures), approximately 80 percent of all boat trips (commercial and recreational) occur during the months of May, June, July, and August. The 5-month period from November to March accounts for approximately 6 percent of all trips. Six percent of all trips occur in April, 6 percent in September, and 2 percent in October.

Table 3-42. Recreational and commercial fishing vessel landings at Neah Bay, 2005 to 2022 (data from WDFW 2023c, 2023d).

	2005	2006	2007	2008	2009	2010	2011[2]
Recreational Landings	12,968	11,053	11,327	8,154	11,113	9,957	12,802
Commercial Landings	3,718	3,499	3,711	2,864	3,215	3,306	3,532[3]
TOTAL	**16,686**	**14,552**	**15,038**	**11,018**	**14,328**	**13,263**	**16,334**

	2012	2013	2014	2015	2016	2017	2018	2019	2020*	2021*	2022
Recreational Landings	9,766	10,789	11,866	10,647	9,413	9,842	10,009	10,787	8	0	8,540
Commercial Landings	4,110	2,684	3,135	3,477	2,814	3,002	1,815	1,712	925	950	1,370
TOTAL	**13,876**	**13,473**	**15,001**	**14,124**	**12,227**	**12,844**	**11,824**	**12,499**	**933**	**950**	**9,910**

*2020 closed for public access in March and did not reopen until April of 2022 due to COVID restrictions

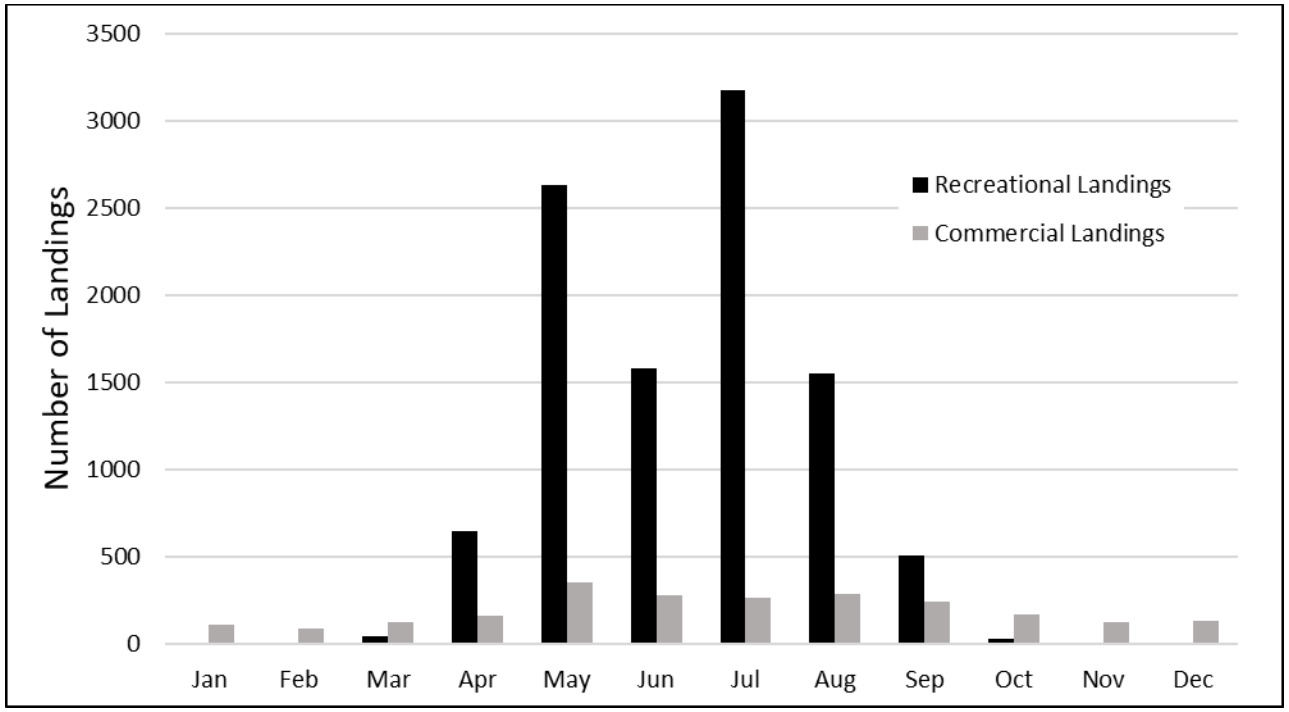


Figure 3-14. Average monthly levels of marine vessel traffic at Neah Bay, 2012 to 2022, excluding 2020 and 2021 for recreational landings due to COVID-19 restriction closures (data from WDFW 2023c, 2023d).

3.13.3.2.2 Offshore Vessel Transits

Ecology produces annual reports of the number of entering transits by various vessel types. An entering transit is defined as the passage of a vessel from sea or from Canadian waters into Washington State waters, regardless of destination (Ecology 2012b). The data collected by the department identify commercial fishing, cargo, and passenger vessels 300 gross tons (272 mt) and larger, as well as tank ships and tank barges transporting oil of any tonnage. Entering transits at the Strait of Juan de Fuca provide a measure of the amount of marine traffic near the Makah Tribe's U&A. From 2019 to 2021, Ecology reported roughly 4,400 to 4,800 entering transits annually via the Strait of Juan de Fuca (Table 3-43). This averages to approximately 12-13 large vessels per day, with cargo and passenger vessels making up more than 80 percent of entering transits. Personnel at the Canadian Coast Guard's Tofino Station have observed very little seasonal variability in traffic volume, except in the case of fishing vessels.

Table 3-43. Vessel transits using the Strait of Juan de Fuca, 2019 to 2021.

Vessel Type and Destination	2019		2020		2021
Cargo and Passenger Greater than 300 Gross Tons[1]					
Washington Ports	1,497		1,402		1,594
Canadian Ports	2,784		2,472		2,485
Tank Ships and Barges					
Washington Ports	355		336		331
Canadian Ports	177		196		178
TOTAL	**4,813**		**4,406**		**4,588**

Source: Ecology 2020, 2021b, 2022b.

[1] Includes fishing vessels and factory fishing vessels/processors.

The Tofino Station provided an estimate of approximately 40 to 50 vessel transits per day in the Strait of Juan de Fuca (entering and leaving), which equates to 20 to 25 entering transits. Based on a comparison of this estimate with the values reported by Ecology, approximately half of the daily transits are vessels less than 300 gross tons (272 mt) and not transporting oil.

3.13.3.2.3 Marine Traffic During the Previous Hunt

In the fall of 1998, as the Makah Tribe attempted to implement the first season of its hunt, several protest vessels began a 2-month occupation of Neah Bay to prevent the taking of a whale. From late September to late November, more than 15 protest vessels trailed any boat that left the Neah Bay marina (Dark 1999). Most of the protest vessels moored each night in Sekiu, a half-hour boat ride away (Mapes 1998a). The Sea Shepherd Conservation Society anchored the 180-foot (55-m) *Sea Shepherd III* and the 95-foot (29-m) cutter *Sirenian* outside Neah Bay and publicized plans to use a 27-foot (8-m) former Norwegian military submarine painted to resemble a full-grown killer whale

(Mapes 1998a; Tizon 1998b). The number of protest vessels was smaller when the hunt resumed the following spring; approximately a dozen boats returned to Sekiu (Mapes and Solomon 1999b). In 1999 and 2000, the Coast Guard intercepted several protest vessels for various hunt-related violations (Subsection 3.14.3.1, Coast Guard). There is no evidence that vessel transits using the Strait of Juan de Fuca were anomalously high or low during 1999 and 2000. However, Ecology does not report vessel traffic by month (only by year), so it is not possible to determine if there were short-term changes in marine traffic patterns during the active hunt periods in those years.

3.13.3.3 Air Traffic

Three airports serve Neah Bay and the western portion of Clallam County. Closest to Neah Bay is the Sekiu Airport, approximately 20 miles (32 km) east on Highway 112. The Federal Aviation Administration (2020) estimates approximately 850 operations occur annually at the airport. The airport has a visual approach slope indicator system, which is a set of lights that provide visual descent guidance information during the approach to a runway.

The Forks area, approximately 30 air miles (48.3 air km) from Neah Bay (50 miles [80.5 km] by highway), has two public access airports. The Forks Municipal Airport, located on the south edge of the City of Forks, has a 2,400-foot (732-m) paved runway and receives approximately 13,600 annual operations (Federal Aviation Administration 2019). The Coast Guard uses the airport as a refueling station for its helicopters. The airport is also used by emergency medical air transport helicopters that service the Forks Community Hospital (Newkirk and Casavant 2002). The Quillayute Airport is a former Naval Auxiliary Air Station located approximately 10 miles (16 km) west of Forks. For the 12 months ending on December 31, 2019, the airport received approximately 6,700 takeoffs and landings (Federal Aviation Administration 2019). Neither the Forks nor the Quillayute Airport has an approved instrument approach that would allow flights to proceed in inclement weather conditions (Newkirk and Casavant 2002).

Experience from the 1999 hunt indicates that media aircraft can operate at altitudes more than 2,000 feet (610 m) above water. On the day of the successful hunt, three television news helicopters were present throughout the day; according to Coast Guard accounts of the day, the aircraft observed all safety precautions (U.S. Coast Guard 1999a). The only problem with aircraft occurred on one day in 1998 when a seaplane operated by protest groups made several passes lower than 2,000 feet (610 m) over the area of the hunt. Operators of the aircraft were subsequently contacted by the Coast Guard, and the activity did not recur.

3.14 Public Services

3.14.1 Introduction

The following subsection documents several public service-related issues pertaining to the Makah whale hunt. Key parameters for analysis include staffing and occurrence rates of incident responses for local law enforcement agencies, including the Coast Guard and police. Also included is a discussion of public health facilities near Neah Bay.

3.14.2 Regulatory Overview

No specific regulations pertain directly to the establishment or maintenance of public services in the action area.

3.14.3 Existing Conditions

3.14.3.1 Coast Guard

The Coast Guard maintains Station Neah Bay, a small boat station within the Makah Indian Reservation. The station is staffed by 34 active-duty personnel; equipment includes two 47-foot (14-m) motor lifeboats, one 41-foot (13-m) utility boat, and one 25-foot (8-m) response boat (U.S. Coast Guard 2012). The station also features a helicopter landing pad with fueling facilities. The station's area of responsibility extends from the Strait of Juan de Fuca east to Pillar Point and south to Cape Alava. The station responds to approximately 100 search and rescue cases a year, primarily during the summer when sports fishers and tourists are present in greatest numbers (U.S. Coast Guard 2012). The station's crew is also responsible for maritime law enforcement in the area, conducting approximately 200 safety boardings per year.

During the previous Makah whale hunt practice exercise in 1998 and hunts in 1999 and 2000, Coast Guard personnel were responsible for ensuring the safety of persons and vessels near the hunt. To this end, the Coast Guard enforced an RNA and a 500-yard (457-m) moving exclusionary zone (MEZ) around tribal vessels actively engaged in the hunt. This MEZ was designed to keep protesters, reporters, and spectators out of the area where life and property would face the greatest risk of endangerment from an injured or pursued whale or a round from a .50-caliber rifle. Refer to Subsection 3.1.1.3, Coast Guard Regulated Navigation Area, and Subsection 3.15.2.1, Vessel Safety Regulations and Authorities, for more information about operation of the RNA and MEZ in prior hunts. The Coast Guard used helicopters, a cutter, and several utility boats and Zodiacs to enforce the exclusion zone (Mapes and Solomon 1999b). In October and November of 1998, two additional 41-foot (13-m) utility boats were made available,

if needed, but no extra personnel were placed on duty (Mapes 1998d). In May 1999, the Coast Guard cited the operators of four protest boats for grossly negligent operations and/or MMPA take violations, and three of the vessels were taken into federal custody (NMFS 1999; U.S. Coast Guard 1999c; U.S. Coast Guard 1999d). In April 2000, a Coast Guard utility boat responded to a protest vessel that was violating the exclusionary zone around a Makah canoe engaged in the whale hunt. Refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007, and Subsection 3.15.3.4, Behavior of People Associated with the Hunt, for more details about protest activities.

3.14.3.2 Police

The Makah Tribal Police have jurisdiction over crimes and infractions committed by Native Americans from any tribe on reservation lands. In addition, the tribal police have the authority to detain non-Indians for violations of law occurring on the reservation until they can be turned over to the appropriate authority (county, state, or federal). Refer to Subsection 3.1.2.1, Makah Tribal Departments and Agencies, for a description of the tribal police department and Subsection 3.1.2.2.1, Makah Public Safety Program, for a description of the Tribe's emergency management plan.

Non-tribal law enforcement activity in the area is conducted by the Clallam County Sheriff's Department. The patrol division of the Sheriff's Department is responsible for police patrols in all unincorporated areas of Clallam County, responding to calls for service made by citizens in need of police assistance and actively seeking out crime and traffic offenders. The closest deputy lives approximately 20 to 30 minutes from Neah Bay, which would be the minimum amount of time required to respond to an unanticipated law enforcement need. The Washington State Patrol oversees traffic safety compliance on roads and highways in the area. This area includes approximately 70 miles (113 km) of United States Highway 101; 70 miles (113 km) of State Routes 110, 112, and 113; and numerous local and other roads.

The Washington State Patrol has more-detailed data available for policing activities conducted by state troopers (Table 3-44). From 2018 to 2022, state troopers issued an annual average of approximately 53 traffic citations on the 36 miles (48 km) of state and federal highway closest to Neah Bay. This area includes United States Highway 101 between Forks and the turnoff for State Route 113, State Route 112 west of Sekiu, and the entire length of State Route 113. In addition to issuing tickets, state troopers responded to an average of 26 collisions in this area each year. In most years, the majority of these collisions occurred on the 11-mile (18-km) stretch of State Route 101 through Forks, which had an average annual rate of 1.6 collisions per mile. The corresponding rates

for United States Highway 112 and State Route 113 were 0.33 and 0.34 collisions per mile, respectively.

A law enforcement task force was assembled to ensure public safety during the previous hunts in 1998, 1999, and 2000 (Section 3.15, Public Safety, for more information about the task force). The task force was prepared to deploy any combination of 14 law enforcement agencies, from the Clallam County Sheriff's Department to the Royal Canadian Mounted Police. Ships, boats, planes, helicopters, squad cars, and the National Guard were prepared to participate, if necessary. The task force prepared for a worst-case scenario of 15 days of police protection, costing $160,000 in overtime, equipment, and supplies (Mapes 1998d). Despite serious concern about conflicts between protesters and whaling supporters, the full strength of the task force was never needed.

Table 3-44. Neah Bay area traffic citations and collisions, 2018 to 2022.

	2018	2019	2020	2021	2022
State Route 101 Mileposts 192-203					
Traffic Citations	65	9	5	11	67
Collisions	22	13	12	29	12
State Route 112 Mileposts 0-15					
Traffic Citations	5	0	1	1	7
Collisions	7	3	3	5	7
State Route 113 Mileposts 0-10					
Traffic Citations	17	0	0	4	72
Collisions	0	2	2	9	4
TOTAL					
Traffic Citations	**87**	**9**	**6**	**16**	**146**
Collisions	**29**	**18**	**17**	**43**	**23**

Source: Washington State Patrol 2023.

The Clallam County Sheriff's Department did not find that the hunt and associated activities imposed a substantial burden on department staff. Data from the Washington State Patrol indicate a spike in traffic stops on State Route 113 in 1999, which could be related to the Makah whale hunt (B. George, Washington State Patrol, pers. comm. October 27, 2005). Particular concern preceded the celebration of Makah Days in August 1998. There were rumors that up to 20,000 anti-whaling demonstrators might attend to disrupt the tribal community festival. Washington Governor Gary Locke mobilized 800 members of the National Guard to ensure public safety. By the end of the festival weekend, there had been no demonstrations and few protesters (Mapes 1998d). The following year, $825,000 of the state general fund was allocated to reimburse costs associated with this activation (Washington State Senate 1999).

3.14.3.3 Local Medical Facilities

The Sophie Trettevick Indian Health Center on the Makah Reservation employs physicians, a dentist, dental hygienist, and other practitioners (nurse practitioners, registered nurses, or public health nurses). The facility, operated by the Makah Tribe, provides comprehensive primary and dental health services. The clinic also has x-ray services and a pharmacy. The normal hours of operation are Monday through Friday, from 8:00 a.m. to 5:00 p.m. After-hours and emergency services are provided by emergency responders via 911 calls, 24 hours per day, 7 days per week. Emergency response includes stabilization and transport to the closest appropriate facility. Airlift Northwest (Seattle) can be called in, and patient destination is determined by the emergency responder. If Airlift Northwest is not available, the Coast Guard may provide transport. For emergencies on the water, the Coast Guard is the responder.

Although the health clinic provides day-to-day care service to tribal members, it will treat anyone with life or limb-threatening injuries. Injured non-Indian patients are stabilized and transported to an appropriate facility. The clinic has a memorandum of agreement with the Coast Guard to provide services and with Clallam Bay Fire District 5 to provide mutual assistance in emergency situations. The clinic has a Comprehensive Emergency Management Plan (2005) that dovetails to the Makah Comprehensive Management Plan (Subsection 3.1.2.2, Makah Tribal Programs and Management Plans).

The closest 24-hour medical facility is the Forks Community Hospital, approximately 50 miles (81 km) away. This is a Level 4 trauma care facility; patients with life-threatening injuries are stabilized and transported by Airlift Northwest or ambulance to more advanced trauma facilities, if necessary. The closest Level 3 trauma care facility (a facility with the resources for emergency resuscitation, surgery, and intensive care for most trauma patients) is at Olympic Medical Center in Port Angeles, 71 miles (114 km) from Neah Bay and 58 miles (93 km) from Forks. The closest Level 1-2 trauma care facility, which supports the full availability of specialists and can provide back-up resources for the care of exceptionally severe injuries, is Harborview Medical Center in Seattle, 120 air miles (193 air km) away.

3.15 Public Safety

3.15.1 Introduction

Aboriginal subsistence whale hunting is an inherently dangerous activity. The 2006 IWC Whale Killing Methods Workshop Report indicated, for example, that fatal accidents are not uncommon in Arctic aboriginal subsistence whaling hunts; between one and six people die annually in the Alaska and Chukotka Native hunts, combined (IWC 2007a). Five factors in the local environment

may affect public safety: location of the hunt; weather and sea conditions; behavior of the targeted species (the gray whale); number and behavior of people associated with the hunt (including protesters); and hunting equipment, including vessels and weapons. Some level of hunting currently exists on the Makah Reservation (e.g., for deer and elk), but the number of injuries associated with weapons accidents in hunting is unknown.

3.15.2 Regulatory Overview

3.15.2.1 Vessel Safety Regulations and Authorities

Any Makah whale hunt would occur within the EEZ of the United States, where the Coast Guard has enforcement authority over vessel safety under the Ports and Waterways Safety Act (33 USC 1221 *et seq.*). The Coast Guard has established an RNA in the Strait of Juan de Fuca and adjacent coastal waters of northwest Washington (33 CFR 165.1310) to enforce vessel activities near any Makah whale hunt and reduce the danger of loss of life and property from any hunt. Refer to Subsection 3.1.1.3, Coast Guard Regulated Navigation Area, and Figure 3-1. Designated and Managed Areas, for information about location of the RNA in relation to the action area. When the Coast Guard finalized the RNA after the 1999 hunt had occurred, it specifically found that "[t]he uncertain reactions of a pursued or wounded whale and the inherent dangers in firing a hunting rifle from a pitching and rolling small boat are likely to be present in all future hunts, and present a significant danger to life and property if persons or vessels are not excluded from the immediate vicinity of a hunt" (64 FR 61209, November 10, 1999).

Within the RNA, an MEZ is activated when one Makah whale hunt vessel displays an international numeral pennant 5. The whale hunt vessel may be a canoe or a motor boat and only one vessel may display the pennant; the MEZ extends 500 yards (457 m) around the vessel. The zone operates between sunrise and sunset, when surface visibility exceeds 1 nautical mile (33 CFR 165.1310(b)). The MEZ is deactivated upon sunset, when visibility is reduced to less than 1 nautical mile, or when the Makah hunt vessel takes down the international numeral pennant 5 (33 CFR 165.1310(b)). No person or vessel may enter the MEZ when it is activated, except for the authorized Makah whale hunt vessel, a preauthorized media pool vessel, or another vessel(s) or person(s) authorized by the Coast Guard (33 CFR 165.1310(c)), such as an observer vessel. The authorized media pool vessel must maneuver to avoid positioning itself between whales and hunt vessels, out of the line of fire, at a prudent distance and location relative to the whale hunt operations, and in a manner that avoids hindering the hunt or path of the whale in any way (33 CFR 165.1310(f)(3)). The media pool vessel must operate at its own risk, but in accordance with safety and law enforcement instructions from Coast Guard personnel (33 CFR 1310(f)). The

regulation does not affect normal transit or navigation in the RNA. The Makah whalers must provide specific broadcasts on a marine radio channel (Channel 16 VHF-FM), starting one-half hour before they begin whale hunting operations and continuing every half hour until hunting activities end. The broadcasts advise mariners of the 500-yard (457-m) exclusion area and urge them strongly to remain even further away from whale hunting activities as an additional safety measure (33 CFR 1310(e)).

The Coast Guard's regulations are consistent with the International Maritime Organization's guidelines for preventing collisions at sea (1972 Convention on the International Regulations for Preventing Collisions at Sea) and meet the goals of IWC Resolution 2006-2. At the 58th Annual Meeting on St. Kitts, the IWC adopted Resolution 2006-2 on the Safety of Vessels Engaged in Whaling and Whale Research-related Activities, recognizing concerns about confrontations related to whaling activities at sea and ports. The IWC and contracting governments acknowledged the right to legitimate and peaceful forms of protest and demonstration, but agreed and declared that the IWC and contracting governments do not condone any actions that are a risk to life and property relative to confrontations related to whaling between vessels at sea.

3.15.2.2 Weapon Safety Regulations and Authorities

For Makah tribal members on the Makah Reservation or hunting in the Tribe's U&A, Title 10 of the Makah Law and Order Code, Weapons Control Ordinance, governs the possession and use of weapons. Adults may possess weapons on the reservation, provided that individuals do not carry their weapons with intent to assault another, do not threaten to use or exhibit weapons in a dangerous or threatening manner, and do not use weapons in a fight or quarrel (Section 10.5.01). Weapons also must not be concealed; loaded and carried in a vehicle on a public road; discharged from, upon, or across any public highway (Section 10.5.01); and not possessed or discharged in any closed area (Section 10.5.02). Juveniles from 16 to 18 years of age may possess weapons after completing a weapons training course and receiving a weapons safety certificate from the chief of the Makah Tribal Police (Section 10.2.01).

Under the action alternatives and in the past hunts, the Tribe established certification guidelines and a certification process for all whaling team members with more in-depth training for captains, harpooners, riflemen, safety officers, and chase boat skippers to ensure that the hunt is carried out in as efficient, safe, and humane a manner as practicable. The guidelines and certification process ensure that every whaler has received adequate training to perform his assigned role on the team. Certification of riflemen includes a demonstration of proficiency and accuracy under simulated hunting conditions. Under the action alternatives, and in past hunts under the 2001 Gray Whale

Management Plan, the rifleman (onboard the Makah chase boat) cannot discharge a weapon until authorized to do so by a Makah safety officer. The primary safety measures, aside from standard weapon handling measures that apply, are:

1. The safety officer has the authority to determine whether visibility is less than 500 yards (457 m) in any direction, in which case the whaling captain suspends the hunt.
2. The safety officer would not authorize the rifleman to discharge the weapon unless the barrel of the rifle was above and within 30 feet (9.1 m) or less from the target area of the whale.
3. The safety officer would not authorize the rifleman to discharge the weapon unless the field of view is clear of all persons, vessels, buildings, vehicles, highways, and other objects or structures that if hit by a rifle shot could cause injury to human life and property.

Off the Makah Reservation (including on the territorial sea), or for non-Indians on the Reservation, the laws of Washington State apply to weapon possession and use. The Revised Code of Washington (3.1 RCW 9.41.270(1)) contains the following language:

> [i]t shall be unlawful for any person to carry, exhibit, display, or draw any firearm, dagger, sword, knife or other cutting or stabbing instrument, club, or any other weapon apparently capable of producing bodily harm, in a manner, under circumstances, and at a time and place that either manifests an intent to intimidate another or that warrants alarm for the safety of other persons.

3.15.2.3 Other Safety Regulations and Authorities

For Makah tribal members on the Makah Reservation or hunting in the Tribe's U&A, several different provisions of Title 5 of the Makah Law and Order Code, Criminal Code, prohibit acts such as assault, harassment, trespass, criminal mischief, and injury to public property, which could apply to disruptions associated with protest activities. Subsection 3.1.2.1, Makah Tribal Departments and Agencies, describes the Makah Public Safety Department, which is responsible for enforcing the Tribal Code, and Subsection 3.1.2.2, Makah Tribal Programs and Management Plans, describes the Makah Tribe's law enforcement programs. Off the Makah Reservation, or for non-Indians on the reservation, the laws of Washington State apply to such activities. The Revised Code of Washington prohibits a similar suite of criminal activities that could be associated with protest activities.

3.15.3 Existing Conditions

3.15.3.1 Location of the Hunt

The bulk of the Makah U&A lies along the geographically remote and isolated Pacific Ocean coast, but an arm of the U&A extends into the Strait of Juan de Fuca in United States waters from Neah Bay to Tongue Point near Port Angeles (Figure 1-1, Action Area). The portion of the U&A along the Strait of Juan de Fuca is less remote and is bordered by public lands, communities, and State Route 112, which runs parallel to the shoreline for nearly the entire length of the Strait portion of the U&A. A few points of State Route 112 closely hug the shore, but it is farther inland elsewhere. The current Coast Guard RNA is smaller than the U&A, and the portion of the RNA that extends into the Strait stops just past the Makah Reservation (Figure 3-1. Designated and Managed Areas).

3.15.3.2 Weather and Sea Conditions

3.15.3.2.1 Relevance of Weather and Sea Conditions

The IWC has recognized that prevailing weather conditions in association with relatively small vessels and traditional hunting techniques may diminish the efficiency of aboriginal subsistence whaling (see, for example, IWC Resolution 2001-2 and IWC Resolution 2004-3). Seasonal and weather variations in the local environment where aboriginal hunts occur also affect the safety of whale hunts, including locating, striking, and killing the whale; recovering the whale; and towing it back to a butchering location. In its Report on *Weapons, Techniques, and Observations in the Alaskan Bowhead Whale Subsistence Harvest*, the United States reported that fall bowhead hunts occur under conditions that include high winds, rough seas, and ice-choked waters and stated that fatal accidents are a fact of the hunt under such treacherous conditions (Alaska Eskimo Whaling Commission 2006). The weather and sea conditions in the action area can also be treacherous, as described further below.

Dangerous weather and sea conditions for the Makah historic whale hunts are evident in their traditional equipment design, such as 36-foot-long and five-foot-wide (11-m-long and 1.5-m-wide) canoes designed for seaworthiness and ability to travel great distances offshore (Arima 1983; Renker 2012), and in their statements before the British Commissioners in the 1890s, where tribal members reported that pelagic seal hunting was “practically given up” for about 20 years because of loss of lives at sea while hunting (Subsection 3.10.3.4, Makah Historic Whaling, Cessation of the Hunt, citing Crockford 1996). During the 1998 training exercises and the 1999 to 2000 Makah whale hunts, no weather-related accidents or fatalities occurred. All hunts occurred in late April and May, when weather and seas generally begin to improve in the Makah U&A. On

May 11, 1999, the Makah suspended one of their 4 days of hunting for that year after less than 2 hours of hunting because of inclement weather conditions (Gosho 1999; NMFS 1999). During the fall/winter of 1999/2000, the Makah Tribal Council did not issue any whaling permits because weather conditions were unsuitable.

Relevant weather and sea-state parameters for the action area and action alternatives include air temperature, sea temperature, fog and precipitation, wind speed, and wave height. Air temperature is important to hunting safety because ocean water can freeze on deck (generally at 28.5 °F [-1.9 °C]), potentially causing equipment to be slick or otherwise hampered. This could lead to injuries or reduce the accuracy and efficiency of the harpooner and rifleman. Sea temperature may also be relevant to determining the risk of hypothermia if a person involved in or protesting the hunt enters the water (for example as the result of a boat overturning or other accident). Fog and precipitation can reduce visibility, creating a potential for vessel collisions or reducing the accuracy of the harpooner or rifleman. Beattie (2001) recommended a minimum visibility standard of 500 yards (457 m) in all directions during the Makah hunts to eliminate problems with boats entering the 500-yard (457 m) MEZ (Subsection 1.4.2, Summary of Recent Makah Whaling — 1998 through 2007, for information about the many boats that have been associated with past Makah hunts). The Makah included this 500-yard (457 m) visibility recommendation in their proposed action. Wind speed can also affect the accuracy of the harpooner or rifleman.

Wave height can affect vessel operations and stability, as well as visibility and orientation of the whale, all of which can influence the accuracy of the harpooner or rifleman. Beattie (2001) recommended that the Makah hunts institute a 30-foot (9.1-m) distance limitation between the rifleman and the whale and require that a rifleman only fire at a downward angle, based on concerns about sea swell as it relates to accuracy (i.e., missed shots) and ricochets. The Makah's proposed action includes the 30-foot (9.1-m) distance limit and downward firing angle. In a later report, again examining the safety and guidelines for the Makah hunt, Graves et al. (2004) concluded that shots fired below an elevation angle of -6.2° (that is, with the gun pointed downward at the target in the water and below the shooter's horizon by at least 6.2 degrees) will ensure a very low probability of ricochets, "whether the water surface is glass smooth or rough with waves" (Subsection 3.15.3.5.2, Weapons Associated with the Hunt, Secondary Killing Methods).

3.15.3.2.2 Description of Weather and Sea Conditions in the Action Area

Wind direction, ocean surface temperatures, terrain, and the intensity of high and low pressure centers over the North Pacific Ocean produce a marine climate in the action area characterized by distinctive seasons marked by highly variable weather (U.S. Department of Agriculture 2013; National Park Service 2013). Table 3-45 displays precipitation levels at Tatoosh Island, visibility (fog) ratings at the Quillayute Airport[80], and air and sea temperatures, wind speeds, and wave heights measured at the Strait of Juan de Fuca Traffic Separation Lighted Buoy ("J buoy") anchored 7 miles (11.4 km) north of Tatoosh Island.

Variations in air and sea temperatures and precipitation follow a seasonal pattern. Daily average air temperature drops steadily from August through January, with warming beginning in February and continuing through July. Daily average air temperature ranges from around 43 °F (6 °C) in January to around 55 °F (13 °C) in July. Sea temperature follows a similar pattern, ranging from an average daily low around 46 °F (8 °C) in February to around 53 °F (12 °C) in July and August. Measurable precipitation occurs on approximately 200 days each year, with annual average precipitation amounting to around 78 inches (2 m) and nearly half of that occurring in the 3 months of November through January. The summer months of July and August are usually the driest; however, heavy fog (the other factor affecting visibility) also typically occurs during the late summer. The period from May through July tends to have the fewest heavy fog days combined with relatively low precipitation.

Winds in the action area are strongest from November through March, when daily average wind speeds range from 11.1 to 14.4 knots (5.7 to 7.4 m/s). Winds typically taper off in the spring, and during the summer months of June through August average wind speeds decline to 5.4 to 6.2 knots (2.8 to 3.2 m/s) and gale-force gusts[81] are absent. Gale-force gusts begin to recur in September and wind speeds increase steadily to peak average and maximum values during the winter. Wave heights follow a similar pattern, with lowest heights around 4 feet (1.2 m) during the summer months of June through August and highest around 8 feet (2.4 m) during the winter

[80] The Quillayute Airport is located approximately 9 miles (14.5 km) south of the proposed hunt area but is the closest climatological station reporting visibility data (i.e., number of days with heavy fog). Although the airport is approximately 3 miles (4.8 km) inland from the coast, the monthly patterns of heavy fog days are similar to other coastal stations much farther away from the proposed hunt area (e.g., Port Angeles and Hoquiam, Washington).

[81] The National Weather Service (2013) defines a gale as sustained surface winds of 34 to 47 knots (18 to 24 m/s).

months. Maximum wave heights can approach 33 feet (10.1 meters) during the month of December.

According to the Tribe's marine mammal biologist, wave height and wind speed are two of the most important variables likely to affect a whale hunt (J. Scordino, Makah Tribe Marine Mammal Biologist, pers. comm., July 31, 2013). Based on experience during hundreds of boat-based marine mammal surveys in the Makah U&A, the Tribe's biologist estimated that the best chances for small vessels to pursue a gray whale in coastal waters would occur when wave heights are less than 6 feet (1.8 m) and wind speeds are less than 16 knots (8.2 m/s). Using data from the J buoy off Cape Flattery (NOAA National Data Buoy Center 2013), Table 3-45 summarizes the percent of monthly observations that exceed these values, while Figure 3-15 displays a synthesis of the available data to estimate the number of days with both favorable wind and wave conditions (i.e., at or below the stated values). Inclement weather during November to March would likely result in only 5 to 7 days with favorable conditions per month (on average) during that period, followed by an increase to 13 to 23 days per month in April and May. Nearly every day during June through August would present favorable conditions, after which hunters might encounter 12 to 21 days with favorable conditions during September and October.

Table 3-45. Climatological data from stations in the vicinity of the proposed hunt area.

Weather Elements	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	*Year*	Yrs of Record
Air Temperature (degrees F) at J Buoy[1]														
Mean	43.3	44.2	45.3	46.8	50.4	52.5	54.7	54.1	52.9	50.7	47.3	43.7	*49.3*	5
Mean daily maximum	53.8	52.0	55.6	58.8	67.1	61.0	71.2	65.5	63.7	61.3	57.9	55.9	*71.2*	5
Mean daily minimum	32.7	34.3	33.6	34.7	43.5	45.9	48.2	47.3	46.6	39.6	28.9	25.0	*25.0*	5
Sea Temperature (degrees F) at J Buoy[1]														
Mean	46.6	46.2	47.7	48.9	50.7	52.3	53.4	53.2	52.2	51.6	50.5	47.7	*50.4*	5
Mean daily maximum	51.1	50.4	51.3	53.6	58.8	60.3	61.7	61.9	61.7	57.7	55.4	51.4	*61.9*	5
Mean daily minimum	43.0	43.3	45.1	45.7	46.6	47.5	48.0	49.3	48.2	47.7	46.8	44.4	*43.0*	5
Precipitation (inches) at Tatoosh Island[2]														
Mean amount	10.6	8.9	8.1	5.3	3.0	2.7	2.3	2.1	3.5	8.3	10.7	12.2	*77.6*	36
Greatest amount	22.6	21.2	14.8	10.8	8.1	7.8	7.7	5.1	8.0	14.2	22.2	16.8	*101.6*	36
Least amount	1.0	2.9	2.9	0.7	0.6	0.5	<0.1	0.2	1.2	2.5	2.9	6.2	*58.6*	36
Maximum amount-in 24 hours	3.2	3.2	2.7	3.1	1.6	2.7	2.4	2.2	2.2	5.3	3.8	3.3	*5.3*	36
Mean number of days with precipitation	22	19	20	17	13	13	11	12	11	17	21	24	*199*	36
Visibility at Quillayute Airport[3]														
Mean number of days with heavy fog*	4.0	3.3	3.5	2.3	3.1	2.8	4.6	8.1	7.0	6.8	3.9	3.6	*53.0*	29
Winds at J Buoy[1]														
Mean wind speed (knots)	14.4	12.6	11.1	9.8	8.2	6.2	5.6	5.4	6.5	10.1	13.5	13.5	*9.5*	8
Maximum wind speed (knots)	51.1	44.9	53.1	39.3	40.8	33.2	27.2	29.4	40.6	43.3	60.3	58.1	*60.3*	8
Percent of observations ≤ 16 knots	63	80	82	95	97	100	100	100	98	89	71	69	-	8
Waves at J Buoy[1]														
Mean wave height (feet)	8.4	7.9	7.4	6.3	5.0	4.4	4.2	4.0	5.3	6.7	8.3	8.4	*6.2*	8
Maximum wave height (feet)	24.2	25.4	22.9	17.0	22.6	14.0	11.6	12.4	19.3	24.0	24.8	32.6	*32.6*	8
Percent of observations ≤ 6 feet	27	27	23	46	75	81	87	92	82	42	25	23	-	8

[1] NOAA National Data Buoy Center 2013
[2] Western Regional Climate Center 2013
[3] Western Regional Climate Center 2023
* Heavy fog days have visibility ratings of ¼ mile or less.

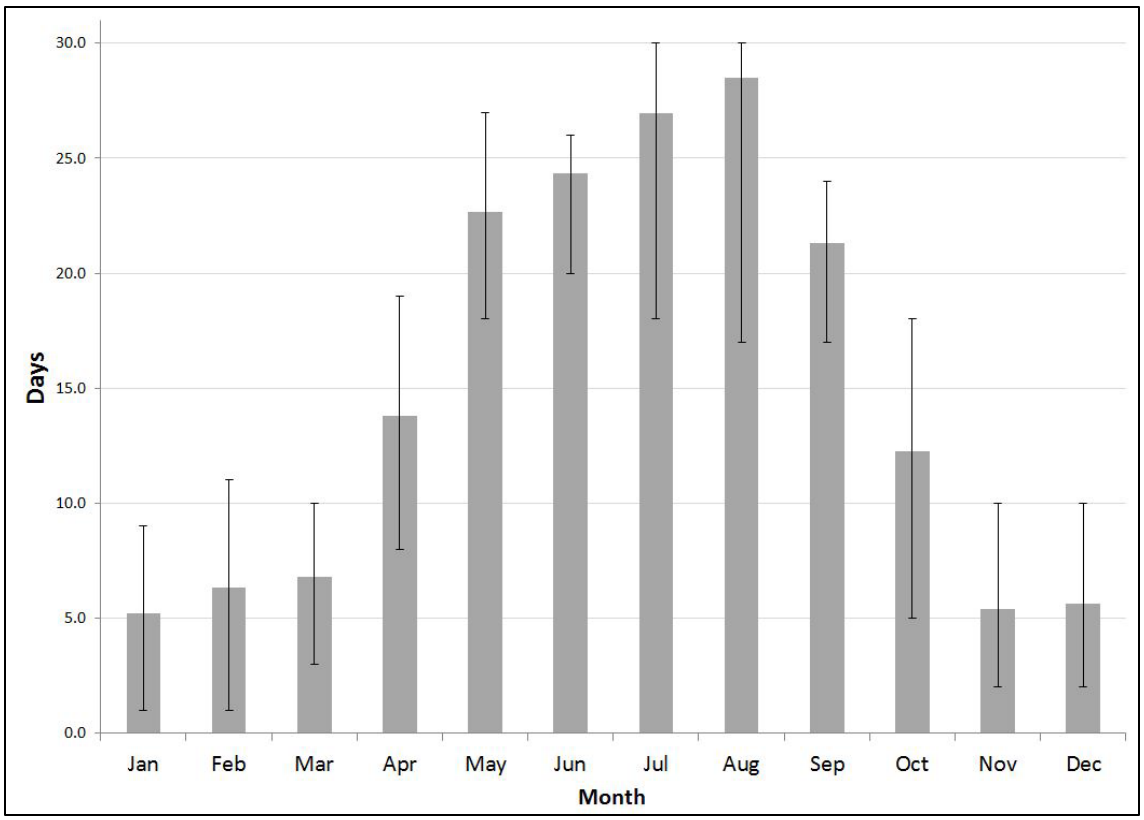


Figure 3-15. Estimated number and range of suitable hunting days: wind speeds < 16 knots (8.2 m/s) and wave heights < 6 feet (1.8 m).

Source: 2004-2012 J Buoy Data available from NOAA National Data Buoy Center 2013.

3.15.3.3 Behavior of the Gray Whale

Early whalers referred to gray whales as 'devil fish' and 'hard head' because gray whales were reported to attack whaling skiffs when harpooned, frequently causing a loss of human life (Henderson 1984). During the IWC's 2003 workshop on whale killing methods, the Russian delegate emphasized the aggressive behavior of gray whales (IWC 2004c), and such behaviors continue to be reported during hunts by Chukotkan natives (e.g., IWC 2012i). The violent struggles of a struck whale can result in vessels being capsized, persons on vessels being knocked into the water (Alaska Eskimo Whaling Commission 2006), or individuals becoming entangled in the lines fastened to the whale. Even postmortem movements of a whale may be dangerous. Towing a dead whale also presents hazards, particularly if the whale is not well moored to the vessel (Alaska Eskimo Whaling Commission 2006). While the Makah hunts in 1998 through 2000 did not result in any fatal accidents, hunting disasters did occur in prior whaling days. Arima (1983) reported that, "[t]he dangerous [moments of the hunt] lasted until all the line and

floats were . . . out because someone could get caught in a loop or the canoe could be capsized or smashed in the first violent struggles of the whale before it sounded."

3.15.3.4 Behavior of People Associated with the Hunt

Based on experience in the 1998 Makah training exercises and the 1999/2000 hunts, any future Makah whale hunting will likely generate some degree of public interest that may involve public protests and the media. For additional information, see Subsection 1.4.2, Summary of Recent Makah Whaling–1998 through 2007, and Subsection 3.12.3.3, Media Coverage of the 1998 through 2000 Hunts.

Before the Makah began the gray whale hunt in 1998, law enforcement authorities had advance notice of likely protests and conflicts between those protesting and those supporting the hunt. Prior to the hunt, the Makah Tribal Council directed the Makah Police Chief to form a task force of Makah departments (including the Police Department and Health Clinic) and off-reservation public safety resources (including Washington State Patrol, Clallam County Sheriff's Office, Coast Guard, Federal Bureau of Investigation (FBI), Department of Defense, other tribal police departments, etc.) to recommend a strategy to address any potential public disturbance related to whale hunts. The strategy called for close coordination of tribal, state, and federal authorities, including the military (Subsection 3.14.3.2, [Public Services] Police, for more detail). The following discussion summarizes the protest activities and conflicts before and during the 1998 to 2000 whale hunts, including law enforcement response.

In 1998, the Makah whaling crew began to prepare for a hunt scheduled to start October 1, 1998. On August 25, 1998, the Makah Tribal Council passed Tribal Resolution 189-98 stating that protest vessels were not to dock at Neah Bay. This meant that protesters were not to attempt to disembark from vessels. A flotilla of protest vessels began to arrive before October 1, anchoring offshore in Neah Bay near Waadah Island. It included zodiacs, kayaks, a few larger boats belonging to the Sea Shepherd Conservation Society, and a two-person Norwegian Navy surplus submarine, painted like a killer whale and intended to deliver killer whale calls into the water to scare gray whales away. Federal and state officials advised the Sea Shepherd Conservation Society that noise emitted by the killer whale submarine might constitute harassment under the MMPA (Victoria Times Colonist 1998). Others moored in nearby Sekiu, away from the reservation. The Sea Shepherd Conservation Society coordinated volunteers to conduct scouting trips up and down the coast in 15 boats, watching for the whaling canoe (Mapes 1998e). A British Columbia whale-watching charter organization representing 10 firms also appeared on October 1

(Mapes 1998e). By October 8, the protest vessels had deployed twice in reaction to a false alarm that the Makah were hunting whales (Mapes 1998e).

On November 1, 1998, one of the protesting organizations (Sea Shepherd Conservation Society) notified the Makah Tribal Council and law enforcement officials that a staged demonstration would take place. Coast Guard and Clallam County Sheriff's Office personnel remained at the Coast Guard base in Neah Bay but stayed in contact with Neah Bay Police, who took the lead according to the previously agreed upon task force structure. The M/V *Sirenian*, one of the larger boats, was steered up near the boat dock, and several zodiacs, kayaks, and jet skis approached and sped around inner Neah Bay. The protest boats played killer whale vocalizations over a loudspeaker and blew air horns (Mapes 1998f), shouted at tribal members onshore, and displayed protest banners. Crowds of Makah tribal members assembled on the waterfront, in cars and on the shore, exchanging insults and honking horns; several members beat tribal drums, danced, and sang songs (Mapes 1998f; Shukovsky 1998a). Some Makah youths ran out on the docks with firecrackers and rocks, throwing them at the protest vessels, breaking a window on the *Sirenian*. Three protesters in a zodiac attempted to dock the vessel (to accept a dinner invitation from a Makah member); someone pushed one of the protesters off the dock into the water, without injury (Lacitis 1998; Mapes 1998f). Neah Bay Police subsequently detained all three protesters (Mapes 1998f). Tribal members and the police confiscated the zodiac; a fourth protester waded ashore to retrieve the zodiac and was arrested. The Neah Bay Police turned all the detained individuals over to the Clallam Bay Sheriff's Office. The protesters all gave voluntary statements and were released without charges (Mapes 1998f). The tribal police established order on shore, and the crowd dispersed. Clallam Bay Sheriff's Department and the FBI conducted investigations in the following days (Mapes 1998f; Shukovsky 1998b).

A group of 30 protesters attempted a simultaneous vehicle protest on State Route 112, but Neah Bay Police stopped the protesters at the reservation boundary (Mapes 1998g). On November 5, Jean-Michel Cousteau visited the Makah Reservation and asked the Makah not to hunt; the visit was cordial by all accounts (Shukovsky and Barber 1998). On November 11, 1998, protest vessels mobilized but were responding to a false report that the Tribe was hunting and had killed and landed a whale (U.S. Coast Guard 1998). Talks between the leader of the Sea Shepherd Conservation Society and the Makah Tribal Council took place on November 24, 1998. Sea Shepherd reportedly assured the Makah that motivations were not racial, and the Makah reportedly assured Sea Shepherd that they did not intend to sell whale meat to Japan (Denn 1998a). All the protest vessels left by November 26, 1998 (The Edmonton Journal 1998). A

second group of anti-whaling activists offered the Tribe monetary compensation in lieu of whaling (Denn 1998b), but the Tribe did not accept the offer (Denn 1998c).

The spring 1999 hunt began on May 10, 1999, and continued over 4 nonconsecutive days (May 10, 11, 15, and 17) in the coastal portion of the Makah U&A south of Cape Flattery (Subsection 1.4.2, Summary of Recent Makah Whaling, for a more complete description of hunting locations). On May 10, 1999, the hunt was disrupted by vessel-based protesters who maneuvered between the two Makah vessels and the whales. Protesters tried to scare the whales, and they also fired flares and smoke flares at the Makah whaling party vessels (NMFS 1999; Sunde et al. 1999; U.S. Coast Guard 1999a). Because most of the hunting occurred south of the Coast Guard's RNA, a 500-yard (457 m) MEZ around the Makah vessels was not in effect (NMFS 1999). Coast Guard officials detained two of the protesters and subsequently cited them for grossly negligent operation. The Clallam County sheriff arrested them for reckless endangerment (NMFS 1999; Sunde et al. 1999; U.S. Coast Guard 1999a). On May 11, the Makah whaling captain called off the second hunt shortly after it began because of inclement weather.

On May 15, 1999, protest vessels operated around the whalers much of the day. Two protest vessels struck whales. One vessel ran over the top of a whale and temporarily stunned it, while another vessel hit the flukes of a diving whale beside the Makah canoe (NMFS 1999). The Coast Guard cited four vessels for grossly negligent operations and/or MMPA infractions and took three of the vessels into federal custody (NMFS 1999). On May 17, 1999, the fourth and final day of the hunt, no protest vessels attempted to disrupt the hunt (U.S. Coast Guard 1999b). The Makah crew successfully landed a whale on that day. Local and regional anti-whaling activists engaged in various acts of protest after the successful 1999 hunt. Activities ranged from peaceful candlelight vigils in Seattle (Burkitt 1999b) to protests on Washington State Route 112 at the Makah Reservation boundary. The leaders of some activist groups encouraged more direct action, such as being arrested, using lock boxes (barrels filled with concrete), and lock downs (use of chains, pipes, etc. to lock individuals together) (U.S. Coast Guard 1999c).

Before the spring 2000 hunt began, protesters arrived, patrolling the coast in a 38-foot (12-m) retired Canadian search-and-rescue vessel equipped with two jet skis and carrying some of the activists who had been charged in 1999 with negligently operating a motorized vessel (Welch and Morris 2000). A group of 30 protesters also blocked road access to the Makah Reservation for about an hour in early April (Welch and Morris 2000). The spring 2000 hunt began on April 17, 2000 and covered seven nonconsecutive days (April 17 and 20; May 6, 7, 10, 12, and 29) in the coastal portion of the Makah U&A south of Cape Flattery (Subsection 1.4.2, Summary of Recent

Makah Whaling, for a more complete description of hunting locations). All hunts occurred within the Coast Guard's RNA and MEZ (Gearin and Gosho 2000), unlike spring 1999 hunts, because the southward boundary of the RNA had been extended by final rule on November 10, 1999 (64 FR 61209). During the first 2 days of hunting (April 17 and 20), protesters disrupted the hunts (Gearin and Gosho 2000). On April 21, Coast Guard personnel boarded two protest vessels and issued warnings (United States Coast Guard 2000). One of the vessels entered the 500-yard (457-m) MEZ on three occasions subsequent to the Coast Guard advisory and was intercepted and again warned by the Coast Guard (United States Coast Guard 2000). On at least one of these three entrances into the MEZ, the vessel entered the 500-yard (457-m) MEZ at high speed and was intercepted within 50 yards (46 m) of the Makah's canoe (Gearin and Gosho 2000). Two individuals on jet skis also entered the MEZ, making high-speed charges at the Makah canoe (U.S.Coast Guard 2000). The Coast Guard intercepted both jet skiers. One jet-ski operator collided with a Coast Guard vessel and sustained shoulder injuries; Coast Guard personnel retrieved the individual from the water, placed the person under arrest, and transported her to Olympic Memorial Hospital (U.S. Coast Guard 2000). The Coast Guard also intercepted and arrested the second jet-ski operator, transferring the individual to the Clallam County Sheriff's Office (U.S. Coast Guard 2000). On the 5 remaining hunting days (May 6, 7, 10, 12, and 29, 2000), one to three protester vessels were present during hunting, but they did not enter the MEZ to disrupt whale hunting.

3.15.3.5 Hunting Methods

3.15.3.5.1 Vessels Associated with the Hunt

The Makah traditionally hunted whales from large canoes approximately 36 feet (11 m) long and more than 5 feet (1.5 m) wide. Carvers made the canoes from a single cedar log. In present days, the Makah use both dugout and strip canoes for canoe journeys, canoe races, and other canoeing activities. In the waiver request, the Makah proposed to make the initial approach and strike the whale in their traditional hunting canoe. A more modern chase vessel (a small skiff equipped with an outboard motor) would follow the traditional canoe. The second vessel would provide a platform for tribal members (a rifleman, safety officer, and observer) who would assist in the hunt by applying additional harpoons if needed, killing a struck whale, finding a struck and lost whale, or towing a killed whale to shore. The driver of the chase boat would maneuver the rifleman to the harpooned whale to deliver a rifle shot at distances less than 30 feet (9.1 m) from the target area.

3.15.3.5.2 Weapons Associated with the Hunt

Traditionally, the Makah used wooden harpoons with mussel shell tips to strike whales. The harpoon was attached to sealskin floats and lines made of sinew and cedar to secure whales. A long wooden lance was used to kill whales. After contact with American whalers, the Makah began to use iron harpoon heads and accept tows from commercial steamers. The Makah propose to hunt gray whales using a toggle-point steel harpoon, with a rope and floats attached, to strike and secure the whale and a .50 caliber rifle to kill it. This FEIS evaluates a .577 caliber rifle as an alternative rifle to kill a whale and a darting gun (with penthrite grenades) as an alternative to strike and kill a whale.

Primary Weapon Used to Strike (and Potentially Kill) Whales

Toggle-point Harpoon

A toggle-point harpoon is a wooden or metal shaft with a movable point (head) and is usually attached to a line (rope) and float. When the harpoon is thrust into a whale, the point twists horizontally (toggles) under the animal's skin. Pulling on the attached line secures the harpoon to the whale. The harpoon probably would not kill the whale, but it would be used initially to strike and secure it with the line and floats. The Makah used a toggle point harpoon with a stainless steel point to strike and secure the whale during the 1999 hunt, and their proposal is to continue using this method of striking whales.

Darting Gun (with toggle-point harpoon plus black powder or penthrite explosive projectiles)

A darting gun is a primary weapon some subsistence hunters use to strike and potentially kill whales. It is thrown by hand and consists of a steel toggle-point harpoon (connected to a line and floats) with a barrel attached to hold an explosive projectile (also referred to as a grenade, explosive charge, super bomb, and bomb lance) (O'Hara et al. 1999; Alaska Eskimo Whaling Commission 2004). A more extensive discussion of the types of explosive projectiles used in whaling follows. The steel harpoon serves the same purpose as the toggle-point harpoon described above, attaching a line and floats to the whale (and it may be desirable to attach additional floats using a toggle-point harpoon to keep a struck whale from sinking). The explosive projectile has a time-delay fuse designed to detonate after penetrating the whale; it is intended to stun or potentially kill the whale in conjunction with the first strike. Whales not killed by this first strike are killed using secondary weapons (another strike with the darting gun or the shoulder gun).

Secondary Weapon Used to Kill Whales

For most aboriginal whale hunts, secondary weapons (defined as those following the primary strike) are required to kill the whale. Secondary methods used by subsistence hunters include making additional strikes with the darting gun, shooting high caliber rifles, or firing explosive projectiles from a shoulder gun. The IWC encourages hunters to use secondary weapons for animals that move or in other ways show any signs of life as a routine precaution (IWC 2007a). The IWC has identified the appropriate target area for whales killed with rifles as the brain case (brain and upper neck) and, in emergencies, the heart. For whales killed with explosive projectiles, the appropriate target areas are the thorax and neck (IWC 2007a).

High Caliber Rifle

Several aboriginal subsistence whalers and some commercial whalers use rifles as the secondary killing method. In 1997 and 1999, the Makah Whaling Commission contracted with Dr. Allen Ingling, a University of Maryland veterinarian with a background in ballistics, to choose the optimal weapons for hunting gray whales. The Tribe's goal was to provide safe conditions for humans and to employ a humane, effective, and efficient method of killing gray whales once attached to a line and floats. Dr. Ingling and the Makah investigated the performance of several firearms, including the Garand 30'06, Winchester .458 Magnum, Weatherby .460 Magnum, State Arms and LAR .50BMG, and the .577 A-Square Tyrannosaur. Participants assessed the weapons for efficiency, safety, and humaneness by testing the depth of penetration of bullets in a water tank and evaluating weight, recoil, and loading ease (Ingling 1997; Ingling 1999). All of the weapons could kill a whale, based on test results, but participants selected the highest caliber rifles, the .50BMG and .577 A-Square Tyrannosaur, as the best options (Ingling 1999), primarily because the bullets would penetrate deeper in water, allowing a larger margin of error in targeting. The Tribe ultimately used the .577 A-Square Tyrannosaur in the 1999 hunt, because it was 6 pounds (2.7 kg) lighter that the .50BMG, it had a 3-round rather than single-shot capacity, and its shots reached the maximum penetration in water tank tests (Ingling 1999).

In NMFS' 2001 EA (NMFS 2001a), reports indicated that no data on ricochet were available from the Army's .50BMG Field Manual (United States Army 1991). During a public comment period, NMFS received a report from Kline Engineering Company (Kline 2001) that assessed ricochet data, ricochet probability, and modeled trajectories for .50 caliber M33 rounds fired against sand. Kline (2001) concluded that no firings should be conducted within 6,670 yards (6,099 m) from shore and advised that a ricochet could travel almost 1,860 yards (1,700 m) off the line of fire. Subsequent to the Kline report, Beattie Natural Resources Consulting assessed the public safety of the 1999 hunt, specifically, the potential for injury or death from rifle fire to non-

participants in the hunt. Beattie (2001) disagreed with Kline's earlier conclusions about a safety zone but agreed there was a potential for missed shots to ricochet. Beattie (2001) made the following recommendations to enhance public safety of the hunt in the Strait of Juan de Fuca:

- Riflemen should have to use either a .50 caliber or .577 caliber rifle as the primary rifle.
- A rifleman should not shoot if the intended target is more than 30 feet (9.1 m) from the muzzle of the rifle [to ensure that misses do not occur and to reduce the possibility of a ricochet].
- A rifleman should fire only at a downward angle [because a harpooned whale could surface at the top of a swell while the chase boat was in a position toward the middle of the trough or swell. In that situation, firing a shot might result in the unimpeded travel of the projectile toward the boundary of the MEZ, should the shot miss the whale and water].
- The Makah Whaling Commission should use simulated hunting conditions to document the riflemen's proficiency using rifles actually employed during whale hunting.
- There must be minimum visibility of 500 yards (457 m) in all directions when it is harpooned (to eliminate problems with the boats entering the 500-yard (457-m) MEZ because of low visibility).
- Where Highway 112 closely parallels the shoreline, the rifleman on the chase boat should fire at a whale with the rifle pointed away from the shoreline if the harpooned whale is within 500 yards (457 m) of the shoreline.
- The diver on the chase boat should be the designated safety officer for the hunt (because the diver does not have another assignment or responsibility until others kill the whale). The diver should be assigned the sole task of monitoring safety conditions within the MEZ to ensure that the rifleman has a clear field of fire.

In 2004, NMFS contracted experts in military firearms training and technological capabilities to review all relevant public safety issues surrounding the conduct of Makah whale hunts, including the information presented in Kline (2001) and Beattie (2001). These experts confirmed the selection of the .50 caliber rifle as the weapon of choice, over the .577 A-Square, because it combines high power with consistently manufactured, commercial grade ammunition (Graves et al. 2004; Graves and Hazelton 2004). Graves et al. (2004) also conducted ricochet and range experiments on still water using similar weapons. They concluded that shots fired below an elevation angle of -6.2° (that is, with the gun pointed downward at the target in the water and below the shooter's horizon by at least 6.2 degrees) will ensure a very low probability of ricochets. Moreover, the probability of a ricochet declines to zero when shots are kept below the

elevation angle, but wave height is greater, because wave changes in the surface geometry vastly reduce the surface area (i.e., wave tops) that can cause ricochets (Graves et al. 2004). Graves et al. (2004) also recommended that all persons near the hunt wear eye and double ear protection (i.e., earplugs and shooting muffs) when firing the rifle. This recommendation might conflict with that of Beattie (2001), which requires the rifleman to communicate verbally with the safety officer.

Explosive Projectiles (grenades)

Explosive projectiles for killing whales may contain either black powder or penthrite. Currently, only darting guns have been modified to accommodate penthrite projectiles. The projectile is aimed at the neck and thoracic regions and kills the whale by damaging internal organs, either with the shock wave of the blast or tearing of tissues and hemorrhage caused by shrapnel (O'Hara et al. 1999). For each type of grenade, whether used with a hand-thrown darting gun or a shoulder gun, the grenades are very similar in shape (Øen 1995).

Black powder grenades are approximately 11.2 inches (28 cm) long and 0.9-inch (.2 cm) in diameter. The black powder in the grenade is a mixture of sulfur, saltpeter, and charcoal (Øen 1995; O'Hara et al. 1999), which explodes when ignited. Alaska Natives have used black powder grenades in hand-thrown darting guns in the bowhead hunt for approximately 150 years (Alaska Eskimo Whaling Commission 2006) and more recently in shoulder guns. The grenade's time-delayed fuse is designed to ignite in the barrel and detonate the grenade after it enters the whale's body. If the gun jams or the projectile detonates prematurely, it can cause a dangerous explosion on the whaling vessel (O'Hara et al. 1999). Øen reported that 18 percent of the black powder grenades malfunctioned (1995) in the 1984 to 1986 bowhead hunting seasons, though he did not describe the nature of the malfunctions. Black powder burns slowly, and less than half converts to gas (North Atlantic Marine Mammal Commission 2004). Black powder is also very sensitive to friction and electricity. Several accidents have occurred during production and the use of black powder. It is now classified as explosive, and storage and sale are entirely banned in some communities (North Atlantic Marine Mammal Commission 2004).

The penthrite grenade uses penthrite as the explosive material. A penthrite grenade consists of a tubular body that holds a charge (the penthrite), has a head with a firing mechanism, and contains safety devices. The time-delayed fuse on the penthrite grenade ignites after the grenade penetrates the whale, in contrast to the black powder grenade, which ignites in the barrel, reducing the risk of an explosion on the whaling vessel (Øen 2000). Numerous other grenade safety features are intended to prevent injury to whalers (Øen 2000). Penthrite combusts nearly instantaneously and

provides substantially larger explosive power than black powder (Øen 2000). Reflecting use of advanced design and materials, a single penthrite projectile currently costs $1,000 (Alaska Eskimo Whaling Commission 2023).

The Alaska Eskimo Whaling Commission Weapons Improvement Program Committee worked with cooperating scientists from Norway on the design, testing, and manufacture of penthrite between 1987 and 1998. The participants' intent was to adapt penthrite grenades used in commercial whaling for use in the darting guns used by Alaska whalers (Alaska Eskimo Whaling Commission 2006). In 2004, the Alaska Eskimo Whaling Commission, working in conjunction with the Norwegian government, developed a safety handbook and training video regarding the function and proper use of the penthrite projectile. Whaling captains must complete training and obtain certification in the use of the penthrite projectile and modified darting gun barrel. The Alaska Eskimo Whaling Commission conducts ongoing trainings for whaling captains and crew members on the safe use of penthrite projectiles through their Weaponse Improvement Program (IWC 2016).

It is uncertain whether penthrite grenades would be readily available for a Makah Tribe gray whale hunt. As noted above, the projectiles are expensive and the new darting guns can also cost approximately $1,000 apiece, not including extremely high shipping costs (IWC 2012h). It is also unclear how easily the Tribe could obtain the grenades; currently the Alaska Eskimo Whaling Commission imports its penthrite projectiles from a Norwegian manufacturer, but is consulting with the U.S. Department of Homeland Security and the Bureau of Alcohol, Tobacco, and Firearms to determine if it is possible to manufacture them domestically (IWC 2012h; Alaska Eskimo Whaling Commission 2023).

Some aboriginal subsistence whalers use shoulder guns to deliver explosive projectiles intended to kill a whale that has already been struck with a harpoon with an attached line and floats. A shoulder gun is generally a smooth bore seven or eight gauge weapon fired from the shoulder like a shotgun. Like a shotgun, it uses gunpowder to launch the projectile at the target. Although Øen (1995) recommended development of a shoulder gun capable of delivering a penthrite grenade, no shoulder guns adapted for this projectile currently exist.

3.16 Human Health

3.16.1 Introduction

The following sections describe health-related issues related to the handling and eating of whales and whale food products.

3.16.2 Regulatory Overview

The Makah Tribal Council has developed a health code in recognition of the need for delivery of comprehensive health services to tribal members and their families. Title I, Policy, states that these codes apply uniformly throughout the Makah Indian Reservation to help tribal members achieve the health status of the general population and to increase effectiveness and efficiency of services offered within the reservation. The Makah Health Code offers a framework for decision-making related to health issues. None of the provisions relates to subsistence use of whales.

3.16.3 Existing Conditions

3.16.3.1 Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods

Historically, whale oil and whale products were important nutritional components of the diet of the Makah Tribe. They also played an important role in the Makah's cultural and spiritual well being (Subsection 3.10.3.5, Contemporary Makah Society, for a description of the Makah Tribe's subsistence consumption). Whale oil, in particular, was widely used, because it did not spoil as quickly as whale meat. Early archaeological studies indicated that as much as 84 percent of the Makah diet was whale meat, oil, and other food products (Huelsbeck 1994). The Makah currently and historically have used the following whale products (Renker 2018): raw blubber, oil rendered from whale blubber, organ meats (e.g., brain, heart), and muscle tissue from all parts of the whale (including around the jaw and under the eye). They use the rich oil for cooking and flavoring foods, as well as for ceremonial purposes (Renker 2018).

The introduction of the western diet (i.e., refined sugar and flour, beef, vegetable oil and lard, etc.) and the reduction in subsistence foods have been linked to poor health in Native American populations (Budowski 1988; Simopoulos 1999; Renker 2018) and also in Alaska Natives (IWC 1979b; Ebbesson et al. 2005a; AMAP 2021). The Makah Tribe, however, continues to consume large quantities of marine fish and shellfish, and this longstanding reliance on marine foods (including whale products) resulted in a diet with a narrow nutritional base. On average, Makah consume 126 pounds (57 kg) per capita per year (5.5 ounces [156 g] per day) of finfish and shellfish (Sepez 2001). Sepez (2001) also calculated that the whale products (blubber and meat) consumed in 1999 equaled about 2.4 pounds (1.1 kg) per capita and that an additional amount was consumed at the community potlatch. For comparison, Renker (2018) calculated that harvesting an average of five gray whales per year would yield 8 to 20 pounds (4 to 9 kg) of meat per Makah and 16 to 20 pounds (7 to 20 kg) of oil or blubber per Makah (and a somewhat smaller amount of whale oil after rendering).

General nutritional components of whale meat[82] and other protein sources are compared in Table 3-46. Nutritional data are from the United States Department of Agriculture National Nutrient Database for Standard Reference (U.S.Department of Agriculture 2019). With the exception of whale oil and blubber, whale products have a similar nutritional profile (e.g., calories, protein, fat, and calcium) as other finfish, shellfish, wild game, and domestic meats. Whale oils and blubber provide a richer source of energy (calories) than other food types listed in Table 3-46, and whale meat has higher levels of iron. Whale oil is a good source of vitamin E (an antioxidant) and whale meat is a good source of selenium, both of which may play a role in protecting against the toxicity of certain seafood contaminants like mercury (Arnold and Middaugh 2004; AMAP 2021). Overall, however, it is difficult to compare essential nutrients and minerals of whale products directly to other protein sources because the former have not been studied extensively.

In addition to providing protein and energy, marine foods also contain essential vitamins, minerals, and lipids. Essential lipids include polyunsaturated fatty acids, which are important components of both whale and fish oils and are high in omega-3 polyunsaturated fatty acids (e.g., alpha-linolenic acid, eicosapentaenoic acid, docosapentaenoic acid, and docosahexenoic acid). These essential fatty acids improve or prevent symptoms associated with coronary heart disease, hypertension, Type 2 diabetes, kidney disease, rheumatoid arthritis, Crohn's disease, and chronic obstructive pulmonary disease (Budowski 1988; Simopoulos 1999; Simopoulos 2002; Holub and Holub 2004; Ebbesson et al. 2005a; Ebbesson et al. 2005b; Ebbesson et al. 2005c; Reynolds et al. 2006).

The human body does not naturally produce essential polyunsaturated fatty acids, so they must come from food consumed. Polyunsaturated fatty acids exist in a variety of food sources, including fish oils, vegetable oils (e.g., soybean), nuts, and meat from terrestrial or marine mammals (e.g., whales), and vitamin supplements (National Academy of Sciences 2005).

Studies of subsistence populations that consume higher quantities of seafood than the general United States population, and consequently ingest higher levels of omega-3 fatty acids, suggest that these populations have lower rates of heart disease than the general population (Dewailly et al. 2001; McLaughlin et al. 2005). For example, McLaughlin et al. (2005) found that

[82] Whale food products' nutritional information shown in Table 3-46 includes data for bowhead and minke whales (both baleen whales like the gray whale) and beluga (a toothed whale distinct from baleen whales).

Alaska Natives with high dietary intake of polyunsaturated fatty acids (evidenced by higher tissue levels of polyunsaturated fatty acids) had lower heart disease mortality than non-natives.

Ebbesson et al. (2005b) measured fatty acid concentrations in Norton Sound (Alaska) Eskimos and screened for insulin resistance and diabetes. Findings indicated that high consumption of omega-3 fatty acids positively affected insulin sensitivity and glucose tolerance. Osterud et al. (1995) studied healthy men and women given supplements of oils (15 milliliters [mL]/day) from the blubber of seal, cod liver, and Minke whale for 10 weeks. Supplementation of the diet, especially with whale oil, had beneficial effects on biological measures associated with cardiovascular and thrombotic diseases.

Reynolds et al. (2006) reported on the high levels of omega-3 fatty acids in bowhead whale blubber consumed by Alaska Natives. The high levels of omega-3 fatty acids in the blubber and other marine mammal food products confer considerable health benefits on subsistence consumers and are important in the treatment or prevention of insulin resistance, diabetes, elevated blood pressure, cardiovascular disease, arthritis, and stroke (Reynolds et al. 2006).

Seafood diets containing essential polyunsaturated fatty acids are also beneficial for women at risk for hypertension during pregnancy (Popeski et al. 1991) and may prolong gestation and increase birth weight (Olsen et al. 1993; Grandjean et al. 2001). There was, however, a limit to the observed positive effects on birth weight, as researchers did not find increased weights at higher intake levels (greater than three fish meals per week) of essential fatty acids (Olsen et al. 1993; Grandjean et al. 2001). The National Academy of Sciences (2013) recommends dietary intake of polyunsaturated fatty acids (i.e., alpha-linolenic acids) at 0.5 grams/day (infants), 0.7 to 0.9 grams/day (children), and 1.0 to 1.6 grams/day (adults).

Table 3-46. U.S. Department of Agriculture (USDA) nutritional values for selected food types.

Food Type	Energy (calories /100g)	Protein (g/100g)	Calcium (mg/100g)	Iron (mg/100g)	Selenium (µg/100g)	Vitamin A (IU/100g)	Vitamin E (mg/100g)	Vitamin B6 (mg/100g)	Vitamin B12 (µg/100g)	Total Fat (g/100g)	Total Saturated Fat (g/100g)	Total Mono-unsaturated Fat (g/100g)	Total Poly-unsaturated Fat (g/100g)
Whale													
Beluga meat, raw	111	26.5	7	25.9	36.5	340	n/a	0.05	2.59	0.5	0.092	0.337	0.025
Beluga oil	900	0	0	0	3.0	2310	8.27	n/a	0	100	14.49	54.19	10.8
Beluga eyes	291	19.6	n/a	n/a	n/a	1870	n/a	n/a	n/a	23.3	n/a	n/a	n/a
Beluga flipper, raw	271	19.0	11	2.8	n/a	930	n/a	n/a	n/a	21.7	n/a	n/a	n/a
Beluga liver, raw	117	18.4	11	n/a	n/a	22100	n/a	n/a	n/a	3.9	n/a	n/a	n/a
Bowhead skin and subcutaneous fat [1]	465	12.6	5	n/a	n/a	750	n/a	n/a	n/a	46.1	6.56	28.12	7.97
Bowhead meat [2]	n/a	26.2 [2]	n/a	14.1 [2]	n/a	330 [2]	n/a	n/a	n/a	2.6 [2]	n/a	n/a	n/a
Bowhead oil	900	0	0	0	n/a	2810	n/a	n/a	n/a	100	n/a	n/a	n/a
Bowhead blubber	870	0.4	n/a	0.5	n/a	n/a	n/a	n/a	n/a	96.5	n/a	n/a	n/a
Minke skin and subcutaneous fat, raw [1]	n/a	n/a	n/a	n/a	6.28[4]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Minke lean meat [3]	116	24.8	4.1	8.54	0.21[4]	n/a	n/a	n/a	n/a	1.2	18.5	49.2	21
Fish and Shellfish													
Salmon, Chinook, raw	179	19.9	26	0.3	36.5	453	1.22	0.4	1.3	10.4	3.1	4.4	2.8

Food Type	Energy (calories /100g)	Protein (g/100g)	Calcium (mg/100g)	Iron (mg/100g)	Selenium (µg/100g)	Vitamin A (IU/100g)	Vitamin E (mg/100g)	Vitamin B6 (mg/100g)	Vitamin B12 (µg/100g)	Total Fat (g/100g)	Total Saturated Fat (g/100g)	Total Mono-unsaturated Fat (g/100g)	Total Poly-unsaturated Fat (g/100g)
Salmon, coho, wild, raw	146	21.6	36	0.6	36.5	135	0.73	0.55	4.17	5.9	1.26	2.13	1.99
Salmon, sockeye, raw	131	22.3	9	0.4	29.8	193	0.95	0.73	4.69	4.7	1.18	1.86	1.95
Halibut, raw	116	20.5	20	0.3	51.1	157	1.9	0.39	1.78	2.9	0.73	1.20	0.91
Crab, Dungeness, raw	86	17.4	46	0.4	37.1	90	n/a	0.15	9.0	1.0	0.12	0.17	0.32
Wild Game													
Elk, meat, raw	111	23.0	4	2.8	9.8	0	n/a	n/a	n/a	1.5	0.53	0.36	0.30
Deer, meat, raw	120	23.0	5	3.4	9.7	0	0.2	0.37	6.31	2.4	0.95	0.67	0.47
Domestic Meat													
Beef, composite of trimmed retail cuts, trimmed to 1/2-inch fat, prime, raw	265	18.7	7	1.8	18.7	0	n/a	0.39	2.84	20.5	18.37	8.87	0.76
Chicken, breast, meat and skin, raw	172	20.9	11	0.7	16.6	83	0.31	0.53	0.34	9.3	2.66	3.82	1.96

n/a = Data are not available.

[1] This type of tissue is referred to by several different names (population specific), including maktak, muktuk or mattak. (g) = grams, (mg) = milligrams, (ug) = micrograms, (IU) = international units

Sources: U.S. Department of Agriculture National Nutrient Database https://data.nal.usda.gov/dataset/usda-national-nutrient-database-standard-reference-legacy-release (Haytowitz et al. 2019) [2] IWC 1979b; [3] Suzuki 1993; [4] Hansen et al. 1990.

In summary, the many benefits associated with consuming marine seafood products, including whale, are well documented in the scientific literature. Marine mammal food products are rich with many of the same nutrients found in commonly consumed seafood products (fish and shellfish), and, in the case of some minerals and vitamins, marine mammal products provide an even richer source.

3.16.3.2 Environmental Contaminants in Gray Whales

While there is documented evidence of the beneficial effects of the nutrients in marine foods, persistent and potentially toxic chemicals also occur and are documented in the diets of native subsistence populations (Verbrugge and Middaugh 2004; Arnold and Middaugh 2004; Chukmasov et al. 2019). In considering the type and amount of chemicals the Makah could ingest by consuming whale products, their continuing exposure to these contaminants is also a result of their ongoing, high consumption of other seafood products, including finfish and shellfish. Numerous researchers have documented concentrations of organic and inorganic contaminants in the tissues (blubber, muscle, organs, etc.) of the gray whales proposed for hunting by the Makah (Varanasi et al. 1994; Jarman et al. 1996; Krahn et al. 2001; Mendez et al. 2002; Ruelas-Inzunza and Paez-Osuna 2002; Tilbury et al. 2002; Ruelas-Inzunza et al. 2003; Dehn et al. 2006a; Dehn et al. 2006b; Dudarev et al. 2019; Hayes et al. 2022).

Whale habitat and migration patterns should be considered when evaluating contaminant concentrations because these factors may affect the magnitude of contaminant concentrations (Houde et al. 2005). The concentration of contaminants in whale tissues will also vary based on the feeding habits of the whale (Houde et al. 2005) and whether the whale is freshly killed or stranded. Gray whales targeted by the Makah filter their food using the bony baleen plates located in their mouths (Vaughn 1978). Typically, this food consists of plankton and other micro- and macrofauna (Vaughn 1978). The levels of contaminants it contains are often lower because of the lesser position of these fauna in the overall marine food chain. Therefore, data on contaminant concentrations in whales that use other feeding strategies, such as toothed whales feeding on larger, older fish that accumulate greater levels of chemicals, are not presented here because they have less relevance to the types of whale (or associated contaminant levels) that are hunted by the Makah (i.e., gray whales). Distinctions are made between contaminant levels in freshly harvested versus stranded whales, because they are often lower in freshly harvested whales than in stranded whales (Rugh et al. 1999; Krahn et al. 2001).

As previously discussed, the Makah Tribe historically consumed large quantities of whale meat and blubber and, to a lesser extent, other portions of the whale (Renker 2018). In the past decade, the

Makah have consumed much smaller quantities of whale products (i.e., on a total biomass basis) compared with historical times. The animals consumed include both stranded as well as one freshly harvested animal following the 1999 hunt (Subsection 3.16.3.1, Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods).

The remainder of this section focuses on describing chemical concentrations measured in whale meat (muscle) and blubber because these are the parts of the whale that are most often consumed. Renker (2018) estimated that harvesting an average of five gray whales per year could yield 24 to 40 pounds (11 to 18 kg) of meat and blubber per Makah. A summary of contaminant concentrations in gray whale blubber and muscle tissue is presented in Table 3-47. Organic compounds (e.g., PCBs, pesticides, and dioxins) are associated predominantly with whale blubber because these compounds are lipophilic (i.e., easily dissolved in lipids or fat). Mean blubber concentrations of chlordanes, DDTs, dieldrin, hexachlorobenzene, mirex, and PCBs in gray whales collected during subsistence hunts (Russian) in the Bering Sea in 1994 (Krahn et al. 2001) (Table 3-47) were 150, 150, 77, 230, 1.6, and 630 micrograms per kilogram (µg/kg) wet weight, respectively. These concentrations tended to be two to three times lower than those measured in stranded gray whales collected over the 1990s in Washington (Table 3-47), indicating that contaminant concentrations may be higher in diseased or aged whales, or in animals in poor nutritional health, that may strand in the Puget Sound region (Table 3-47). Ylitalo (2008) found that elevated concentrations of organochlorine contaminants in the tissues of stranded juvenile gray whales were most likely a result of retention of these chemicals in blubber of the stranded animals as lipid stores were depleted for energy use rather than from a difference in diet or feeding areas. Concentrations of PCBs (1,200 µg/kg wet weight) and DDTs (520 µg/kg wet weight) in blubber of the whale harvested by the Makah Tribe in 1999 were, however, higher than the mean levels reported in stranded gray whales or in those hunted in the Bering Sea (Ylitalo et al. 1999). More recent biopsy samples were collected from gray whales in Mexican breeding lagoons and along the coast of California from 2003-2017 and Hayes et al. (2022) reported mean contaminant concentrations comparable to or lower than levels previously reported (Varanasi et al. 1994, Ylitalo et al. 1999, Krahn et al. 2001, Tilbury et al. 2002). For example, the mean concentrations of ΣPCBs measured in the 2003-2017 biopsied whales (190 µg/kg wet weight) was comparable to or lower than the levels in blubber of most other gray whale groups (Table 3-47). The study was also the first to document and quantify PBDEs and select hexachlorocyclohexanes (HCHs) in gray whales (see Table 3-47).

Concentrations of persistent organic pollutants (POPs) in whale blubber typically were higher or comparable to those in other tissues (e.g., muscle, liver, kidney, or brain) (Krahn et al. 2001). Concentrations of DDTs, hexachlorobenzene, and PCBs measured in biopsy blubber samples using a dart collection method on live whales from Washington State, California State, and Mexico waters tended to be lower than those measured from subsistence or stranded samples (Table 3-47). Jarman et al. (1996) found mostly non-detected concentrations (less than 0.002 µg/kg wet weight) of dioxins in two gray whales that stranded off of California. The concentrations of certain classes of POPs in gray whales typically are lower than in other whale species (Varanasi et al. 1994; Jarman et al. 1996; Krahn et al. 2001; Tilbury et al. 2002; Fossi et al. 2012). However, concentrations for some of these contaminants in whale blubber can be quite high, resulting in quite low "allowable consumption rates." For example, the unweighted average PCB concentration for the 13 sets of gray whale blubber samples in Table 3-47 is 386 µg/kg. While the Washington State Department of Health has not developed screening levels for gray whale blubber[83], this value - combined with the estimated per capita blubber consumption rates in the Tribe's needs statement (approximately 20-25 grams/day; Renker 2018 and other values applied by the Washington Department of Health (e.g., an 8-oz [227-gram] meal size) - yields a calculated "allowable consumption rate" of 0.49 meals of blubber per month. This level would likely result in a 'no consumption' recommendation by the Washington State Department of Health (rounded to 0 meals per month). One of the lower PCB concentrations observed in gray whale blubber (87 µg/kg) would yield an allowable consumption rate of 2 meals of blubber per month and a recommended maximum of two 8-oz (227 gram) meals per month (E. Christie, Washington State Department of Health, pers. comm., March 22, 2023)[84]. While the number of blubber samples is not large and it is possible that PCB concentrations may vary by the area/depth of blubber sampled on each animal, these are the best data available for our analysis.

[83] A screening level is defined by the Washington State Department of Health (2012b) as the concentration of a particular chemical that is of potential public health concern; it is a threshold value against which tissue residue levels of the contaminant can be compared. In determining screening levels for fish flesh, the Washington State Department of Health uses a "general screening level" which reflects the risks borne by the general population as a result of consuming contaminated fish, and a "subsistence screening level" which accounts for the greater risk (i.e., relatively higher body burdens of bioaccumulative contaminants) incurred by subsistence fishers that rely on noncommercial caught fish and shellfish as a major source of protein in their diets.

[84] Allowable consumption rates are simplified by rounding the calculated value to the whole number closest to 0, 1, 2, 4, or 8 meals per month. These conclusions are based on calculations using non-cancer endpoints; calculations based on cancer endpoints would be more restrictive and yield lower recommended consumption rates. The Washington State Department of Health's current practice is to develop health advisories for fish flesh based on non-cancer endpoints.

Few measurements of metal concentrations are available for blubber or muscle of gray whales, and those available are from stranded whales (Mendez et al. 2002; Ruelas-Inzunza and Paez-Osuna 2002; Rueles-Inzunza et al. 2003) or landed whales (Litkova at al. 2020). Metal concentrations typically are higher in muscle tissue compared to whale blubber (Table 3-48). Mean concentrations (in µg/kg dry weight) of metals in muscle tissue from various studies range from 0.4 to 0.86 cadmium, 3.1 to 4.1 copper, 305 to 1,009 iron, 0.6 to 1.11 lead, 0.33 to 0.8 manganese, 0.145 mercury, 1.39 nickel, and 120 to 279 zinc. Methyl mercury composed approximately 75 percent of the total mercury measured in gray whale muscle (Ruelas-Inzunza et al. 2003). Metal concentrations typically were higher in liver and kidney tissues than in muscle or blubber tissues (Mendez et al. 2002; Ruelas-Inzunza and Paez-Osuna 2002; Ruelas-Inzunza et al. 2003; Litkova et al. 2020). Metal concentrations were not reported for the whale the Makah Tribe harvested in 1999.

Since 1998, Chukotka Natives have been reporting a number of hunted whales from the Bering Sea that exhibit a strong medicinal odor, referred to as the 'stinky whale' phenomenon (IWC 2007b). From 2001 through 2017, a total of 37 stinky whales were reported by Chukotka Natives. The average annual catch by Chukotka Natives during that period was 124 animals per year (IWC 2023b). Tissues from these whales have been deemed inedible by hunters. In some cases, people who have tasted the blubber or meat have reported symptoms of numbness of the oral cavity, skin rashes, or stomach aches. Toxicologists have recommended that such whales be considered unfit for human consumption (Ilyashenko 2008).

No known cause has been found, but research is ongoing to determine whether the smells are caused by chemical contaminants, disease, or other factors. Analyses of tissue samples from whales taken in Russian aboriginal hunts found that the concentrations of organochlorines, polyaromatic hydrocarbons, trace elements, and stable isotopes in the tissue of stinky whales fell within the ranges of the concentrations of those substances in non-stinky whales (Rowles and Ilyashenko 2008). In contrast, the concentrations of ketones, aldehydes, and some alcohols in tissue samples from stinky whales were higher compared to samples from non-stinky whales. Some of the compounds may have been lost or changed in concentration because of the repeated freezing and thawing of the samples prior to analysis or other aspects of sample handling (Rowles and Ilyashenko 2008). Another study of necropsied gray whales landed by Chukotka Natives from 2008-2019 reported that lead and cadmium levels exceeded "maximum permissible levels" in the liver and kidneys of stinky whales (Litkova et al. 2020). In a study of gray whales in their winter range, Gulland et al. (2008) found elevated levels of ketones, aldehydes, and alkenes in breath samples collected from adult females with calves. Those results were interpreted as indicating

malnourishment in the animals sampled. Using the preliminary tissue sample analysis results and assuming that the detected compounds are responsible for the stinky condition noted in living whales, scientists developed two hypotheses to potentially explain the presence of high concentrations of various compounds in stinky whale tissues. One possible explanation is that the odor is related to diet. For example, all stinky whales that have been landed had seaweed in their stomachs. This may indicate a mechanism mediated through the digestion of seaweed or other organisms attached to the seaweed (Ilyashenko 2008). It has also been observed that some stinky whales had recently consumed arctic cod, which is unusual for gray whales. Notably, these items have not been observed in the stomachs of non-stinky whales or in stranded gray whales along the U.S. coast (Rowles and Ilyashenko 2008). An alternative explanation is that certain bacteria, fungi, and/or biotoxins may contribute to elevated levels of odiferous compounds found in these whales (Ilyashenko 2008). Based on their analysis of tissues gathered from 2005 through 2011, Polyakova et al. (2012) suggested that the most likely source of the odor was petroleum hydrocarbon contaminants in waters used by gray whales. Using new techniques of solid phase microextraction with headspace gas chromatography- mass spectrometry, Polyakova et al. (2023) concluded that levels of naturally occurring bromophenols were the principal compound responsible for stinky whales. While asserting that the mystery was solved, they noted that questions about the levels of bromophenols in polychaete prey, environmental factors, and potential physiological differences in stinky whales remain (Polyakova et al. 2023).

Table 3-47. Concentrations of organic compounds measured in freshly harvested and stranded gray whale tissues.

Organic Compound	Concentration in Blubber (µg/kg-ww)[1]	Concentration in Muscle (µg/kg-ww)[1]	Comment	Reference
Chlordane	150 ± 21	1± 0.2	Tissue from subsistence hunts (Russian Bering Sea 1994)	Krahn et al. 2001; Tilbury et al. 2002; Varanasi et al. 1994; Ylitalo, G., Northwest Fisheries Science Center, pers. comm/unpublished data, July 18, 2014) ; Ylitalo et al. 2018 ; Dudarev et al. 2019 ; Hayes et al. 2022
	340 ± 120	NA	Tissue collected from stranded whales (1988 to 1991)	
	11 ± 9.3	NA	Tissue biopsies from live whales in AK (2010)	
	24 ± 15	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	58 ± 30	NA	Tissue biopsies from live whales in CA (2010)	
	30 ± 24	NA	Tissue biopsies from live whales in Mexico and CA (2011 to 2017)	
	71.75	NA	Tissues collected Chukotka Providensky district (2016)	
	90 ± 7.0		Tissue biopsies from live whales in Mexico, CA, OR, WA, and Canada (2003-2017)	
DDTs	130 ± 26	NA	Tissue biopsies from live whales in WA State (1996 to 1998)	Krahn et al. 2001; Tilbury et al. 2002; Varanasi et al. 1994; Ylitalo et al. 1999 ; Calambokidis and Huggins 2008; Ylitalo, G., Northwest Fisheries Science Center, pers. comm/unpublished data, July 18, 2014) ; Ylitalo et al. 2018 ; Dudarev et al. 2019 ; Hayes et al. 2022
	150 ± 32	1± 0.2	Tissue from subsistence hunts (Russian Bering Sea 1994)	
	450 ± 140	NA	Tissue collected from stranded whales (1988 to 1991)	
	240 ± 44	NA	Tissue collected from stranded whales (1999)	
	520	3.2	Tissue from the Makah whale hunt (1999)	
	90	NA	Tissue collected from stranded whales (Central Puget Sound 2004 to 2007)	
	299	NA	Tissue collected from stranded whales and live whale biopsies (Northern Puget Sound 2004 to 2007)	
	191	NA	Tissue collected from stranded whales (Outer WA/OR coast 2004 to 2007)	
	16 ± 11	NA	Tissue biopsies from live whales in AK (2010)	
	100 ± 65	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	410 ± 260	NA	Tissue biopsies from live whales in CA (2010)	
	110 ± 150	NA	Tissue biopsies from live whales in Mexico and CA (2011 to 2017)	
	71.75	NA	Tissues collected Chukotka Providensky district (2016)	
	220 ± 30	NA	Tissue biopsies from live whales in Mexico, CA, OR, WA, and Canada (2003-2017)	
Dieldrin	77 ± 14	NA	Tissue from subsistence hunts (Russian Bering Sea 1994)	Krahn et al. 2001; Varanasi et al. 1994 ; Ylitalo, G., Northwest Fisheries Science Center, pers. comm/unpublished data, July 18, 2014) ; Ylitalo et al. 2018
	160 ± 72	NA	Tissue collected from stranded whales (1988 to 1991)	
	2.1 ± 3.1	NA	Tissue biopsies from live whales in AK (2010)	
	5.2 ± 4.2	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	10 ± 5.1	NA	Tissue biopsies from live whales in CA (2010)	

Organic Compound	Concentration in Blubber (µg/kg-ww)[1]	Concentration in Muscle (µg/kg-ww)[1]	Comment	Reference
	9.1 ± 6.5	NA	Tissue biopsies from live whales in Mexico and CA (2011 to 2017)	
Hexachlorobenzene	100 ± 41	NA	Tissue biopsies from live whales in WA State (1996 to 1998)	Krahn et al. 2001; Tilbury et al. 2002; Varanasi et al. 1994; Ylitalo, G., Northwest Fisheries Science Center, pers. comm/unpublished data, July 18, 2014) ; Ylitalo et al. 2018
	230 ± 32	2 ± 1	Tissue from subsistence hunts (Russian Bering Sea 1994)	
	350 ± 130	NA	Tissue collected from stranded whales (1988 to 1991)	
	510 ± 130	NA	Tissue collected from stranded whales (1999)	
	11 ± 9.5	NA	Tissue biopsies from live whales in AK (2010)	
	13 ± 14	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	21 ± 10	NA	Tissue biopsies from live whales in CA (2010)	
	29 ± 30	NA	Tissue biopsies from live whales in Mexico and CA (2011 to 2017)	
Mirex	1.6 ± 0.2	NA	Tissue from subsistence hunts (Russian Bering Sea 1994)	Krahn et al. 2001; Varanasi et al. 1994 ; Dudarev et al. 2019
	14 ± 4.6	NA	Tissue collected from stranded whales (1988 to 1991)	
	0.2 ± 0.4	NA	Tissue biopsies from live whales in AK (2010)	
	0.3 ± 0.4	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	1.1 ± 0.2	NA	Tissue biopsies from live whales in CA (2010)	
	<0.1	NA	Tissues collected Chukotka Providensky district (2016)	
PCBs	220 ± 42	NA	Tissue biopsies from live whales in WA State (1996 to 1998)	Krahn et al. 2001; Tilbury et al. 2002; Varanasi et al. 1994; Ylitalo et al. 1999; Calambokidis and Huggins 2008; Ylitalo, G., Northwest Fisheries Science Center, pers. comm/unpublished data, July 18, 2014) ; Ylitalo et al. 2018 ; Dudarev et al. 2019 ; Hayes et al. 2022
	630 ± 82	9 ± 2	Tissue from subsistence hunts (Russian Bering Sea 1994)	
	970 ± 240	NA	Tissue collected from stranded whales (1988 to 1991)	
	600 ± 130	NA	Tissue collected from stranded whales (1999)	
	1200	12	Tissue from the Makah whale hunt (1999)	
	137	NA	Tissue collected from stranded whales (Central Puget Sound 2004 to 2007)	
	415	NA	Tissue collected from stranded whales and live whale biopsies (Northern Puget Sound 2004 to 2007)	
	246	NA	Tissue collected from stranded whales (Outer WA/OR coast 2004 to 2007)	
	39 ± 24	NA	Tissue biopsies from live whales in AK (2010)	
	110 ± 70	NA	Tissue biopsies from live whales in BC/WA/OR (2010)	
	270 ± 140	NA	Tissue biopsies from live whales in CA (2010)	
	87 ± 78	NA	Tissue biopsies from live whales in Mexico and CA (2011 to 2017)	
	92.20 (PCB15)	NA	Tissues collected Chukotka Providensky district (2016))	
	190 ± 20		Tissue biopsies from live whales in Mexico, CA, OR, WA, and Canada (2003-2017)	
PCDDs/PCDFs	<0.002	NA	Concentrations measured in tissue (1987 to 1988)	Jarman et al. 1996

Organic Compound	Concentration in Blubber (µg/kg-ww)[1]	Concentration in Muscle (µg/kg-ww)[1]	Comment	Reference
2,3,7,8-TCDD 2,3,7,8-TCDF	<0.002 – 0.003	NA	Concentrations measured in tissue (1987 to 1988)	
HCHs	70 ± 5.0		Tissue biopsies from live whales in Mexico, CA, OR, WA, and Canada (2003-2017)	Hayes et al. 2022
PBDEs	30 ± 5.0		Tissue biopsies from live whales in Mexico, CA, OR, WA, and Canada (2003-2017)	Hayes et al. 2022

[1] Values represent the mean ± the standard error of the mean µg/kg – micrograms per kilogram.

ww wet weight
NA Not Available
DDT Dichloro-Diphenyl-Trichloroethane
PCB Polychlorinated Biphenyl
PCDD Polychlorinated Dibenzodioxin
PCDF Polychlorinated Dibenzofuran
TCDD Tetrachlorodibenzodioxin
TCDF Tetrachlorodibenzofuran

Source: see reference column.

Table 3-48. Concentrations of metal/metalloid(s) measured in freshly harvested and stranded gray whale tissues.

Metal/Metalloid	Concentration in Blubber (ug/kg-dw)[1]	Concentration in Muscle (ug/kg-dw)[1]	Comment	Reference
Cadmium	0.16	0.86 ± 1.05	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	0.4 ± 0.2	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
	NA	0.02 + 0.002	Tissue collected from harvested whales (2001)	Dehn et al. 2006
Copper	1.72 ± 0.90	3.10 ± 1.65	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	4.1 ± 1.7	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
	NA	3.17 ± 0.62	Tissue collected from harvested whales (2001)	Dehn et al. 2006
Iron	28.9 ± 14.7	305 ± 217	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	1009 ± 802	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
Lead	1.06 ± 0.73	1.11 ± 0.69	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	0.6 ± 0.4	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
Manganese	0.44 ± 0.13	0.33 ± 0.22	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	0.8 ± 0.1	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
Mercury	NA	0.145 ± 0.082	Tissue collected from stranded whales (1999)	Ruelas-Inzunza et al. 2003
	NA	0.02 ± 0.002	Tissue collected from harvested whales (2001)	Dehn et al. 2006
Methyl mercury	NA	0.109 ± 0.040	Tissue collected from stranded whales (1999)	Ruelas-Inzunza et al. 2003
Nickel	1.10 ± 0.60	1.39 ± 0.79	Tissue collected from stranded whales (1999)	Mendez et al. 2002
Selenium	NA	0.19 ± 0.01	Tissue collected from harvested whales (2001)	Dehn et al. 2006
Silver	NA	0.004 ± 0.0001	Tissue collected from harvested whales (2001)	Dehn et al. 2006
Zinc	16.0 ± 4.89	120 ± 34.4	Tissue collected from stranded whales (1999)	Mendez et al. 2002
	NA	279 ± 104	Tissue collected from stranded whales (1999)	Ruelas-Inzunza and Paez-Osuna 2002
	NA	39.47 ± 4.53	Tissue collected from harvested whales (2001)	Dehn et al. 2006

[1] Values represent the mean ± the standard error of the mean; dw = dry weight; µg/kg = micrograms per kilogram; mg/kg = milligrams per kilogram; NA = Not Available.
Source: see reference column.

3.16.3.3 Exposure to Food-Borne Pathogens

Millions of cases of food-borne illness occur each year in the United States, and causes include consumption of subsistence products (Himelbloom 1998; Fagan et al. 2011). Humans can be exposed to several types of pathogenic bacteria (e.g., *Clostridium botulinum*) during the harvesting, processing, preparation, and consumption of marine foods (e.g., fish, shellfish, or whale meat). A review of gray whale health identified a variety of infectious diseases, bacteria, fungi, protozoa, and parasites found in gray whale tissues, some of which present risks for human health (Stimmelmayr and Gulland 2020). There are reports of food-borne illness in Alaska Native subsistence communities where residents frequently consume whale meat and blubber (e.g., cases of botulism and salmonellosis in Alaska Natives consuming hunted or drift whales) (Bender et al. 1972; Shaffer et al. 1990; McLaughlin et al. 2004; Sobel et al. 2004; Fagan et al. 2011). Fagan et al. (2011) reported that the incidence of food-borne botulism in Alaska was greater than 800 times the overall U.S. rate and that nearly 14 percent of 141 food-borne botulism outbreaks in Alaska during 1947 to 2007 were associated with whale fluke, skin, or blubber. They also cited evidence that increasing botulism incidence among Alaska Natives during the 1970s and 1980s was associated with a change from traditional preservation of uncooked aquatic game foods in cool earthen pits to above-ground storage in synthetic containers. From 1990 to 2000, Sobel et al. (2004) reported on 58 botulism events that occurred in Alaska, with 103 persons affected. In 49 of these events, the contaminated food was identified as homemade Alaska Native foods consisting of fermented aquatic animal tissues, including whale skin or blubber (Sobel et al. 2004). Other potential foodborne pathogens related to parasites and bacteria include *Trichinella spp., Toxoplasma gondii, Salmonella and Leptospira spp.* (Tryland et al. 2014). The most common forms of food-borne pathogens identified when subsistence populations consume improperly cooked or handled food products (not just gray whale products) are characterized in Table 3-49. Like other subsistence cultures, the harvesting and consumption of ill-prepared or improperly stored gray whale products represent a potential pathway for exposure of the Makah Tribe to food-borne pathogens.

During butchering and subsequent handling, zoonotic infections can be passed from whale to human. Seal finger, or “Spekk finger,” is an infection passed through cuts and scratches from exposure to whale and seal tissues (Cawthorn 1997). Seal finger attacks the lymph system near the exposure site and nearest finger joints resulting in painful, thickened contracted joints (State of Alaska Epidemiology 1983). Other infections that have been reported from handling marine mammals include tuberculosis, leptospirosis, and brucellosis (Marine Mammal Commission et al. 2009).

Table 3-49. Characteristics of food-borne pathogens[1].

Pathogen	Source	Preferred Environment	Symptoms
Clostridium botulinum	Soil and aquatic environments	Temperature range: 38 to 122 °F (3.3 to 50 °C) pH range 4.6 to 9.0 Salt tolerance: 5 to 10 percent Oxygen: Strict anaerobe[2]	Symptoms are double vision, paralysis, dizziness, difficulty swallowing, speaking, and breathing. Symptoms occur 12 to 72 hours after ingestion.
Enteropathogenic bacteria (Salmonella, Shigella, Escherichia coli, Yersinia, and Campylobacter)	Human and animal intestines, feces	Temperature range: 41 to 117 °F (5 to 47 °C) pH range: 4.5 to 9.0 Salt tolerance: 1 to 3 percent Oxygen: Facultative anaerobe[3]	Symptoms are diarrhea, abdominal pain, fever, nausea, dehydration, urinary tract infection, kidney failure. Symptoms occur 6 to 48 hours after ingestion.
Listeria monocytogenes	Humans, animals, vegetation	Temperature range: 36 to 111 °F (2.5 to 44 °C) pH range: 5.0 to 9.5 Salt tolerance: 10 to 30 percent Oxygen: Facultative anaerobe	Symptoms are flu-like, diarrhea, mild fever, stillbirth or spontaneous abortion. Symptoms occur 1 day to weeks after ingestion.
Staphylococcus aureus	Humans and animals	Temperature range: 50 to 113 °F (10 to 45 °C) pH range: 4.5 to 9.3 Salt tolerance: 10 to 20 percent Oxygen: Facultative anaerobe	Symptoms are vomiting, diarrhea, no fever. Symptoms occur 1 to 8 hours after ingestion.

[1] The food-borne pathogens in Table 3-49 are provided for general information and do not imply that gray whale products contain all of these pathogenic organisms.

[2] Strict anaerobes are bacteria that grow under anaerobic conditions (without oxygen), use anaerobic respiration, and are poisoned by oxygen.

[3] Facultative anaerobes are bacteria capable of growing under either aerobic (with oxygen) or anaerobic conditions.

Source: Himelbloom (1998).

The Makah Tribe hunted and harvested a gray whale in 1999. In the following account, Renker (2018) describes the processing of the whale caught in 1999. The account illustrates some potential health-related issues.

> . . . Some 1,400 Makahs welcomed the whale to Front Beach in Neah Bay, and paid honor to the great creature. Many Makahs ate raw blubber right on the spot, and then began the task of preparing the food and resources that the whale contributed to the Makah people.
>
> Butchering the whale proved a huge task for the Makah people. Lack of familiarity with gray whale anatomy, tools poorly adapted for gray whale meat and blubber, and logistical issues presented immediate obstacles for the butchering process which began on Front Beach. Some confusion also centered on whale parts other than meat and blubber. Most

importantly, Makah were able to overcome these problems and continue with the job of processing the whale.

In a matter of hours, a flatbed truck had taken what was left of the whale and driven to the Makah Tribe's fish plant, a processing plant with 800 cubic feet (22.7 cubic m) of freezer space and a service entrance large enough to allow the flatbed to drive inside. Within 24 hours, Front Beach showed no sign of the momentous event which had happened the previous day. The Makah butchering crew, which included Makahs who had traveled to Alaska to learn the processing techniques, had some assistance from an Alaska Native. Many people worked to butcher the parts of the whale which had not been distributed to Tribal members on the night of 17 May. In addition to meat and blubber, Makahs interviewed during the Makah Household Survey reported requesting and receiving whale lice, sinew, baleen, brain, and heart. Other Makahs reported that they would have liked to receive liver, cheeks, eyes, and intestines. Some of these items, like whale lice and baleen, are primarily used for ceremonial reasons, while others can be used in tool production or as food. The bulk of the food products derived from the whale were reserved for the Tribe's celebratory feast, which was to be held on 22 May.

In private homes, people welcomed whale meat, blubber, and other whale parts. Between 17 May and 22 May, some households began to use recipes held in family confidence for decades, and others experimented with techniques used for other sea creatures, like seals and fish.

In summary, pathogenic organisms can and do occur in marine mammals and associated food products, including seals, walrus, dolphins, and whales. Illness has been reported in those who eat or handle these animals and food products, though they typically come from consuming either stranded or drift animals, or they result from improper preparation of traditional food products.

3.17 National and International Regulatory Environment

3.17.1 Introduction

The following sections describe national conditions related to the harvest of marine mammals and international conditions related to the harvest of whales.

In the United States, take of marine mammals is prohibited, with certain exceptions and exemptions (Subsection 1.2.3.2 Section 101(a) – Take Moratorium). Harvest of whales is prohibited by WCA regulations, except for ASW authorized by paragraph 13 of the IWC

Schedule (50 CFR 230.2) (Subsection 1.2.4.2, National Whaling Governance Under the WCA). This section reviews past waivers and requests for waiver of the MMPA take prohibition.

Internationally, harvest of whales is regulated by the ICRW (Subsection 1.2.4.1, International Whaling Governance under the ICRW), which established the IWC as the regulatory body governing whaling (Subsection 1.2.4.1.1, Functions and Operating Procedures of the IWC). While the IWC initially focused on regulating commercial harvest, from 1982 to 1986 the body phased in a moratorium on commercial whaling to be in effect pending adoption of a revised management scheme. Since that time, the parties to the ICRW have attempted to adopt a regulatory regime that would govern commercial harvest; these attempts have been unsuccessful and the moratorium remains in effect. The ICRW also governs ASW but does not set limits on lethal research on whales. This section examines the whaling that has occurred worldwide since the IWC moratorium, the debates within the IWC over the different types of whaling, the United States' role in those debates, and the potential relationships between the positions and actions of the United States and whaling worldwide.

3.17.2 Regulatory Overview

3.17.2.1 Marine Mammal Protection Act

The MMPA take moratorium and the process for waiving the moratorium are described in detail in Subsection 1.2.3, Marine Mammal Protection Act. In addition to those provisions, section 109 of the Act pre-empts state authority governing marine mammals but includes provisions for the Secretary to waive the take moratorium and return management authority to a state if certain conditions are met.

3.17.2.2 Whaling Convention Act

The WCA is described in detail in Subsection 1.2.4, Whaling Convention Act.

3.17.2.3 International Convention for the Regulation of Whaling

The ICRW is described in detail in Subsection 1.2.4.1, International Whaling Governance under the ICRW, in particular its provisions regarding commercial and aboriginal subsistence whaling. In addition, Article VIII of the ICRW authorizes parties to grant its nationals a special permit authorizing lethal scientific research, subject to conditions the contracting government thinks fit. Any killing or taking of whales under Article VIII is exempt from the operation of the convention. Article VIII also specifies requirements for reporting on and using (processing and distributing) whales after they are killed for scientific research. While contracting governments must submit scientific research permits to the IWC and its Scientific Committee for review, it is the contracting government that ultimately decides whether to issue a permit.

3.17.2.4 Pelly Amendment

Under the Pelly Amendment (22 USC 1978) to the Fishermen's Protective Act of 1954, when the Secretary of Commerce determines that the nationals of a foreign country are diminishing the effectiveness of an international fishery conservation program (including the IWC's program), the Secretary certifies this fact to the President. The President then has the discretion to ban imports of any products from the offending country "to the extent such prohibition is sanctioned by the World Trade Organization" (22 USC 1978) and/or direct Agencies to take non-trade related actions to encourage the certified nation to change its actions or the actions of its nationals. After making a certification, the Pelly Amendment requires the Secretary of Commerce to periodically review the activities of nationals of the offending country to determine if the reasons for which the certification was made no longer prevail. If so, the Secretary shall terminate the certification. If not, the certification remains active (22 U.S.C 1978 (d)). A "Pelly Certification" has the potential to dissuade foreign governments from particular activities through a public announcement of their certification and the possibility of trade or non-trade sanctions. As of September 15, 2011, the Secretary had made 16 certifications under the Pelly Amendment for whaling activities, including one in 2011 for Iceland's commercial whaling (Office of the U.S. Press Secretary 2011) and one in 2014 for Iceland's whale meat trade, citing diminished effectiveness of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[85]. The United States has not imposed trade sanctions as a result of Pelly Amendment certifications for whaling activities.

3.17.2.5 Packwood-Magnuson Amendment

In 1979, Congress passed the Packwood-Magnuson Amendment to the Magnuson Stevens Act of 1976. It requires the Secretary of Commerce to "periodically monitor the activities of foreign nationals that may affect [international fishery conservation programs];" (22 USC 1978(a)(3)(A)) "promptly investigate any activity by foreign nationals that, in the opinion of the Secretary, may be cause for certification," (22 USC1978(a)(3)(B)); and "promptly conclude; and reach a decision with respect to; [that] investigation" (22 USC 1978(a)(3)(C)). If the Secretary of Commerce certifies that "nationals of a foreign country, directly or indirectly, are conducting fishing operations or engaging in trade or taking which diminishes the effectiveness of the International Convention for the Regulation of Whaling" (16 U.S.C. 1821(e)(2)(A)(i)), the Secretary of State

[85] https://obamawhitehouse.archives.gov/the-press-office/2014/04/01/memorandum-pelly-certification-and-icelandic-whaling

must reduce, by at least 50 percent, the offending nation's fishery allocation within the United States' fishery conservation zone (16 USC 1821(e)(2)(B)). Although the Amendment requires the imposition of sanctions when the Secretary of Commerce certifies a nation, it did not alter the initial certification process, except for requiring expedition. It also provided that a certification under the Packwood-Magnuson Amendment also serves as a certification for the purposes of the Pelly Amendment (16 USC 1821(e)(2)(A)(i). The Packwood-Magnuson Amendment is no longer influential because no foreign whaling nation currently fishes in United States waters (Buck 1998).

3.17.3 Existing Conditions

3.17.3.1 Waivers of the MMPA Take Moratorium

There have been few waivers of the MMPA take moratorium since passage of the MMPA (Bean 1997). This section examines past instances in which waiver of the MMPA take moratorium has been considered.

With passage of the MMPA and preemption of state management authority, the State of Alaska sought a return of management authority for 10 marine mammal species under section 109. In 1976, the Secretary of Interior returned management authority for walruses to Alaska (41 FR 14373, April 5, 1976). The Secretaries of Interior and Commerce conditionally approved Alaska's request for the other nine species in 1979 (44 FR 2540 and 2547, January 11, 1979). Alaska Natives challenged the state's ability to regulate their hunts for these species under the returned authority and prevailed in district court (*People of Togiak v. United States* 1979). In response to the court's decision, Alaska returned authority for walruses to the federal government and stated its intention not to pursue management authority over the remaining species (44 FR 45565, August 2, 1979). Congress reacted by revising section 109 to, among other things, allow financial assistance for states to develop management programs, as well as implement them. No state has sought management authority over marine mammals since Alaska's request.

In 1975, a fur importer, the Fouke Company, sought a waiver and permit to allow importation of baby fur seal skins from South Africa. NMFS granted the waiver in 1976 conditioned on harvest of the seals in South Africa not exceeding a certain level for the year. While Fouke's application for a permit was pending, it became known that the harvest level had been exceeded, so no permit was issued. Fouke applied for a permit to import skins from the following year's harvest, which NMFS granted. A federal circuit court ultimately invalidated the waiver and regulations because NMFS' decision did not meet MMPA requirements (the skins were from seals that were less than eight months old and nursing at the time of taking) (*Animal Welfare Institute v. Kreps* 1977).

In 1985, the Safari Club International petitioned the Secretary of Commerce to adopt a rule regarding waiver of the moratorium that would include, among other provisions, a requirement that NMFS review the status of marine mammals every 5 years and whenever a waiver was proposed would make a final determination within 2 years of the proposal. In denying this petition, NMFS stated its belief that "administrative resources can best be utilized if waiver proceedings are initiated only when there is an indication that a waiver may be appropriate or when a specific proposal is under consideration" (51 FR 16085, April 30, 1986).

NMFS waived the moratorium and published regulations governing the take of Dall's porpoise in the Japanese fishery in the Bering Sea and North Pacific in 1987 (52 FR 19,874, May 28, 1987). NMFS did not waive the moratorium and publish regulations, however, for fur seals and other marine mammals that would be taken in the fishery, because of insufficient information. In invalidating NMFS' waiver and regulations, the court stated that NMFS could not authorize a fishery it knew would take marine mammals not covered by the waiver and regulations (*Kokechik Fisherman's Association v. Secretary of Commerce* 1988).

3.17.3.2 Worldwide Whaling

The following discussion describes commercial, scientific, and aboriginal subsistence whaling worldwide within the IWC context, focusing in particular on the United States' position and role in the international debates. Figures 3-16 to 3-18 and Tables 3-50 to 3-52 depict the harvest in commercial, scientific, and aboriginal subsistence whaling conducted under IWC auspices since the commercial whaling moratorium became effective. Commercial whaling declined dramatically then ceased following the moratorium, grew steadily from 1991 through 1997, and has remained fairly level since that time. Scientific whaling increased steadily after 1985, peaked in 2005, and declined significantly in 2010. Aboriginal subsistence whaling has remained fairly steady, fluctuating around 350 whales harvested per year since the mid-1990s. The trend prior to 1998 is confounded by the fact that the hunt by the Chukotka Natives ceased altogether in 1992 and 1993 following the dissolution of the Soviet Union and state support for the hunt.

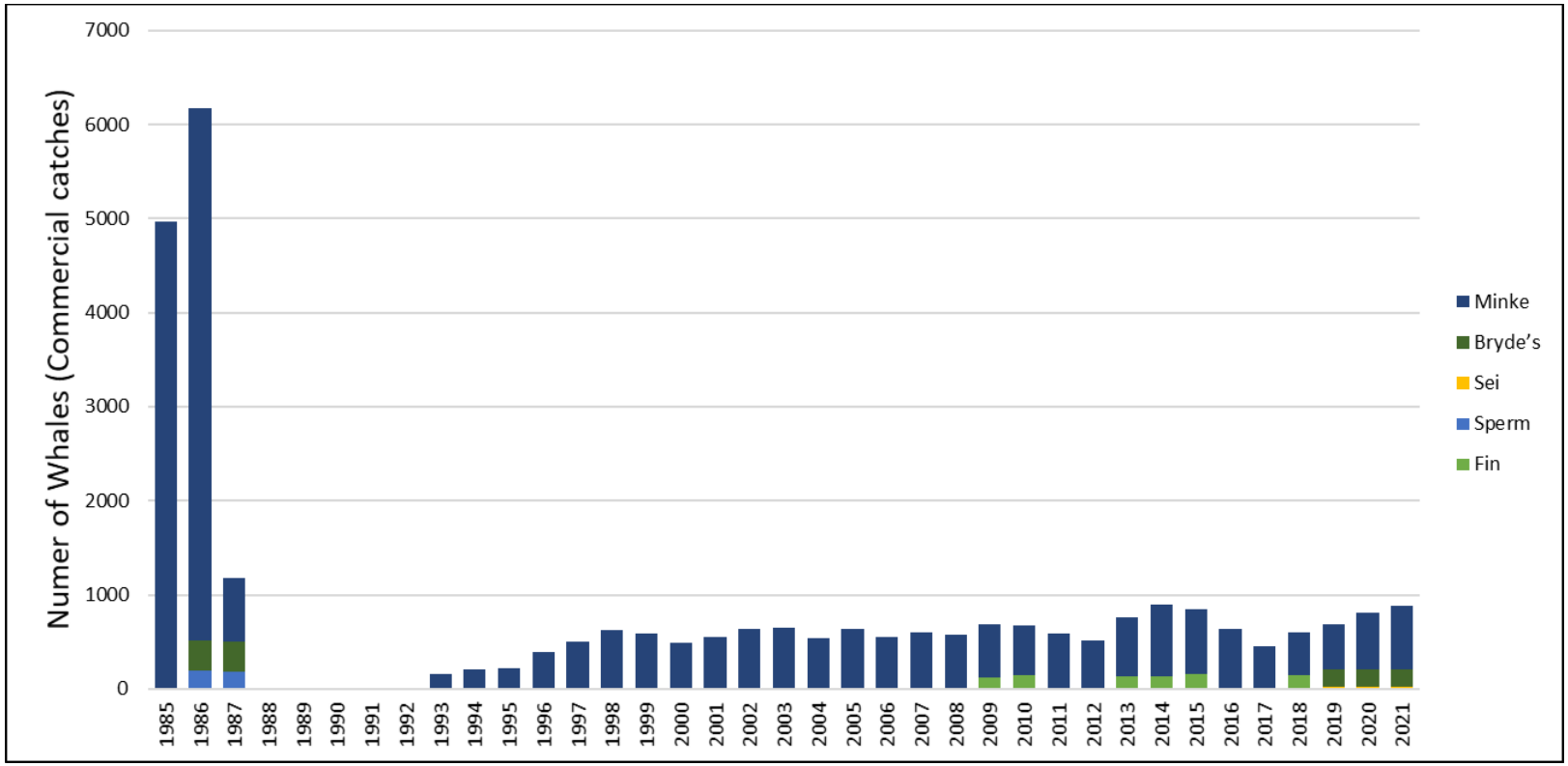


Figure 3-16. Commercial whaling catches by species since 1985 (see also Table 3-50).

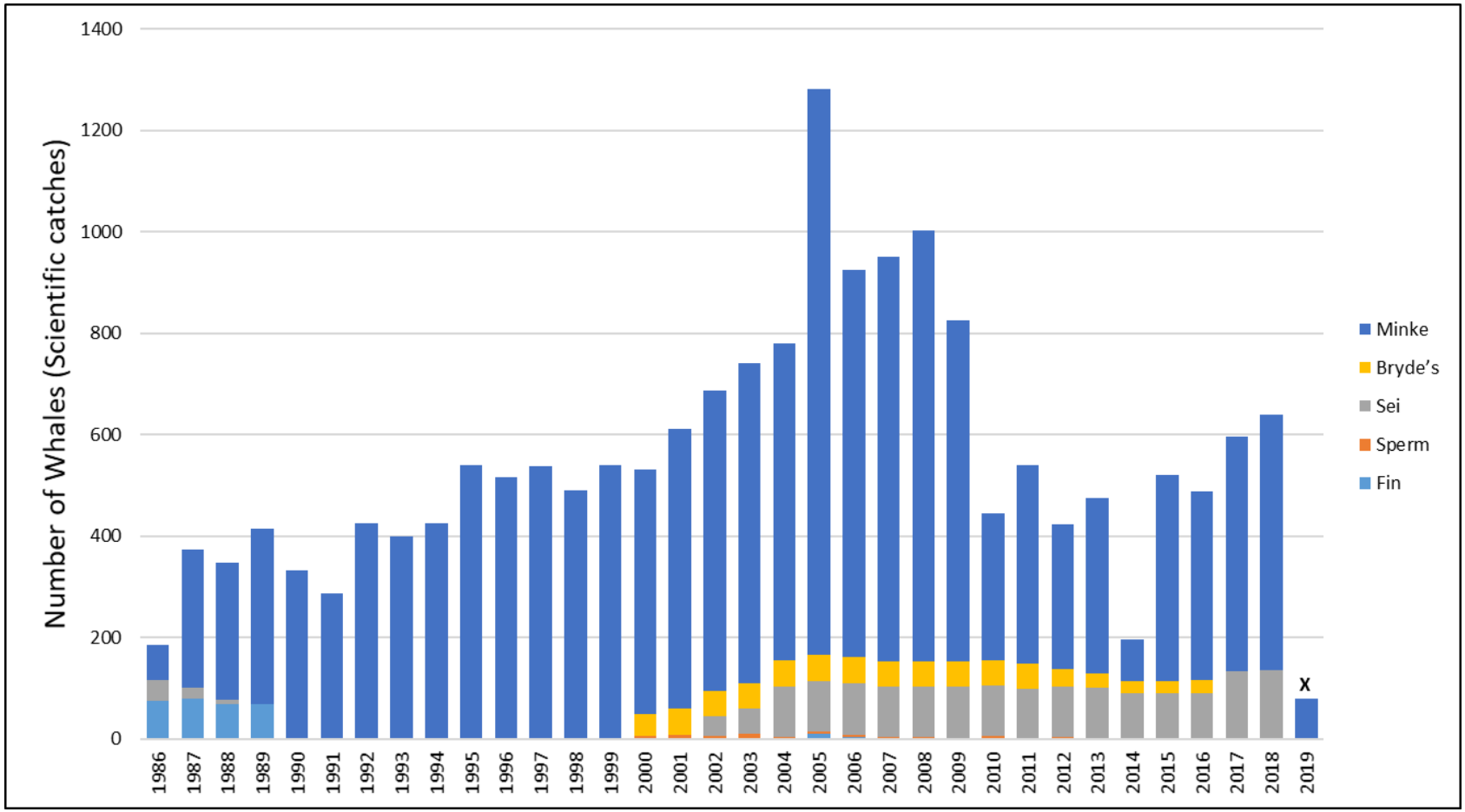


Figure 3-17. Scientific whaling catches by species since 1986 (see also Table 3-51). X indicates data are incomplete for that year.

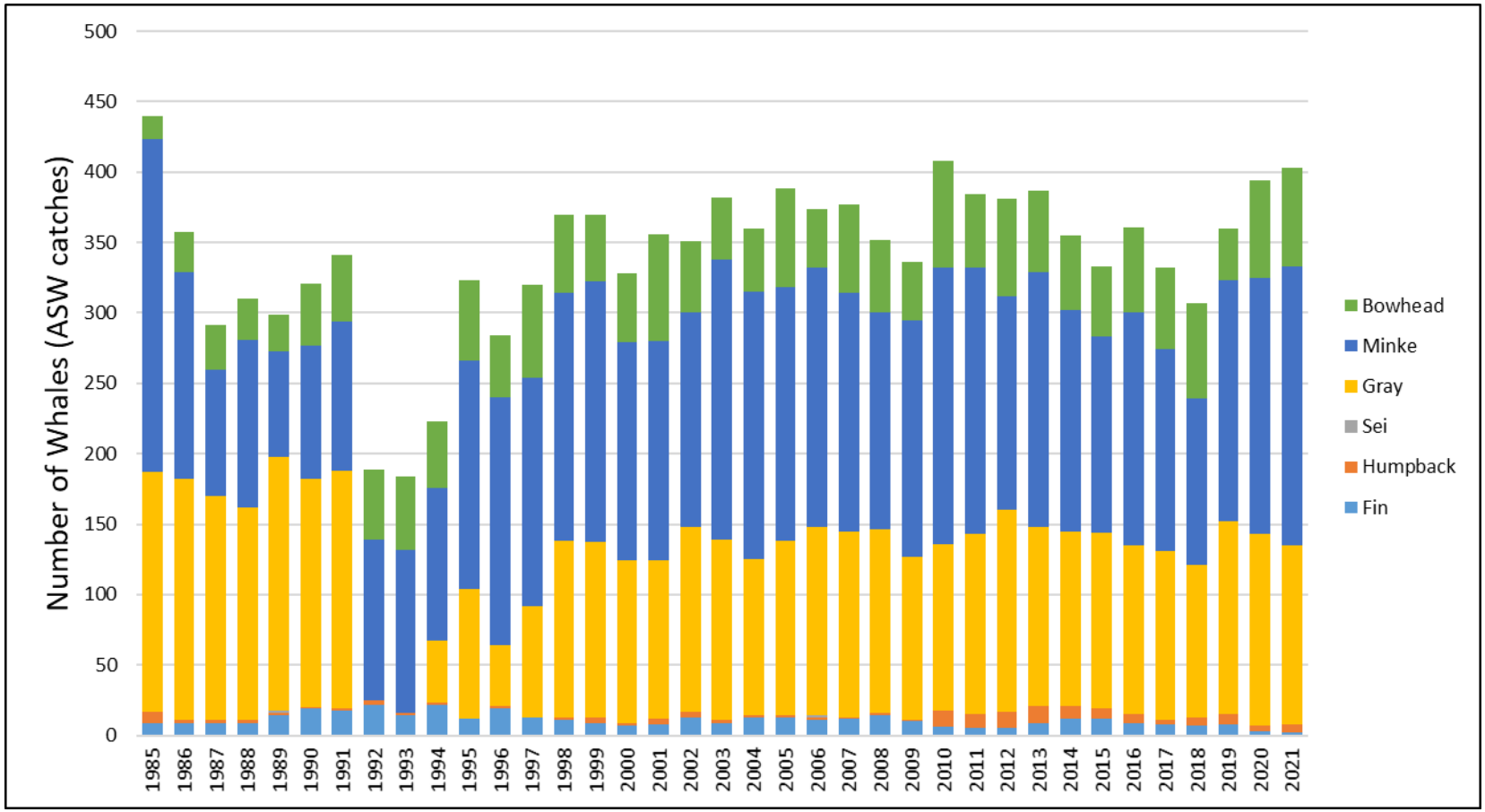


Figure 3-18. Aboriginal subsistence whaling catches by species reported to the IWC since 1985 (see also Table 3-52).

Table 3-50. Commercial whaling catches since 1985 (taken under Objection or Reservation to the Moratorium).

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
1985/86	**USSR (pelagic)**	SH	0	0	0	0	3,028	3,028
	Japan (pelagic)	SH	0	0	0	0	1,941	1,941
	Total		0	0	0	0	4,969	4,969
1986 (1986/87)	**Norway (small type)**	NA	0	0	0	0	379	379
	Japan (coastal)	NP	0	200	0	2	311	513
	Japan (Bonin Islands)	NP	0	0	0	315	0	315
	USSR (pelagic)	SH	0	0	0	0	3,028	3,028
	Japan (pelagic)	SH	0	0	0	0	1,941	1,941
	Total		0	200	0	317	5,659	6,176
1987 (1987/88)	**Norway (small type)**	NA	0	0	0	0	373	373
	Japan (coastal)	NP	0	188	0	11	304	503
	Japan (Bonin Islands)	NP	0	0	0	306	0	306
	Total		0	188	0	317	677	1,182
1993 (1993/94)	**Norway (small type)**	NA	0	0	0	0	157	157
1994 (1994/95)	**Norway (small type)**	NA	0	0	0	0	206	206
1995 (1995/96)	**Norway (small type)**	NA	0	0	0	0	218	218
1996 (1996/97)	**Norway (small type)**	NA	0	0	0	0	388	388
1997 (1997/98)	**Norway (small type)**	NA	0	0	0	0	503	503
1998 (1998/99)	**Norway (small type)**	NA	0	0	0	0	625	625
1999 (1999/00)	**Norway (small type)**	NA	0	0	0	0	591	591
2000 (2000/01)	**Norway (small type)**	NA	0	0	0	0	487	487
2001 (2001/02)	**Norway (small type)**	NA	0	0	0	0	552	552
2002 (2002/03)	**Norway (small type)**	NA	0	0	0	0	634	634
2003 (2003/04)	**Norway (small type)**	NA	0	0	0	0	647	647
2004 (2004/05)	**Norway (small type)**	NA	0	0	0	0	544	544
2005 (2005/06)	**Norway (small type)**	NA	0	0	0	0	639	639
2006 (2006/07)	**Norway (small type)**	NA	0	0	0	0	545	545
	Iceland (small type)	NA	0	0	0	0	1	1
	W. Iceland (coastal)	NA	7	0	0	0	0	7
	Total		7	0	0	0	546	553
2007 (2007/08)	**Norway (small type)**	NA	0	0	0	0	597	597
	Iceland (small type)	NA	0	0	0	0	6	6
	Total		0	0	0	0	603	603
2008 (2008/09)	**Norway (small type)**	NA	0	0	0	0	536	536
	Iceland (small type)	NA	0	0	0	0	38	38
	Total		0	0	0	0	574	574
2009 (2009/10)	**Norway (small type)**	NA	0	0	0	0	484	484

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
	Iceland (small type)	NA	0	0	0	0	81	81
	W. Iceland (coastal)	NA	125	0	0	0	0	125
	Total		125	0	0	0	565	690
2010 (2010/11)	**Norway (small type)**	NA	0	0	0	0	468	468
	Iceland (small type)	NA	0	0	0	0	60	60
	W. Iceland (coastal)	NA	148	0	0	0	0	148
	Total		148	0	0	0	528	676
2011 (2011/12)	**Norway (small type)**	NA	0	0	0	0	533	533
	Iceland (small type)	NA	0	0	0	0	58	58
	Total		0	0	0	0	591	591
2012 (2012/13)	**Norway (small type)**	NA	0	0	0	0	464	464
	Iceland (small type)	NA	0	0	0	0	52	52
	Total		0	0	0	0	516	516
2013 (2013/14)	**Norway (small type)**	NA	0	0	0	0	594	594
	Iceland (small type)	NA	0	0	0	0	35	35
	W. Iceland (coastal)	NA	134	0	0	0	0	134
	Total		134	0	0	0	629	763
2014 (2014/15)	**Norway (small type)**	NA	0	0	0	0	736	736
	Iceland (small type)	NA	0	0	0	0	24	24
	W. Iceland (coastal)	NA	137	0	0	0	0	137
	Total		137	0	0	0	760	897
2015 (2015/16)	**Norway (small type)**	NA	0	0	0	0	660	660
	Iceland (small type)	NA	0	0	0	0	29	29
	W. Iceland (coastal)	NA	155	0	0	0	0	155
	Total		155	0	0	0	689	844
2016 (2016/17)	**Norway (small type)**	NA	0	0	0	0	591	591
	Iceland (small type)	NA	0	0	0	0	46	46
	Total	NA	0	0	0	0	637	637
2017 (2017/18)	**Norway (small type)**	NA	0	0	0	0	432	432
	Iceland (small type)	NA	0	0	0	0	17	17
	Total		0	0	0	0	449	449
2018 (2018/19)	**Norway (small type)**	NA	0	0	0	0	454	454
	Iceland (small type)	NA	0	0	0	0	6	6
	W. Iceland (coastal)	NA	146	0	0	0	0	146
	Total		146	0	0	0	460	606
2019 (2019/20)	**Norway (small type)**	NA	0	0	0	0	429	429
	Japan (coastal)	NA	0	0	0	0	33	33
	Japan (pelagic)	NA	0	0	25	187	11	223
	Total		0	0	25	187	473	685

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
2020 (2020/21)	**Norway (small type)**	NA	0	0	0	0	503	503
	Japan (coastal)	NA	0	0	0	0	95	95
	Japan (pelagic)	NA	0	0	25	187	0	212
	Total		0	0	25	187	598	810
2021 (2021/22)	**Norway (small type)**	NA	0	0	0	0	577	577
	Iceland (small type)	NA	0	0	0	0	1	1
	Japan (coastal)	NA	0	0	0	0	91	91
	Japan (pelagic)	NA	0	0	25	187	0	212
	Total	NA	0	0	25	187	669	881
OVERALL TOTAL:								29,293

Source: IWC available at https://iwc.int/table_objection

1 Table 3-51. Scientific whaling catches since 1986 (Taken under Special Permit).

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
1986 (86/87)	**Iceland**	NA	76	0	40	0	0	116
	Republic of Korea	NP	0	0	0	0	69	69
	Total		76	0	40	0	69	185
1987 (87/88)	**Iceland**	NA	80	0	20	0	0	100
	Japan (pelagic)	SH	0	0	0	0	273	273
	Total		80	0	20	0	273	373
1988 (88/89)	**Iceland**	NA	68	0	10	0	0	78
	Japan (pelagic)	SH	0	0	0	0	241	241
	Norway (small type)	NA	0	0	0	0	29	29
	Total		68	0	10	0	270	348
1989 (89/90)	**Iceland**	NA	68	0	0	0	0	68
	Japan (pelagic)	SH	0	0	0	0	330	330
	Norway (small type)	NA	0	0	0	0	17	17
	Total		68	0	0	0	347	415
1990 (90/91)	**Norway (small type)**	NA	0	0	0	0	5	5
	Japan (pelagic)	SH	0	0	0	0	327	327
	Total		0	0	0	0	332	332
1991 (91/92)	**Japan (pelagic)**	SH	0	0	0	0	288	288
	Total		0	0	0	0	288	288
1992 (92/93)	**Norway (small type)**	NA	0	0	0	0	95	95
	Japan (pelagic)	SH	0	0	0	0	330	330
	Total		0	0	0	0	425	425
1993 (93/94)	**Norway (small type)**	NA	0	0	0	0	69	69
	Japan (pelagic)	SH	0	0	0	0	330	330
	Total		0	0	0	0	399	399
1994 (1994/95)	**Norway (small type)**	NA	0	0	0	0	74	74
	Japan	NP	0	0	0	0	21	21
	Japan (pelagic)	SH	0	0	0	0	330	330

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
	Total		0	0	0	0	425	425
1995 (1995/96)	**Japan**	NP	0	0	0	0	100	100
	Japan (pelagic)	SH	0	0	0	0	440	440
	Total		0	0	0	0	540	540
1996 (1996/97)	**Japan**	NP	0	0	0	0	77	77
	Japan (pelagic)	SH	0	0	0	0	440	440
	Total		0	0	0	0	517	517
1997 (1997/98)	**Japan**	NP	0	0	0	0	100	100
	Japan (pelagic)	SH	0	0	0	0	438	438
	Total		0	0	0	0	538	538
1998 (1998/99)	**Japan**	NP	0	0	0	1	100	101
	Japan (pelagic)	SH	0	0	0	0	389	389
	Total		0	0	0	1	489	490
1999 (1999/00)	**Japan**	NP	0	0	0	0	100	100
	Japan (pelagic)	SH	0	0	0	0	439	439
	Total		0	0	0	0	539	539
2000 (2000/01)	**Japan**	NP	0	5	0	43	40	88
	Japan (pelagic)	SH	0	0	0	0	444	444
	Total		0	5	0	43	484	532
2001 (2001/02)	**Japan**	NP	0	8	1	50	100	159
	Japan (pelagic)	SH	0	0	0	0	452	452
	Total		0	8	1	50	552	611
2002 (2002/03)	**Japan (pelagic)**	NP	0	5	40	50	102	197
	Japan (coastal)	NP	0	0	0	0	50	50
	Japan (pelagic)	SH	0	0	0	0	441	441
	Total		0	5	40	50	593	688
2003 (2003/04)	**Iceland**	NA	0	0	0	0	37	37
	Japan (pelagic)	NP	0	10	50	50	101	211
	Japan (coastal)	NP	0	0	0	0	50	50

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
	Japan (pelagic)	SH	0	0	0	0	443	443
	Total		0	10	50	50	631	741
2004 (2004/05)	**Iceland**	NA	0	0	0	0	25	25
	Japan (pelagic)	NP	0	3	100	51	100	254
	Japan (coastal)	NP	0	0	0	0	60	60
	Japan (pelagic)	SH	0	0	0	0	441	441
	Total		0	3	100	51	626	780
2005 (2005/06)	**Iceland**	NA	0	0	0	0	39	39
	Japan (pelagic)	NP	0	5	100	50	101	256
	Japan (coastal)	NP	0	0	0	0	121	121
	Japan (pelagic)	SH	10	0	0	0	856	866
	Total		10	5	100	50	1,117	1,282
2006 (2006/07)	**Iceland**	NA	0	0	0	0	60	60
	Japan (pelagic)	NP	0	6	101	51	100	258
	Japan (coastal)	NP	0	0	0	0	97	97
	Japan (pelagic)	SH	3	0	0	0	508	511
	Total		3	6	101	51	765	926
2007 (2007/08)	**Iceland**	NA	0	0	0	0	39	39
	Japan (pelagic)	NP	0	3	100	50	100	253
	Japan (coastal)	NP	0	0	0	0	108	108
	Japan (pelagic)	SH	0	0	0	0	551	551
	Total		0	3	100	50	798	951
2008 (2008/09)	**Japan (pelagic)**	NP	0	2	100	50	59	211
	Japan (coastal)	NP	0	0	0	0	112	112
	Japan (pelagic)	SH	1	0	0	0	680	681
	Total		1	2	100	50	851	1,004
2009 (2009/10)	**Japan (pelagic)**	NP	0	1	101	50	43	195
	Japan (coastal)	NP	0	0	0	0	122	122
	Japan (pelagic)	SH	1	0	0	0	507	508

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
	Total		1	1	101	50	672	825
2010 (2010/11)	**Japan (pelagic)**	NP	0	3	100	50	14	167
	Japan (coastal)	NP	0	0	0	0	105	105
	Japan (pelagic)	SH	2	0	0	0	171	173
	Total		2	3	100	50	290	445
2011 (2011/12)	**Japan (pelagic)**	NP	0	1	96	50	49	196
	Japan (coastal)	NP	0	0	0	0	77	77
	Japan (pelagic)	SH	1	0	0	0	266	267
	Total		1	1	96	50	392	540
2012 (2012/13)	**Japan (pelagic)**	NP	0	3	100	34	74	211
	Japan (coastal)	NP	0	0	0	0	110	110
	Japan (pelagic)	SH	0	0	0	0	103	103
	Total		0	3	100	34	287	424
2013 (2013/14)	**Japan (pelagic)**	NP	0	1	100	28	3	132
	Japan (coastal)	NP	0	0	0	0	92	92
	Japan (pelagic)	SH	0	0	0	0	251	251
	Total		0	1	100	28	347	476
2014 (2014/15)	**Japan (pelagic)**	NP	0	0	90	25	0	115
	Japan (coastal)	NP	0	0	0	0	81	81
	Total		0	0	90	25	81	196
2015 (2015/16)	**Japan (pelagic)**	NP	0	0	90	25	0	115
	Japan (coastal)	NP	0	0	0	0	70	70
	Japan (pelagic)	SH	0	0	0	0	335	335
	Total		0	0	90	25	405	520
2016 (2016/17)	**Japan (pelagic)**	NP	0	0	90	25	0	115
	Japan (coastal)	NP	0	0	0	1	37	38
	Japan (pelagic)	SH	0	0	0	0	335	335
	Total		0	0	90	26	372	488
2017 (2017/18)	**Japan (pelagic)**	NP	0	0	134	0	44	178

Year	Nation	Area	Fin	Sperm	Sei	Bryde's	Minke	Total
	Japan (coastal)	NP	0	0	0	0	85	85
	Japan (pelagic)	SH	0	0	0	0	333	333
	Total		0	0	134	0	462	596
2018 (2018/19)	**Japan (pelagic)**	NP	0	0	135	0	43	178
	Japan (coastal)	NP	0	0	0	0	128	128
	Japan (pelagic)	SH	0	0	0	0	334	334
	Total		0	0	135	0	505	640
2019 (2019/20)	**Japan (coastal)**	NP	0	0	0	0	79	79
	Total		0	0	0	0	79	79
OVERALL TOTALS:								18,558

1 Source: IWC available at https://iwc.int/table_permit

Table 3-52. Aboriginal subsistence whaling catches since 1985.

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
1985	**Denmark: W. Greenland**	9	8	0	0	222	0	239
	Denmark: E. Greenland	0	0	0	0	14	0	14
	USSR	0	0	0	169	0	0	169
	USA	0	0	0	1	0	17	18
	Total	9	8	0	170	236	17	440
1986	**Denmark: W. Greenland**	9	0	0	0	145	0	154
	Denmark: E. Greenland	0	0	0	0	2	0	2
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	USSR	0	0	0	169	0	0	169
	USA	0	0	0	2	0	28	30
	Total	9	2	0	171	147	28	357
1987	**Denmark: W. Greenland**	9	0	0	0	86	0	95
	Denmark: E. Greenland	0	0	0	0	4	0	4
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	USSR	0	0	0	158	0	0	158
	USA	0	0	0	1	0	31	32
	Total	9	2	0	159	90	31	291
1988	**Denmark: W. Greenland**	9	1	0	0	109	0	119
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	USSR	0	0	0	150	0	0	150
	USA	0	0	0	1	0	29	30
	Total	9	2	0	151	119	29	310
1989	**Denmark: W. Greenland**	14	2	2	0	63	0	81
	Denmark: E. Greenland	0	0	0	0	10	0	10
	USSR	0	0	0	179	0	0	179
	USA	0	0	0	1	2	26	29
	Total	14	2	2	180	75	26	299

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
1990	**Denmark: W. Greenland**	19	1	0	0	89	0	109
	Denmark: E. Greenland	0	0	0	0	6	0	6
	USSR	0	0	0	162	0	0	162
	USA	0	0	0	0	0	44	44
	Total	19	1	0	162	95	44	321
1991	**Denmark: W. Greenland**	18	0	0	0	99	0	117
	Denmark: E. Greenland	0	1	0	0	7	0	8
	USSR	0	0	0	169	0	0	169
	Canada	0	0	0	0	0	1	1
	USA	0	0	0	0	0	46	46
	Total	18	1	0	169	106	47	341
1992	**Denmark: W. Greenland**	22	1	0	0	103	0	126
	Denmark: E. Greenland	0	0	0	0	11	0	11
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	0	0	0	0
	USA	0	0	0	0	0	50	50
	Total	22	3	0	0	114	50	189
1993	**Denmark: W. Greenland**	14	0	0	0	107	0	121
	Denmark: E. Greenland	0	0	0	0	9	0	9
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	USA	0	0	0	0	0	52	52
	Total	14	2	0	0	116	52	184
1994	**Canada**	0	0	0	0	0	1	1
	Denmark: W. Greenland	22	1	0	0	104	0	127
	Denmark: E. Greenland	0	0	0	0	5	0	5
	Russia	0	0	0	44	0	0	44
	USA	0	0	0	0	0	46	46
	Total	22	1	0	44	109	47	223
1995	**Denmark: W. Greenland**	12	0	0	0	153	0	165

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
	Denmark: E. Greenland	0	0	0	0	9	0	9
	Russia	0	0	0	90	0	0	90
	USA	0	0	0	2	0	57	59
	Total	12	0	0	92	162	57	323
1996	**Denmark: W. Greenland**	19	1	0	0	164	0	184
	Denmark: E. Greenland	0	0	0	0	12	0	12
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	43	0	0	43
	Canada	0	0	0	0	0	1	1
	USA	0	0	0	0	0	43	43
	Total	19	2	0	43	176	44	284
1997	**Denmark: W. Greenland**	13	0	0	0	148	0	161
	Denmark: E. Greenland	0	0	0	0	14	0	14
	Russia	0	0	0	79	0	0	79
	USA	0	0	0	0	0	66	66
	Total	13	0	0	79	162	66	320
1998	**Canada**	0	0	0	0	0	1	1
	Denmark: W. Greenland	11	0	0	0	166	0	177
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	125	0	1	126
	USA	0	0	0	0	0	54	54
	Total	11	2	0	125	176	56	370
1999	**Denmark: W. Greenland**	9	2	0	0	170	0	181
	Denmark: E. Greenland	0	0	0	0	15	0	15
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	123	0	1	124
	USA: Alaska	0	0	0	0	0	47	47
	USA: Washington	0	0	0	1	0	0	1

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
	Total	9	4	0	124	185	48	370
2000	**Canada**	0	0	0	0	0	1	1
	Denmark: W. Greenland	7	0	0	0	145	0	152
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines[86]	0	2	0	0	0	0	3
	Russia	0	0	0	115	0	1	116
	USA	0	0	0	0	0	47	47
	Total	7	2	0	115	155	49	329
2001	**Denmark: W. Greenland**	8	2	0	0	139	0	149
	Denmark: E. Greenland	0	0	0	0	17	0	17
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	112	0	1	113
	USA	0	0	0	0	0	75	75
	Total	8	4	0	112	156	76	356
2002	**Canada**	0	0	0	0	0	1	1
	Denmark: W. Greenland	13	2	0	0	139	0	154
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	131	3	0	134
	USA	0	0	0	0	0	50	50
	Total	13	4	0	131	152	51	351
2003	**Denmark: W. Greenland**	9	1	0	0	185	0	195
	Denmark: E. Greenland	0	0	0	0	14	0	14
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	128	0	3	131
	USA	0	0	0	0	0	41	41

[86] 1 Bryde's whale taken illegally

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
	Total	9	2	0	128	199	44	382
2004	**Denmark: W. Greenland**	13	1	0	0	179	0	193
	Denmark: E. Greenland	0	0	0	0	11	0	11
	St. Vincent & the Grenadines	0	0	0	0	0	0	0
	Russia	0	0	0	111	0	1	112
	USA	0	0	0	0	0	44	44
	Total	13	1	0	111	190	45	360
2005	**Denmark: W. Greenland**	13	0	0	0	176	0	189
	Denmark: E. Greenland	0	0	0	0	4	0	4
	St. Vincent & the Grenadines[87]	0	1	0	0	0	0	2
	Russia	0	0	0	124	0	2	126
	USA	0	0	0	0	0	68	68
	Total	13	1	0	124	180	70	389
2006	**Denmark: W. Greenland**	10	1	1	0	181	0	193
	Denmark: E. Greenland	1	0	0	0	3	0	4
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	134	0	3	137
	USA	0	0	0	0	0	39	39
	Total	11	2	1	134	184	42	374
2007	**Denmark: W. Greenland**	12	0	0	0	167	0	179
	Denmark: E. Greenland	0	0	0	0	2	0	2
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	131	0	0	131
	USA: Alaska	0	0	0	0	0	63	63
	USA: Washington	0	0	0	1	0	0	1
	Total	12	1	0	132	169	63	377

[87] 1 Bryde's whale taken illegally

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
2008	**Denmark: W. Greenland**	14	0	0	0	153	0	167
	Denmark: E. Greenland	0	0	0	0	1	0	1
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	130	0	2	132
	USA	0	0	0	0	0	50	50
	Total	14	2	0	130	154	52	352
2009	**Denmark: W. Greenland**	10	0	0	0	164	3	177
	Denmark: E. Greenland	0	0	0	0	4	0	4
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	116	0	0	116
	USA	0	0	0	0	0	38	38
	Total	10	1	0	116	168	41	336
2010	**Denmark: W. Greenland**	6	9	0	0	187	3	205
	Denmark: E. Greenland	0	0	0	0	9	0	9
	St. Vincent & the Grenadines	0	3	0	0	0	0	3
	Russia	0	0	0	118	0	2	120
	USA	0	0	0	0	0	71	71
	Total	6	12	0	118	196	76	408
2011	**Denmark: W. Greenland**	5	8	0	0	179	1	193
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	128	0	0	128
	USA	0	0	0	0	0	51	51
	Total	5	10	0	128	189	52	384
2012	**Denmark: W. Greenland**	5	10	0	0	148	0	163
	Denmark: E. Greenland	0	0	0	0	4	0	4
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	143	0	0	143
	USA	0	0	0	0	0	69	69

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
	Total	5	12	0	143	152	69	381
2013	**Denmark: W. Greenland**	9	8	0	0	175	0	192
	Denmark: E. Greenland	0	0	0	0	6	0	6
	St. Vincent & the Grenadines	0	4	0	0	0	0	4
	Russia	0	0	0	127	0	1	128
	USA	0	0	0	0	0	57	57
	Total	9	12	0	127	181	58	387
2014	**Denmark: W. Greenland**	12	7	0	0	146	0	165
	Denmark: E. Greenland	0	0	0	0	11	0	11
	St. Vincent & the Grenadines	0	2	0	0	0	0	2
	Russia	0	0	0	124	0	0	124
	USA	0	0	0	0	0	53	53
	Total	12	9	0	124	157	53	355
2015	**Denmark: W. Greenland**	12	6	0	0	133	1	152
	Denmark: E. Greenland	0	0	0	0	6	0	6
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	125	0	0	125
	USA	0	0	0	0	0	49	49
	Total	12	7	0	125	139	50	333
2016	**Denmark: W. Greenland**	9	5	0	0	148	0	162
	Denmark: E. Greenland	0	0	0	0	15	0	15
	St. Vincent & the Grenadines	0	0	0	0	0	0	0
	Russia	0	0	0	120	0	2	122
	USA	0	1	0	0	2	59	62
	Total	9	6	0	120	165	61	361
2017	**Denmark: W. Greenland**	8	2	0	0	133	0	143
	Denmark: E. Greenland	0	0	0	0	10	0	10
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	119	0	1	120

Year	Nation	Fin	Humpback	Sei	Gray	Minke	Bowhead	Total
	USA	0	0	0	1	0	57	58
	Total	8	3	0	120	143	58	332
2018	**Denmark: W. Greenland**	7	6	0	0	116	0	129
	Denmark: E. Greenland	0	0	0	0	2	0	2
	St. Vincent & the Grenadines	0	0	0	0	0	0	0
	Russia	0	0	0	107	0	0	107
	USA	0	0	0	1	0	68	69
	Total	7	6	0	108	118	68	307
2019	**Denmark: W. Greenland**	8	4	0	0	160	0	172
	Denmark: E. Greenland	0	0	0	0	11	0	11
	St. Vincent & the Grenadines	0	3	0	0	0	0	3
	Russia	0	0	0	137	0	1	138
	USA	0	0	0	0	0	36	36
	Total	8	7	0	137	171	37	360
2020	**Denmark: W. Greenland**	3	4	0	0	162	0	169
	Denmark: E. Greenland	0	0	0	0	20	0	20
	St. Vincent & the Grenadines	0	0	0	0	0	0	0
	Russia	0	0	0	136	0	0	136
	USA	0	0	0	0	0	69	69
	Total	3	4	0	136	182	69	394
2021	**Denmark: W. Greenland**	2	5	0	0	177	0	184
	Denmark: E. Greenland	0	0	0	0	21	0	21
	St. Vincent & the Grenadines	0	1	0	0	0	0	1
	Russia	0	0	0	127	0	0	127
	USA	0	0	0	0	0	70	70
	Total	2	6	0	127	198	70	403
OVERALL TOTALS								12,633

Source: IWC available at https://iwc.int/table_aboriginal

3.17.3.2.1 Commercial and Scientific Whaling

The United States was a leader in establishing the 1982 moratorium on commercial whaling (Stoett 1997). In 1949, the United States passed the WCA, banning all commercial whaling by United States nationals. Congress adopted resolutions requesting the Secretary of State to negotiate a 10-year moratorium on the commercial killing of whales in the international arena (16 USC 916 note, PL 96-60, August 15, 1979, 93 Stat. 403). In 1972, the first United Nations Conference on the Human Environment in Stockholm adopted a resolution calling for such a moratorium. The United States lobbied at each subsequent IWC annual meeting for incorporation of the moratorium into the IWC schedule, until its eventual adoption.

Prior to adoption of the moratorium, the Secretary of Commerce certified a number of countries under the Pelly Amendment finding their whaling activities diminished the effectiveness of the ICRW. In 1974, the Secretary of Commerce issued the first certifications under the Pelly Amendment directed at Japan and the Soviet Union for whaling in excess of IWC quotas. In 1978, the Secretary of Commerce certified Chile, Peru, and the Republic of Korea under the Pelly Amendment for their whaling practices.

In 1982, when the commercial whaling moratorium was adopted, Japan, Peru, Norway, and the Soviet Union all lodged objections. In response to Japan's objection to the moratorium and continued commercial whaling, the United States threatened to end Japanese access to fishing in United States waters under the Packwood-Magnuson Amendment. Japan withdrew its objection to the moratorium by 1988, and Peru withdrew its objection in 1983. The Soviet Union conducted pelagic commercial whaling of minke whales in the southern hemisphere through the 1985/1986 season. The Soviet Union never withdrew its objection, but stopped harvesting whales commercially after 1986. The Russian Federation, successor state to the Soviet Union, has not engaged in commercial whale harvest, but its objection to the moratorium remains.

When Norway objected to the moratorium and conducted small type coastal whaling in the 1986 and 1987 seasons, the Secretary of Commerce certified Norway under the Pelly Amendment; in 1987 Norway suspended its whaling. The Secretary of Commerce also certified Norway in 1990 and 1992 for its research whaling program. Norway then resumed commercial whaling in 1993 and was again certified by the Secretary of Commerce under the Pelly Amendment (Clinton 1993; Ek 1996). President Clinton did not impose trade sanctions, and explained in a letter to Congress that while "[t]he United States is deeply opposed to commercial whaling . . . [there is] an equally strong commitment to science-based international solutions to global conservation problems" (Clinton 1993). Clinton acknowledged that "not every country agrees with our position

against commercial whaling" and initiated preparations for sanctions, but ultimately concluded that "the primary interest of the United States [is in] protecting the integrity of the IWC and its conservation regime," which could best be achieved through diplomatic measures (Clinton 1993). Norway remains certified under the Pelly Amendment. Norway is the only original objecting party that still conducts commercial whaling under objector status. The IWC has passed numerous resolutions asking the government to reconsider its objection and immediately halt all whaling under its jurisdiction (see for example, IWC Resolutions 1995-5, 1996-5, 1997-3, and 2001-5).

The Secretary of Commerce certified Japan's scientific whaling program in 1988, when Japan initiated its Antarctic program to conduct lethal studies of minke whales; in 1995, after Japan extended its minke whale program to the North Pacific; and in 2000 when Japan expanded its scientific whaling operations to include protected Bryde's and sperm whales. The Secretary stated that the U.S. Government was "deeply concerned that the real aim of this large hunt is to pave the way for an outright resumption of commercial whaling (Mineta 2000)."

Iceland did not lodge an objection to the commercial whaling moratorium in 1982 but subsequently disagreed with maintenance of the ban and withdrew from the IWC in 1992. In 2002, Iceland was successful in obtaining re-admission to the IWC but lodged a reservation to the moratorium. The United States, along with 17 other countries, objected to Iceland's reservation to the moratorium when it was re-admitted to the IWC in 1992. The reservation language provides that Iceland would not authorize whaling for commercial purposes before 2006, after which it would not authorize whaling while progress is being made in negotiations on the management of commercial whaling. Iceland announced its intent on October 17, 2006 to resume commercial whaling for minke and fin whales (Black 2006; Fenner 2006). See Table 3-50 for a summary of Icelandic commercial whaling. When Iceland resumed commercial whaling in 2006, the United States joined 24 other countries in lodging formal objections with the government of Iceland. The Secretary of Commerce also certified Iceland under the Pelly Amendment in 2004 and retained the certification in 2006. The Secretary again certified Iceland in 2011 for its harvest of endangered fin whales (Locke 2011). This certification remains in effect, along with the 2014 certification for Iceland's whale meat trade, though no trade sanctions have been imposed.

The continuing controversy over commercial whaling makes the future of whaling, and of the IWC, uncertain. The IWC in 1994 adopted the Revised Management Procedure, which is a method for determining a sustainable catch limit for some whale species. Nevertheless, the IWC did not lift the moratorium on commercial whaling because several parties, including the United

States, argued that an inspection and control scheme was necessary to manage a hunt (Hogarth 2008). This scheme, together with the Revised Management Procedure, is known as the Revised Management Scheme. The consistent position of the United States has been that the moratorium should not be lifted at least until a revised management scheme is in place (Department of State 2003), and the United States has participated in good faith in negotiating such a scheme.

Discussions on the revised management scheme within the IWC remained at an impasse for several years. In 2006, a slight majority of IWC member nations adopted a resolution declaring the commercial whaling moratorium no longer necessary (IWC Resolution 2006-1, 'St Kitts and Nevis Declaration'). Yet at the 2007 IWC meeting in Anchorage, 37 countries adopted a resolution stating that the whaling ban "remains valid" (IWC 2007b). While slight majorities within the IWC have thus succeeded in adopting contradictory resolutions regarding the commercial whaling moratorium (resolutions are nonbinding), definitive action on the commercial moratorium or the revised management scheme is uncertain because neither the pro-commercial-whaling or anti-commercial-whaling sides of the debate have the three-fourths majority necessary for action (Henderson 2005; Hogarth 2006).

This paragraph summarizes the efforts from the 2007 annual meeting through the 2010 annual meeting to move forward on the revised management scheme, as reported in the Chair's Report from the 2010 meeting (IWC 2010c). At its 2007 annual meeting, the IWC agreed to hold a working meeting prior to its 2008 annual meeting to discuss the future of the IWC given the impasse over the revised management scheme. The group met in March 2008 and made sufficient progress that the IWC agreed at its 2008 meeting to establish a small working group to develop a package or packages for consideration by the IWC. At its 2010 annual meeting, the IWC considered the package developed by the small working group, which included a number of components. Those components included suspending the moratorium for 10 years on whaling occurring under special permit, objection, and reservation; bringing all whaling authorized by the parties under control of the IWC; limiting whaling to members currently whaling; ensuring no new non-indigenous whaling takes place on whale species not currently hunted; establishing caps for 10 years significantly lower than the current catches; introducing IWC monitoring, control, and surveillance for non-indigenous whaling; and creating a South Atlantic whale sanctuary. At the end of discussions on the proposal, the IWC chair concluded that consensus was not possible and provided personal guidance that the parties should proceed to work on important issues where there was no agreement, and to avoid discussion of contentious matters in IWC plenary sessions.

The IWC did not discuss the revised management scheme during its 2011 and 2012 annual meetings, and at the 2012 meeting the IWC decided to switch to biennial meetings (IWC 2012b).

At the 2022 biennial commission meeting, Antigua and Barbuda presented a proposal for a "Resolution on the Implementation of a Conservation and Management Program for Whale Stocks aimed towards the lifting of the moratorium and the orderly development of the whaling industry," noting that the IWC has a strong whale conservation focus and that the Commission has not been fulfilling its responsibilities to manage whaling (IWC 2022c). Several countries expressed support for the resolution, citing food security concerns and recovery of certain stocks. Others opposed the resolution, citing existing environmental and anthropogenic threats to cetaceans and an apparent lack of interest from any contracting government in investing in new infrastructure and compliance frameworks for commercial whaling. While a decision on the resolution was not made at the meeting, it was agreed that work will continue intersessionally. The proposal will be submitted for the next meeting in 2024.

3.17.3.2.2 Aboriginal Subsistence Whaling

Although aboriginal subsistence whaling was not controversial in the IWC through the mid-1970s, since that time several issues have arisen. One debate has focused on the sustainability of aboriginal subsistence harvests. Examples of harvests that have generated controversy include harvest of bowheads by Alaska Natives and harvest of minke, humpback, and fin whales by Native Greenlanders. Bowheads are listed as endangered under the ESA and listed in Appendix I of CITES (Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Natives). In the early 1970s, the IWC Scientific Committee expressed concern about the status of the bowhead whale stock, and at the 1977 annual meeting of the IWC, recommended that the catch limit for aboriginal subsistence harvest of bowheads be set at zero (accepted by the IWC with a vote of 16-0, with the United States abstaining). In a subsequent special meeting in 1977, the United States and the Alaska Eskimo Whaling Commission presented a request to modify the ban and allow for a take of bowhead by Alaska Natives. Although the Scientific Committee rejected the proposal, the IWC plenary session allowed for a limited and strictly controlled hunt for 1978. Work on the bowhead aboriginal subsistence hunts continued in workshops and working groups following the special meeting. Some argued that the United States, by supporting an aboriginal hunt contrary to scientific advice regarding the conservation status of the stock, undermined the conservation arguments the United States and the IWC used to maintain the commercial moratorium (Hankins 1990). Continuous research since then has addressed questions regarding sustainability of a bowhead harvest.

Native Greenlanders harvest North Atlantic minke, humpback, and fin whales, which are classified as protected stocks under the IWC Schedule. For a number of years, the IWC Scientific Committee was unable to provide scientific advice to the IWC on safe catch limits because of lack of information regarding stock structure and minimum stock level, although this changed in 2007 with more solid data and advice on sustainable catch limits (IWC 2007b). The Scientific Committee continues to be able to provide advice on the sustainable catch of these stocks based on solid data.

Debate in the IWC over ASW also centers on what groups of people qualify as aboriginal subsistence whalers, what manner of hunting qualifies as aboriginal subsistence hunting, and what use of the products of the hunt qualifies as subsistence use. Criticisms come from those who support commercial whaling and argue for equal consideration and from animal rights groups opposed to all forms of whaling or concerned that aboriginal hunting methods result in inhumane killing. Criticisms have been leveled at the Greenlander, Bequian, Chukotkan, Alaska Native, and Makah hunts based on arguments that the hunters are not aborigines, that the manner of hunting is not aboriginal, or that the use of the products is not subsistence use.

Some critics have noted that the hunts of Greenlanders are particularly difficult to distinguish from commercial whaling because of the close integration of hunting and fishing activities and waged employment (Reeves 2002; Stevenson et al. 1997), plus the sale of 'mattak' and other surplus whale products on the Greenland market (Reeves 2002; Heide-Jørgensen 1994; Johansen 1997; High North Alliance 2007). At the 2012 meeting of the IWC, there was considerable discussion regarding Greenland's needs statement (including topics related to harvest conversion factors, the availability of whale meat in restaurants, human health, and political practicalities), and the Commission did not adopt a proposed Schedule amendment for 6-year catch limits for the Greenland hunts (IWC 2012c).

The Bequian harvest is an offshoot of New England-based whale fisheries that operated in the West Indies in the mid-1700s (Reeves 2002). Meat from humpbacks is still considered highly palatable by the Afro-Caribbean population of St. Vincent and the Grenadines, and meat for local consumption seems to be the principal incentive for whaling, although products from the hunts (especially oil) are also sold on the wider regional market (Caldwell and Caldwell 1975; Australian National Task Force on Whaling 1997; Reeves 2002). The Bequian harvest of humpback whales was limited to a few whales by primarily one person for several years and was originally intended to be phased out. At the IWC annual meeting in 1996, however, St. Vincent

and the Grenadines reported that a new whaler had taken up humpback whaling, causing concern on the part of some delegates (IWC 1997).

The Chukotkan hunt has raised concerns about the use of products from the hunt, because the blubber and some other gray whale components were being used as food in fox fur farms (IWC 1996; Australian National Task Force on Whaling 1997).

The 'subsistence use' definition formally adopted by the IWC includes the barter, trade, or sharing of whale products primarily within the local community and allows for the sale of handicrafts made from whale products. Commercial whaling proponents argue that this creates a double standard and that sharing, bartering, and trading meat amounts to commerce (Stoett 1997). Alaska Natives are allowed to sell native articles of handicraft from bowhead whales within the borders of the United States under the provisions of the MMPA, and the restrictions were similar for the 1998 through 2000 Makah hunts, as well as under the Tribe's Proposed Action (Alternative 2) and the Preferred Alternative (Alternative 7). In the past, questions have been raised about whether the Makah harvest was a subsistence harvest because their original 1995 formal request to resume hunting of ENP gray whales stated that the Makah were reserving what they consider their treaty-secured right to whale for commercial purposes. They classified their ceremonial and subsistence request as 'interim.' The present request does not include such a statement.

The legitimacy of the Makah request has also been questioned because of the Tribe's 70- to 80-year hiatus in whaling. (Subsection 1.1.4, Summary of Makah Tribe's Historic Whaling Tradition, and Subsection 3.10.3.4.2, Factors Responsible for Discontinuation of the Hunt, describe the reasons for the hiatus.) The 1981 Ad Hoc Technical Working Group's working definition of 'aboriginal subsistence whaling' refers to a "continuing traditional dependence" on whale products for subsistence (Section 3.17, Regulatory Overview; Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Natives; Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). While other aboriginal subsistence whalers have had smaller breaks in subsistence tradition (e.g., the Chukotkans stopped whaling for a few years in the 1990s), no other group has had a break lasting for more than a generation.

Additional controversy was generated over the legitimacy of the Makah hunt as an aboriginal subsistence hunt when the IWC adopted Schedule language stating that products from the hunt "were to be used exclusively for local consumption by the aborigines whose traditional aboriginal subsistence and cultural needs have been recognized" (IWC 1997) (Subsection 1.4.1.2.2,

Overview of Requests for ENP Gray Whales on Behalf of the Makah). Some observers asserted that "the more flexible the aboriginal subsistence whaling definitions become, the more susceptible the IWC will be to unyielding pressure by other communities with traditions of harvesting and using whales for commercial purposes" (Jenkins and Romanzo 1998). This issue became moot when the words "whose traditional aboriginal subsistence and cultural needs have been recognized" were deleted from Schedule 13 (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah).

Beginning in 1986, Japan argued that its coastal villages (generally referred to as small type coastal whaling) should be allowed to whale under the ASW exception, also requesting that the sale of meat from the hunt be allowed on the open market. At the IWC meeting in 2002, Japan and other pro-whaling parties withheld support for the United States' request for a bowhead quota for the years 2003 through 2007, but did not oppose the joint request of the Russian Federation and the United States for gray whales. Later that year at a special meeting, Japan and others approved catch limits for bowheads through 2007, and the United States voted in favor of a resolution regarding Japan's plan for small type coastal whaling if it was non-commercial and based on scientific advice. That resolution did not pass.

At the 2007 IWC meeting in Anchorage, Japan continued to press for an allowance for small type coastal whaling. In a statement to the press, Japan's Commissioner argued that small type coastal whaling is no different from ASW and accused IWC members of imposing a "double standard" (Hopfinger 2007). Prior to the meeting, the Japanese Commissioner stated that Japan would not oppose the Alaska Native quota, while the United States Commissioner was quoted in the Anchorage papers saying the United States would strike no deals with Japan even if Japan opposed the bowhead quota (deMarban 2007). The United States' request for updated bowhead catch limits and the joint request of the Russian Federation and United States for gray whale catch limits were approved by consensus. Japan has continued to reserve its right to propose an amendment to the schedule to allow small type coastal whaling (see, for example, IWC 2012b) but has not yet done so.

Outside the IWC forum or any international regulatory regime, aboriginal subsistence hunting occurred for hundreds to thousands of years. Refer to Subsection 3.4.3.6.1, Aboriginal Subsistence Whaling, for a list of tribes engaged in historic aboriginal hunts of ENP gray whales from California to Alaska and Chukotka. More recently, aboriginal subsistence hunts of whales is known to continue, or to have continued until recently, in three tropical areas: 1) humpback whale hunts in Equatorial Guinea, 2) sperm whale and other species in Indonesia, and 3) Bryde's

whales in the Philippines. The humpback whale hunt off the island of Pagalu in the Gulf of Guinea is thought to have been introduced by American ship-based whalers in the 18th and 19th centuries (Reeves 2002). Natives target humpback calves, with an estimated catch level of 3 or fewer humpbacks per year (Aguilar 1985; Reeves 2002). Whale hunts for sperm whales and other whales off two Indonesian islands predates the arrival of American and English whalers by at least two centuries (Barnes 1991; Barnes 1996). Fishing, including whaling, is the principal source of sustenance, and whale products, including meat and oil, are sold at local markets (Barnes 1991; Barnes 1996; Reeves 2002). One group of natives has mainly targeted sperm whales in the large whale catch in recent years, totaling a catch of 664 whales from 1959 to 1995, while another group of natives seems to target mostly baleen whales, including fin, sei, and minke whales (Barnes 1996; Reeves 2002). Both groups also hunt small cetaceans. Bryde's whales were the main targeted species in the Philippines until the last documented catch in 1996, when a Philippine administrative order expanded the prohibition on killing dolphins to include all cetaceans (Reeves 2002). Whale hunting origins among fishermen ranged from 100 years to opportunistic hunting in the last few generations.

Although the United States has consistently supported sustainable ASW, it objected to Canada's authorization of a bowhead hunt by Inuit hunters. In 1996, the Commerce Secretary certified Canada under the Pelly Amendment for allowing Inuit hunters to take two bowhead whales. The Secretary's certification stated that "[t]he United States supports aboriginal whaling when it is managed through the International Whaling Commission, the global body charged with responsibility for the international conservation and management of whale stocks and the regulation of whaling" (NOAA 1996). Canada withdrew from the IWC in 1982.

In 2018, the IWC adopted several new provisions in the ASW quota allocation process through amendments to the IWC Schedule (IWC 2018b). These provisions aimed to ease the considerable burden placed on ASW countries in obtaining and renewing their quotas, and provide some stability and security for the indigenous subsistence hunters they represent. The first provision deals with the timing of the quota renewal process. The one-time 7-year quota block beginning in 2019 shifted the expiration of the quotas to one year after the Commission meeting, during which they would be considered for renewal. This allows for a buffer year after the Commission meeting so that an ASW country could revise or re-submit a quota request in the event that the original request was not endorsed at the regular Commission meeting. Therefore, the current catch limits will be reviewed in 2024, but they will not expire until 2025. Beginning in 2026, the quota period will return to a 6-year block to maintain this timeline (IWC 2018d).

The IWC also adopted a carryover provision for unused strikes in a quota block. This provision allows for greater flexibility for subsistence hunters to use their strikes when it is safe for them to do so. The carryover provision does not change the total number of strikes allowed within a quota period; however, it does affect when those strikes may be used (IWC 2018d). This change was prompted by reports of Arctic Inuit hunters facing greater uncertainty with respect to environmental conditions each year.

Finally, the IWC adopted a limited automatic quota renewal process with safeguards for whale stocks to de-politicize the quota adoption process and allow for greater food security for subsistence harvesters. The plan adopted by the IWC would allow the previous catch limits to be automatically renewed if: (1) the Scientific Committee (SC) continues to advise that those catch limits will not harm the stock; (2) the ASW country receiving the quota has not proposed a change in their catch limits; and (3) the IWC determines that the ASW country has complied with the approved timeline of reporting requirements set for them and that the information provided represents a status quo continuation of the hunt (IWC 2018d).

These Schedule Amendments were adopted by a greater than 3/4 majority, with 58 countries in favor of adoption, seven against, and five abstentions. Opponents to the Amendments expressed support for the needs of indigenous subsistence harvesters, but remained concerned about the automatic renewal provision (IWC 2018a).

In 2018, the United States provided the SC of the IWC with a proposed management plan for a Makah subsistence hunt of ENP gray whales for review with respect to the conservation objectives of the IWC. The proposed plan reviewed by the SC matches the Preferred Alternative analyzed in this FEIS. The SC tested the proposed plan using a modeling framework developed as part of a previous rangewide review of gray whales, which took place from 2014-2018. The SC concluded that the Management Plan met the IWC's conservation objectives for ENP, WNP, and PCFG gray whales. The Aboriginal Subsistence Whaling Subcommittee of the IWC also reviewed the Makah Management Plan and endorsed the SC's report and recommendations (IWC 2018a), and the IWC endorsed the results, conclusions, and recommendations of the ASW Sub-committee and the SC.

Section 4

Environmental Consequences

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section examines the potential direct and indirect effects of the seven alternatives on each of the resources considered in this FEIS. Direct effects are those that are caused by the action and occur at the same time and place, while indirect effects are those that are caused by the action but occur later in time or are farther removed in distance and are reasonably foreseeable. Both adverse and beneficial effects are considered.

Section 2 described the No-action Alternative and six action alternatives, including the Preferred Alternative (Alternative 7 – Composite Alternative)), and Section 3 described the current condition of the resources that may be affected by the alternatives. Section 5 will address any cumulative effects that might occur when the direct and indirect effects of any of the alternatives are considered in the context of past actions, other contemporaneous actions, or reasonably foreseeable future actions.

For each resource, Section 3 included a regulatory overview that provided information about how that resource is managed, which informs the criteria presented in this section for evaluating effects of the alternatives. This information was provided for context, and it is not the purpose of this FEIS to resolve legal issues. Rather, the focus of this FEIS is to provide information to the decision-maker.

The six action alternatives examined vary primarily in the timing and location of the hunt, the number of strikes, and the limits on mortality of PCFG whales. One alternative also varies in the hunting methods (use of all motorized vessels versus a wooden canoe, Alternative 3), and two others vary in the duration of the waiver and regulations, as well as of any permits granted under a waiver (Alternatives 6 and 7). The principal components of timing, location, number of strikes, and PCFG mortality limits (described in Subsection 2.3.2.2, Gray Whale Hunt Details) are likely to influence the time of year the Tribe would hunt, the number of days the Tribe would hunt, and the number of whales the Tribe would likely kill and harvest. Also relevant to the analysis of effects is the number of times whales would be subjected to unsuccessful harpoon attempts, the number of times whales would be approached and potentially harassed by Makah vessels, and the number of rifle shots or grenade explosions under each alternative. Table 4-1 contains the same information regarding the principal components of the alternatives as that contained in Table 2-1, Primary Differences Among Alternatives, and also includes additional annual estimates of (1) the likely timing of the hunt, (2) the likely number of hunting days, (3) the maximum number of ENP

gray whales that might be killed, (4) the maximum and likely number of PCFG whales that might be killed, (5) the likelihood of killing a WNP whale, (6) the likely number of unsuccessful harpoon attempts, (7) the likely number of approaches, (8) the number of whales that might be successfully harvested, and (9) the likely number of rifle shots or grenade explosions. These estimates are based on the best available information and are relevant to evaluating the likely effects of the alternatives on most of the resources. The following discussion explains the basis for these estimates.

Also, the following definitions for the various groupings of whales analyzed in this section are provided below as a reminder for the reader (these terms are discussed in more detail in Subsection 3.4, Gray Whales, and are defined in the Glossary):

Western North Pacific (WNP) gray whales = Gray whales that feed during the summer and fall in the Okhotsk Sea (primarily off northeast Sakhalin Island, Russia), some of which also feed off southeastern Kamchatka in the Bering Sea. WNP gray whales are considered a population stock under the MMPA, and the stock is designated as depleted. WNP gray whales are recognized as a distinct population segment (DPS) under the ESA and are designated as endangered.

Eastern North Pacific (ENP) gray whales = Gray whales that feed during the summer and fall primarily in the Chukchi, Beaufort, and northwestern Bering Seas, but also as far south as California. ENP gray whales are considered a population stock under the MMPA. ENP gray whales were formerly listed as an endangered species under the ESA but subsequently recovered and were delisted in 1994 (59 FR 31094, June 16, 1994).

Pacific Coast Feeding Group (PCFG) whales = Gray whales observed in at least 2 years between June 1 and November 30 in the PCFG area (along the U.S. and Canada coasts between 41°N and 52°N, excluding areas in Puget Sound) and entered into the Cascadia Research Collective's photo-identification catalog. For purposes of determining whether a harvested whale is a PCFG whale and therefore counts against a bycatch or mortality limit, the Tribe's proposal under Alternative 2 would include cataloged whales seen in at least 1 year, while the other action alternatives would include cataloged whales seen in 2 or more years. Alternative 7, the preferred alternative, would assume any whale struck, struck and lost, or approached during the summer hunt time period to be a PCFG whale. Under the MMPA, PCFG whales are considered part of the ENP gray whale population stock and have been described in the ENP gray whale SARs as a feeding aggregation.

Oregon to Southern Vancouver Island (OR-SVI) whales = PCFG whales observed in any survey area from southern Oregon to southern Vancouver Island (excluding areas in Puget Sound) from June 1 to November 30. This grouping comprises individual PCFG whales sighted in the relevant survey areas and is not a separate population stock or feeding aggregation.

Makah U&A whales = PCFG whales observed in either the northern Washington survey area (from Cape Alava to Cape Flattery) or Strait of Juan de Fuca survey area (from Cape Flattery to Admiralty Inlet) from June 1 to November 30. This grouping comprises individual PCFG whales sighted in the relevant survey areas and is not a separate population stock or feeding aggregation.[1]

[1] Identified survey area boundaries are taken from Calambokidis et al. (2019). Survey effort and whale sightings can be opportunistic and not uniformly distributed within these boundaries.

Table 4-1. Primary differences among alternatives and associated assumptions for analysis.

Whale Hunting Components		Alt. 1 No Action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split Season Hunt	Alternative 6 Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits	Alternative 7 Composite – Preferred
Hunt timing		None	December 1 through May 31[a]	Same as Alternative 2	June 1 through November 30	December 1 through December 21; May 10 through May 31	Same as Alternatives 2 and 3	Summer/fall hunts and hunting approaches will be authorized from July 1 through October 31, and winter/spring hunts and hunting approaches will be authorized from December 1 through May 31. Only one hunt season may be authorized in a calendar year, however the first month (December) of a winter/spring hunt would fall in the same calendar year as a summer/fall hunt.
Hunt area		None	U&A west of Bonilla-Tatoosh line; no whale may be struck within 200 yards (182.9 m) of Tatoosh Island or White Rock during the month of May	Same as Alternative 2 except at least 5 miles (8 km) from shore	Same as Alternative 2 except no whale may be struck within 200 yards of Tatoosh Island or White Rock during any month	Same as Alternative 2	Same as Alternatives 2 and 5	U&A west of Bonilla-Tatoosh line, with other site and time restrictions possible to protect Olympic Coast National Marine Sanctuary resources
Maximum limit for harvested, struck, and struck and lost whales	Annual	0	Up to 5 harvested, 7 struck, and 3 struck and lost	Up to 5 harvested, 6 struck, and 2 struck and lost	Up to 5 harvested, 7 struck, and 3 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 5 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 4 harvested (7 over 2 years); up to 4 struck (7 over 2 years); struck and lost limited by strike limit or PCFG limit (see below)	In winter/spring hunts, up to 3 harvested, struck, or struck and lost. In summer/fall hunts, only 1 harvested and 2 struck or struck and lost

	6-year	0	Up to 24 harvested, 42 struck, and 18 struck and lost	Up to 24 harvested, 36 struck, and 12 struck and lost	Up to 24 harvested, 42 struck, and 18 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 24 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 21 harvested, 21 struck; struck and lost limited by PCFG limit (see below)	Up to 12 harvested, and 15 struck or struck and lost
	10-year	0	Up to 40 harvested, 70 struck, and 30 struck and lost	Up to 40 harvested, 60 struck, and 20 struck and lost	Up to 40 harvested, 70 struck, and 30 struck and lost; harvest, struck, and struck and lost limited by PCFG limit (see below)	Up to 40 harvested; struck and struck and lost limited by PCFG limit (see below)	Up to 35 harvested, 35 struck; struck and lost limited by PCFG limit (see below)	Up to 20 harvested, and 25 struck or struck and lost
ENP Population Abundance Threshold		N/A	N/A	N/A	N/A	N/A	N/A	The impacts of the Preferred Alternative are analyzed without an ENP population abundance threshold. However, three thresholds are considered as sub-alternatives. Under the sub-alternatives, hunting would cease if the abundance estimate (N) of the ENP gray whale stock dropped below: a) N=11,000, b) N=16,000, or c) N=18,000

Additional limits on harvest or mortality of PCFG whales. Estimated limits are based on current conditions and could change based on updated information. The descriptions in the table are shorthand. Please refer to the narrative for full details, and Subsection 3.4.2.1.3, for background on the potential biological removal (PBR) approach.	N/A	Tribe's bycatch proposal (apply PBR-based formula, with Rmax of 4% and Recovery Factor same as for ENP (1.0) and Nmin of OR-SVI) (results in about 3.0 whales/year); struck but not landed do not count as PCFG; no carry-over of unused limit	Total mortality limit set at PBR (as reported in NMFS' stock assessment report or calculated by NMFS); additional female mortality limit set based on proportion of females in PCFG (results in about 2.7 males and 1.6 females); all struck but not landed count as PCFG whales in proportion to presence of PCFG whales; no carry-over of unused limit	Mortality limit set to achieve or maintain 80% of carrying capacity (PBR-based formula with same values as Alt 3 but a recovery factor of 0.35), minus other human-caused mortality (results in 1 whale); approach only known ENP males; all strikes count as PCFG; no carry-over of unused limit unless it's between 0.5 and 1.0	Mortality limit set at 10% of PBR as calculated in Alt 3 (results in about 1 whale/4 years); struck but not landed count as PCFG in proportion to presence of PCFG whales; carry-over of unused limit used to calculate hunt hiatus	Mortality limit set at PBR (as calculated in Alt 3) minus other human-caused mortality (results in about 2 whales/year); all struck but not landed count as PCFG in proportion to presence of PCFG whales; no carry-over of unused limit	Mortality limit set at 16 PCFG whales over 10 years, no more than 8 of which may be females. Hunting would be prohibited if the abundance of the PCFG falls below 192 whales, or the minimum abundance falls below 171 whales
Waiver and permit duration and additional regulations	N/A	Unlimited waiver period; up to 5-year permits; no additional regulations	Same as Alternative 2	Same as Alternatives 2 and 3	Same as Alternatives 2, 3, and 4	Waiver period ends after 10 years; 3-year permits	Waiver period ends after 10 years; initial permit ≤3 years, subsequent permits ≤5 years
ESTIMATES FOR ANALYSIS							
Whale Hunting Components		**Alternative 1 No-action**	**Alternative 2 Tribe's Proposed Action**	**Alternative 3 Offshore Hunt**	**Alternative 4 Summer/Fall Hunt**	**Alternative 5 Split Season Hunt**	**Alternative 6 Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits**	**Alternative 7**
Likely timing of hunt		NA	March-May	March-May	June 1-September 30	May 10 through May 31	Same as Alternatives 2 and 3	March-May in winter/spring hunt years; July 1-October 31 in summer/fall hunt years
Likely number of hunting days per year		0	33	33 (with an additional 9 days possible during winter months)	7 every 2 years	11	Same as Alternative 2	33 in winter/spring hunt years; 7-14 in summer/fall hunt years

Likely number of days with hunt-related trips (including scouting) per year	0	60	Same as Alternative 2	7 every 2 years	22	Same as Alternatives 2 and 3	60 in winter/spring hunt years; 7-14 in summer/fall hunt years; Average of up to 37 per year over 10 years
Maximum number of ENP gray whales killed each year by Makah Tribe (based on current estimates of PCFG mortality limits)	0	7 based on strike limit	6 based on harvest limits and current estimates of PCFG mortality limits	1 every 2 years based on current estimates of PCFG mortality limits	5 based on harvest limits and current estimates of PCFG mortality limits	7 over 2 years, no more than four in 1 year (based on strike limit)	3 based on strike limits in winter/spring hunts; 2 based on strike limits in summer/fall hunts (if the first whale struck is lost)
Maximum number of PCFG whales that might be killed in a year (based on current estimates of PCFG mortality limits) and likely number killed per year	0	Maximum: 3 Likely: 1.9	Maximum: 4 Likely: 1.6	Maximum: 1 every 2 years Likely: 1 every 2 years	Maximum: 1 Likely: 0.2 (1 every 5 years)	Maximum: 1 Likely: 0.96	Winter/spring hunts Maximum: 3 Likely: 0.82 Summer/fall hunts Maximum: 2 Likely: 2 (assumes the first struck whale is lost)
If maximum number of strikes occur, likelihood of striking a WNP whale per year expressed as the median probability, given an ENP abundance of 11,000 to 16,000 animals	0	0.056-0.084	0.048-0.072	0	0.040-0.060	0.028-0.042	0.024-0.035
Potential maximum number of unsuccessful harpoon attempts per year (based on estimated 6:1 ratio of unsuccessful harpoon attempts to successful strikes)	0	42	36	6 every 2 years	30	21	18 in winter/spring hunts; 12 in summer/fall hunts; Average of 15 per year over 10 years
Potential maximum number of approaches per year[b] (based on estimated 8.3 approaches per day of hunting)	0	353	Same as Alternative 2	58 every 2 years	122[c]	Same as Alternatives 2 and 3	353 (based on Alternative 2's maximum value)
Likely number of whales successfully harvested on average per year (based on current population estimates and calculations, and other conditions specific to each alternative)	0	up to 4	Same as Alternative 2	0.5	0 – 1	up to 3.5	Up to 3 in winter/spring hunts; up to 1 in summer/fall hunts

Likely number of rifle shots or grenade explosions per year (based on estimated 16 rifle shots and 3 grenade explosions per harvested whale)	0	Up to 64 rifle shots or 12 grenade explosions	Same as Alternative 2	0 – 16 rifle shots or 0 – 3 grenade explosions every 2 years	0 – 16 rifle shots or 0 – 3 grenade explosions	Up to 56 rifle shots or 11 grenade explosions	Up to 48 shots and 9 explosions in winter/spring hunts; up to 32 shots and 6 explosions in summer/fall hunts: Average of 40 shots and 7.5 explosions per year over 10 years

a. With this and other alternatives, we rely on calendar year ("per year") calculations and estimates to simplify comparisons in this FEIS.
b. The analysis also considers the likely number of approaches and attempted strikes per year for PCFG, OR-SVI, Makah U&A, and WNP gray whales. Those estimates are reported in Tables 4-4, 4-6, 4-8, 4-10, and 4-12.
c. Based on a maximum of 14.7 hunt days in May and December.

4.1.1 Alternative 1, No Action

Under Alternative 1, NMFS would not authorize a Makah gray whale hunt.

4.1.1.1 Potential Timing of a Hunt and Number of Hunting Days

Because no hunt would be authorized under Alternative 1, there would be no hunting season in the Makah U&A.

Because no hunt would be authorized under Alternative 1, there would be no hunting days in the Makah U&A.

4.1.1.2 Potential Number and Types of Vessels

Because no hunt would be authorized under Alternative 1, there would be no hunting vessels in the Makah U&A.

4.1.1.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Because no hunt would be authorized under Alternative 1, there would be no whales killed as a result of hunting in the Makah Tribe's U&A. For the reasons described below, the entire ENP gray whale quota would likely be killed even though there would be no harvest by the Makah Tribe.

The current annual and 7-year catch limits set by the IWC for ENP gray whales are based on a joint request of the Russian Federation and the United States (see Subsection 3.17.3.2.2, Aboriginal Subsistence Whaling, for more detail about the joint request). The current landing limit set by the IWC is 980 whales over the 7-year period (2019 through 2025), with no more than 140 whales struck in any one year. A bilateral agreement between the Russian Federation and the United States, renewed each year, allocates those totals between the two countries. If we do not authorize a Makah gray whale hunt, or we authorize a hunt for fewer whales than provided in the most recent bilateral agreement, the agreement provides that "either side may initiate discussions on the transfer of unused takes from one Native group to another," (Fominykh and Wulff 2023). If a transfer is agreed to, the Russian Federation could authorize the Chukotka Natives to take any of the unused catch limit. There are several reasons to expect that such transfer would occur and that the Chukotka Natives would harvest any unused Makah allocation. First, the first joint request by Russia and the United States for a gray whale catch limit was for the same catch limit that had previously been adopted in response to the Russia-only request (in other words, the U.S. allocation came out of the existing Russian allocation) (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). The catch limit for gray whales, based on the needs of the Chukotka Natives alone, was 179 whales annually prior to 1991, 169 whales annually from 1992 through 1994, and 140 whales annually from 1995 through 1997. Second, the

United States agreed to such a transfer of unused takes of gray whales from the Makah Indian Tribe to Chukotka Natives in 2007, 2012, 2016, and 2017 (Ilyashenko and Hogarth 2007; Ilyashenko and DeMaster 2012; Fominykh and Smith 2016; Wulff and Fominykh 2017). Third, for the period 2018 through 2021 the Chukotka Natives harvested nearly all of the IWC catch limit (an annual average of 126.7) and went over their allocation of 135 whales in 2019 and 2020, harvesting 137 and 136 gray whales in those years respectively (IWC 2022d). For these reasons, it is reasonable to expect that if the Makah Tribe's request is denied, authorized at a lower limit, or the Tribe is unable to use its entire allocation, any unused allocation would be transferred to and used by the Chukotka Natives.

Thus, although the alternatives considered in this FEIS may result in the Makah Tribe harvesting different levels of ENP gray whales, the overall harvest of ENP gray whales is likely to be the same regardless of the alternative selected (that is, the total allowed under the IWC schedule). The difference would be how and where whales are killed, i.e., Makah using large caliber rifles in their U&A versus Chukotkans using smaller caliber rifles on their more northern hunting grounds. Where appropriate, the analysis notes the likely impact on a resource in the event the United States did not transfer any unused portion of the catch limit.

Beyond 2025, if we did not authorize a Makah gray whale hunt, it is reasonable to expect that the Russian Federation would request a renewal of the ENP gray whale catch limit of at least 744 whales over 6 years, consistent with their representations at the 2018 IWC meeting that their needs are greater than the total existing allocation (IWC 2023b).

It is unlikely that any PCFG whales would be killed in a hunt under Alternative 1 because there would be no hunting in the Makah U&A and all aboriginal subsistence whaling would occur in Russian waters.

4.1.1.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

Because no hunt would be authorized under Alternative 1, no whales would be subjected to attempted strikes or approaches by hunters in the Makah U&A.

4.1.1.5 Potential Number of Shots Fired or Grenade Explosions

Because no hunt would be authorized under Alternative 1, there would be no shots fired or grenades exploded by hunters in the Makah U&A.

4.1.2 Alternative 2, Tribe's Proposed Action

Alternative 2 represents the Makah Tribe's proposal, with a minor modification to reflect the change in the IWC aboriginal subsistence whaling schedule from 5-year to 6-year catch limits[2] (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). Alternative 2 would authorize a hunt in the coastal portion of the Tribe's U&A (outside the Strait of Juan de Fuca) from December 1 through May 31. It would also prohibit striking whales within 200 yards (183 m) of Tatoosh Island and White Rock during May to minimize disturbance to feeding and nesting seabirds. There would be a limit of 7 whales struck per year, 5 whales harvested per year, 24 whales harvested over 6 years, and 3 whales struck and lost per year. There would be a limit on the number of PCFG whales harvested, which would be calculated using a PBR-based formula (described in more detail below and displayed in Table 4-3). As noted in Subsection 3.4.3.4.1, PCFG Population Structure, under the Tribe's proposal any harvested whale that had been sighted in the PCFG seasonal range (even a whale only sighted once) would count against the PCFG limit. However, the Tribe does not propose to count struck and lost whales against the PCFG limit. Hunting methods would include the use of a wooden canoe, toggle-point harpoon, and .50 caliber rifle. An optional method of killing whales would be the use of a darting gun and penthrite grenade (though this option was not included in the Tribe's request). The regulatory framework under Alternative 2 would include no termination date for the authorization and regulations and allow up to 5-year permits to be issued. These and additional details are described in Subsection 2.3.2.2, Gray Whale Hunt Details.

4.1.2.1 Potential Timing of a Hunt and Number of Hunting Days

Under Alternative 2, the hunting season would be December 1 through May 31. The environmental factors most likely to determine the timing of a hunt and the number of hunting days under Alternative 2 are: (1) ocean conditions favorable for scouting and locating whales, and (2) presence of whales. Social, economic, or other factors may further limit the number of days tribal members might hunt, but those factors are too speculative to evaluate.

The ocean conditions that are favorable for a hunt are wind speeds less than 16 knots (8.2 m/s) and wave height less than 6 feet (1.8 m). At wind speeds higher than 16 knots or waves higher than 6 feet, it becomes difficult to detect whales because their blows are quickly dispersed by the wind, it is difficult to observe them over the swells, and the boat operator must focus attention on navigation rather than scanning for whales (J. Scordino, pers. comm., Makah Tribe Marine Mammal Biologist, July 31, 2013)

[2] Although the current IWC quota block is set for a 7-year period to shift the expiration of the quota period to one year after Commission meeting years, the quota blocks will return to 6-year periods beginning in 2025 (see Subsection 3.17.3.2.2, Aboriginal Subsistence Whaling, for more information). The 6-year period was selected for analyzing the impacts of the alternatives in this analysis to align with the long-term IWC process.

(refer to Subsection 3.4.3.5.7, Weather and Sea Conditions). On days with favorable ocean conditions, tribal hunters would likely only launch a hunt if at least one whale were present in the hunt area. We thus consider a "suitable hunting day" to be one with these favorable ocean conditions and one or more whales present.

We examined data from a weather buoy stationed near the hunt area to determine the number of days by month with favorable ocean conditions. The Makah Tribe and the National Marine Mammal Laboratory provided data from their survey efforts in the hunt area to estimate the probability of whales being present per survey trip. We considered this a reasonable surrogate for the probability of whales being present during a hunt; that is, the probability that tribal hunters would successfully locate whales. Table 4-2 shows the number of days with favorable ocean conditions and the probability that whales would be present on any day. The final column shows the product of these values, which is the number of suitable hunting days per month.

Table 4-2. Projected number of days during the hunting season with favorable ocean conditions and whales present.

Month	A. Number of Surveys with 1 or More Gray Whale Sightings	B. Number of Surveys with no Sightings of Gray Whales	C. Total Number of Ocean Surveys (A+B)	D. Probability of Sighting 1 or More Gray Whales (A/C)	E. 2004-2012 Average Number of Days with Favorable Ocean Conditions	Projected Suitable Hunting Days (DxE)
Jan	2	1	3	0.67	5.2	3.5
Feb	1	3	4	0.25	6.3	1.6
Mar	8	2	10	0.80	6.8	5.4
Apr	18	1	19	0.95	13.8	13.0
May	17	9	26	0.65	22.7	14.8
Jun	14	2	16	0.88	24.3	21.3
Jul	18	3	21	0.86	27.0	23.1
Aug	24	4	28	0.86	28.5	24.4
Sep	23	1	24	0.96	21.3	20.4
Oct	14		14	1.00	12.3	12.3
Nov	5	3	8	0.63	5.4	3.4
Dec	3	1	4	0.75	5.6	4.2

Under the Tribe's proposed action, we expect the majority of hunting to occur in April and May because those are the months with the greatest number of suitable hunting days[3], with about 13 days in April and about 15 days in May. Tribal members may also try to maximize hunting opportunity by hunting during March, with about 5 suitable hunting days. In total, there could be up to 33.2 days of hunting per year during the spring under Alternative 2 (5.4 + 13.0 + 14.8 = 33.2). We consider it less likely that tribal members would hunt in December through February, when there are only a total of 9.3 suitable hunting days during the entire 3-month period (4.2 + 3.5 + 1.6 = 9.3). However, it is possible a hunt may occur during this time period, so we consider it in the analysis. If tribal members hunted on every suitable hunting day during December through May, that would equal about 42.5 days of hunting per year under Alternative 2 (33.2 + 9.3 = 42.5).

For a variety of reasons, this number may be an overestimate of the number of days tribal members would actually hunt. As noted, social and economic factors may result in tribal members not hunting on all suitable hunting days. Tribal members might also be able to harvest the average annual quota of four whales in fewer than the 42.5 suitable hunting days available each year. During 1999, the Tribe successfully hunted a single whale during 4 days of hunting. During the 2000 hunt, the Tribe hunted for 7 days without harvesting any whales. We conclude that this experience does not provide enough of an indication of how many days would be required for the Tribe to harvest a whale in the future, both because it is inconclusive (one data point of 4 days per whale harvested and another data point of 7 days and no whales), and because a hunt under current conditions may be different than the hunts during 1999 and 2000, primarily because of the knowledge of whales gained through the Tribe's extensive survey efforts in the intervening years. Therefore, we did not reduce the number of potential hunting days based on an estimate of average number of days per whale harvested.

In addition to the number of days in which tribal members would hunt from a canoe with support vessels, under Alternative 2 there may be days in which a motorized vessel scouts for whales and days when tribal members conduct training activities from motorized vessels and canoes. We assume scouting and training may occur on every day with favorable ocean conditions. During March through May, there are approximately 43.3 days with favorable ocean conditions (6.8 + 13.8 + 22.7 = 43.3); thus, we assume there could be 43.3 days of scouting effort or during the spring. If tribal members chose to hunt during December through February as well, there could be an additional 17.1 scouting

[3] While June through September have a greater number of suitable days, these months are outside the hunt season (December 1 through May 31) under Alternative 2.

and/or training days with favorable ocean conditions (5.6 + 5.2 + 6.3 = 17.1), for a total of 60 possible days of hunt-related trips (including scouting effort and training) from December through May. This number may also be an overestimate of the number of days the Tribe would actually train or scout for whales, in part for the same reasons that our estimate of hunting days may be an overestimate, and in part because tribal members may scout whales opportunistically while engaged in other activities, rather than mount a dedicated scouting effort.

To summarize, we expect the maximum number of days of hunting, training, and scouting under Alternative 2 to occur as follows:

- Most likely: March through May
    - 43.3 scouting and/or training days, 33.2 hunting and/or training days
- Less likely: December through February
    - 17.1 scouting and/or training days, 9.3 hunting days

4.1.2.2 Potential Number and Types of Vessels

Under Alternative 2, the Tribe would hunt from a wooden canoe (which would carry the harpooner and crew) and a motorized chase vessel (which would carry the rifleman, backup harpooner, and diver), with one of these vessels also carrying the whaling captain. It is likely that other vessels would be involved in the hunt, at least during the first few years of hunting. Similar to the 1999 hunt, such vessels could include a NOAA or Makah research vessel, a Coast Guard enforcement vessel, one or more vessels chartered by the media, and protest vessels (Subsection 1.4.2, Summary of Recent Makah Whaling — 1998 through 2022). It is difficult to predict the number of protest vessels, but it is likely there would be several that would accompany at least some hunt excursions, including small craft and jet skis, as was the case during the 1999 hunt. There also may be helicopters, similar to those chartered by the media during the 1999 hunt.

4.1.2.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed

Under Alternative 2, the maximum number of whales that could be killed each year by the Tribe would be seven, because of the limit of seven strikes per year. This estimated maximum assumes that struck and lost whales subsequently die. A total mortality of up to 7 whales per year represents 0.048 percent of the ENP gray whale population (estimated to be 14,526 whales) and 1.7 or 3.4 percent of PBR (based on the informational estimates of PBR or 409 and 204, calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). This level of annual mortality, although higher than

under the No-action Alternative, is such a small fraction of the stock's abundance that it would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Some of the whales killed might be PCFG whales; and, of those, some might be whales previously documented occurring within the OR-SVI and the Makah U&A survey areas. Under Alternative 2, the Tribe proposes to stop hunting in any year if it harvests a calculated limit of PCFG whales. The Tribe proposes that this limit be calculated using NMFS' PBR methodology, based on the minimum abundance of whales previously sighted in the OR-SVI, using a recovery factor of 1.0, and an Rmax of 4 percent.[4] If this results in a fractional number, the harvest limit would be rounded down. Table 4-3 illustrates how the limit would be calculated. Under current conditions, the harvest limit would be 3.0 PCFG whales annually. Because the Tribe proposes to calculate and set the PCFG harvest limit each year, fractions of whales or unused whales would not be carried over to a subsequent year.

Table 4-3. Alternative 2 (Tribe's Proposed Action) method of calculating PCFG harvest limits.

Element	Current Value	Source for Establishing Value in Future Calculations	Notes
One-half maximum net productivity rate (Rmax)	(½) 0.040 = 0.02	IWC 2012e (Annex D)	See Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity (K), and Related Estimates
Minimum population abundance of OR-SVI (Nmin)[a]	190	Harris et al. 2022	See Subsection 3.4.3.4.3, PCFG Abundance and Trends
Recovery factor for ENP stock as a whole	1.0	IWC 2012e (Annex D)	See Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity (K), and Related Estimates
CURRENT RESULT	(0.02) * (190) * 1.0 = **3.8 (rounded down to 3)**		

[a] The value for Nmin is derived from photo-identification analyses of PCFG whales and may change as new information becomes available. The method for calculating the PCFG limits under Alternative 2 is described in Subsection 2.3.2.2.3, Limits on Harvesting PCFG Whales.

[4] Values for Rmax and the recovery factor are those submitted by the Makah Tribe to the IWC during the 2012 workshop focusing on the PCFG gray whale implementation review (IWC 2012e, Annex D). The 4 percent Rmax value used in that review was lower than the 4.7 percent used in the Tribe's 2005 waiver application to NMFS. We reviewed the differing values with the Tribe and determined that Alternative 2 (the Tribe's Proposed Action) should be interpreted as using an Rmax of 4 percent in keeping with the analysis and findings of the IWC Scientific Committee's 2012 review.

The Tribe proposes to count against the harvest limit only whales that are successfully landed and identified, not those that are struck and lost. Some proportion of struck and lost whales might, however, be PCFG whales. With an average allowable harvest limit of three PCFG whales landed, and a restriction of three whales struck and lost per year, a maximum of five PCFG whales might be killed each year (of which some or all might be OR-SVI and Makah U&A whales). This would happen if two PCFG whales were struck and lost (and not counted against the harvest limit) before three PCFG whales were landed and identified.[5]

While five would be the *maximum* number of PCFG whales that might be killed each year under Alternative 2, it is unlikely that many would actually be killed given that there is a greater proportion of non-PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt. The proportion of PCFG whales in the Makah U&A during the December through February portion of the winter hunting season is unknown (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). This analysis therefore also considers the *likely* number of PCFG whales that might be killed per year if the full number of strikes were to occur during the spring. The calculation is based on the proportional presence of PCFG whales in the coastal portion of the Makah U&A during March through May. In addition, the analysis considers the likely number of OR-SVI and Makah U&A whales that might be killed in a tribal hunt if the full number of strikes were to occur during the spring portion of the hunting season.

During the period 1996 to 2016, 27.3 percent of whale sightings (unique whale-days) during the March through May period in the northern Washington coast survey area were PCFG whales, 26.2 percent were also OR-SVI whales, and 23.4 percent were also Makah U&A whales (Calambokidis et al. 2019; Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). Although Harris et al. (2022) used the same methods as Calambokidis et al. (2019) to update these mixing proportions with data from 2017 to 2022, these data were selectively processed in a manner which resulted in a known bias. Therefore, Harris et al. (2022) recommend relying on the previous mixing proportions until future reporting is complete (see Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). If seven whales were killed in a year under Alternative 2, the likely number of PCFG whales that would be killed would be 1.9 (7 whales killed times 27.3 percent), the likely number of OR-SVI whales killed would be 1.8 (seven whales killed times 26.2 percent), and the likely number of Makah U&A whales killed would be 1.6 (seven whales killed times 23.4 percent). These numbers are

[5] These maximum estimates are based on the unlikely assumption that all struck and lost whales are PCFG whales that subsequently die from such injury. It is possible that a harvested PCFG whale is falsely thought to be a non-PCFG whale because it is either mismatched or a match to the catalog is not found (J. Calambokidis, pers. comm., Cascadia Research Collective, May 14, 2014). Such cases (i.e., false negatives) are extremely rare and not included in our estimates.

subsets of one another (as shown in Figure 3-10, the OR-SVI is contained in the PCFG area and the Makah U&A is contained in the OR-SVI area) so are not additive. These estimates are also displayed in Table 4-4. This level of mortality for the PCFG is below the informational PBR of 3.1 whales calculated by NMFS (Harris et al. 2022). If the Tribe also hunted in the winter, it is uncertain what the proportion of PCFG whales would be; thus, there could be more or fewer PCFG, OR-SVI, or Makah U&A whales killed.

Likelihood of Striking a WNP Whale

Finally, the analysis considers the likelihood that a WNP whale may be killed in a single year and over a 6-year and 10-year period. There are very limited data for WNP whales in the action area to inform this analysis (Subsection 3.4.3.2.2, WNP Seasonal Distribution, Migration, and Movements). Table 4-4 shows the calculated probability, displayed as the median estimate, of a WNP whale being struck based on seven strikes per year during the spring using estimates derived from modeling by Moore et al. (2023), and strike/attempt/approach estimates specific to this alternative.

Based on the best available information and taking the conservative approach of assuming the greatest possible impact, Moore et al. (2023) assumed (1) that all allowable strikes, approaches, and training harpoon throws would be utilized in a given year and (2) that they would all be made on unique whales (meaning, for example, that all 353 allowable approaches in a given year are made on 353 different whales). Given these assumptions, they estimate that for an individual strike on a gray whale, the expected probability of it being a WNP whale is between 0.8% and 1.2%, assuming an ENP abundance of between 16,000 and 11,000 animals[6], respectively. It is unlikely that all of the assumptions of this analysis will be met, as it is unlikely that the full allowance of strikes, training harpoon throws, and approaches will be utilized each year. Therefore, the estimates derived here from the Moore et al. 2023 analysis represented the maximum potential impact to WNP gray whales under Alternative 2.

Likely Number of ENP Whales Harvested

Under Alternative 2, the Tribe would be authorized to harvest, on average, four whales per year, with a maximum of five whales in a year. Therefore, the average annual number of whales that could be harvested is at most four whales.

[6] Moore et al. (2023) chose to analyze a range of ENP abundance due to the ongoing decline of the ENP population and to provide a range of potential probabilities of encountering a WNP gray whale over the course of the 10-year waiver period should the decline continue. At the time the analysis was conducted, the most recent ENP abundance was estimated at approximately 16,000 whales (Eguchi et al. 2022a). The lower bound of 11,000 whale was selected as the lowest previously recorded abundance estimate for the ENP population (Moore et al. 2023).

4.1.2.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

In its waiver request, the Tribe referred to its experience in 1999 and 2000 to estimate there would be four unsuccessful harpoon attempts for each successful strike and 20 whales approached for each successful strike. Based on our review of the available data from the 1999 and 2000 hunts, and in particular the reports of the 1999 (Gosho 1999) and 2000 (Gearin and Gosho 2000) hunts, we have developed different estimates for this analysis.

To estimate the potential number of unsuccessful harpoon attempts for the action alternatives, we considered the Tribe's hunt experience from both 1999 and 2000. In 1999, tribal hunters made three unsuccessful harpoon attempts and one successful strike. Based on this information, the Tribe's application concluded there would be four unsuccessful harpoon attempts for each successful strike. However, the actual ratio experienced in the 1999 hunt was 3:1, not 4:1, because the fourth attempt was successful. The Tribe also hunted in 2000 and made three unsuccessful harpoon attempts and no successful strikes. Thus, the ratio of unsuccessful harpoon attempts to successful strikes from the combined 1999 and 2000 hunting seasons would be 6:1. This is the ratio we use to estimate the number of unsuccessful harpoon attempts.

The Tribe estimated that with 10 approaches for each whale struck there would be 20 whales approached because of the average pod size of two whales, as observed during the southbound counts at Granite Canyon. The Tribe's application does not explain the basis for the assumption that there would be 10 approaches for each whale struck.

For the analysis in this FEIS, we examined information from the 2000 hunt because the report of that hunt (Gearin and Gosho 2000) documents the actual number of whales encountered by tribal hunters. During the 2000 hunt, tribal hunters approached 58 whales over 7 hunting days, for an average of 8.3 whales approached per day. We therefore use an average of 8.3 approaches per hunting day for the analysis in this FEIS because it is based on actual counts of whales approached and does not rely on assumptions about average pod size of south-migrating whales, which may not hold true for north-migrating whales in the Makah U&A during the spring.

Under Alternative 2, with a maximum of seven possible strikes per year, there might be 42 unsuccessful harpoon attempts (seven strikes times six unsuccessful harpoon attempts). With up to 33.2 hunting days per year in the spring, the potential number of times that tribal hunters might approach a whale would be 276 (8.3 approaches per day times 33.2 days). If tribal members hunted during the winter as well, there could be an additional 77 approaches (8.3 per day times 9.3 days). Some of these attempted strikes and approaches could be repeated incidents involving the same whale. We also estimated the number of instances in which PCFG, OR-SVI, and Makah U&A whales could be

subjected to unsuccessful harpoon attempts or approaches by hunters. For these estimates, we multiplied the number of strikes and approaches times the proportion of each category of whales observed in the coastal portion of the Makah U&A during March through May (Subsection 3.4.3.4.3, PCFG Abundance and Trends). The estimates are displayed in Table 4-4.

Finally, we estimated the likelihood of an unsuccessful harpoon attempt or approach involving a WNP whale. For these estimates, we relied on modeling by Moore et al. (2023), as described above (Subsection 4.1.2.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested). These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 2, for the same reasons as described above in Subsection 4.1.2.3. The estimates are displayed in Table 4-4.

Table 4-4. Estimated number of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG, OR-SVI, Makah U&A, and WNP whales under Alternative 2.

Whales		Number of Strikes[a]			Number of Unsuccessful Harpoon Attempts[b]			Number of Approaches[c]		
		Annual	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**
ENP[d]		7	42	70	42	252	420	353	2,118	3,530
PCFG[e]	27.3%	1.9	11.5	19.1	115	68.8	114.7	96.4	578.2	963.7
OR-SVI[e]	26.2%	1.8	11.0	18.3	11.0	66.0	110.0	92.5	554.9	924.9
MUA[e]	23.4%	1.6	9.8	16.4	9.8	59.0	98.3	82.6	495.6	826.0
WNP[f]	0.8-1.2%	0.056-0.084	0.34-0.50	0.56-0.84	0.34-0.50	2.0-3.0	3.4-5.0	2.8-4.2	16.6-25.0	27.7-41.6

a. Limited by regulation.
b. Calculated using number of unsuccessful harpoon attempts per successful strike (6:1), based on experience during 1999 and 2000 hunts combined.
c. Calculated using an estimate of 8.3 approaches per day of hunting and a total of 42.5 hunting days per year.
d. ENP estimates are maximum values.
e. Percentage estimates are based on the springtime whale analysis by Calambokidis et al. (2019) that compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this FEIS for PCFG whales, which requires a whale to be have been seen in at least 2 years). This results in estimates that are likely higher and therefore more conservative than estimates that would be derived from a comparison with whales observed in at least 2 years. We conclude that this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range. Note that OR-SVI and MUA are nested regions within the PCFG range.
f. Range of median probability based on modeling by Moore et al. (2023) given an ENP gray whale population abundance range of approximately 11,000 to 16,000 animals.

4.1.2.5 Potential Number of Shots Fired or Grenade Explosions

The Tribe proposes to use a .50 caliber rifle to kill whales that have been struck and secured with a harpoon. During the 1999 hunt, the Tribe's rifleman shot four times to kill the whale that was harvested. During the unauthorized gray whale hunt in 2007, at least 16 shots were fired (Subsection 1.4.2, Summary of Recent Makah Whaling — 1998 through 2022). Because the 2007 hunt followed none of the procedures recommended by the Tribe—including the training requirements put in place to reduce time to death—and because the hunters switched to a .460 caliber rifle after losing the .577 caliber rifle overboard, this number of shots may be higher than what would be experienced in a regulated hunt. Chukotka Natives kill gray whales using smaller caliber rifles than proposed by the Tribe and have recently reported an average of 92 bullets per whale killed (Subsection 3.4.3.5.4, Method of Killing and Time to Death). For purposes of this analysis, we estimate that for each harvested whale there could be up to 16 shots fired, which is the number of shots fired during the unauthorized 2007 hunt. Under Alternative 2, the likely number of whales successfully harvested on average per year is four; thus, there could be up to 64 shots fired per year (16 shots times four whales harvested) and up to 384 shots over a 6-year period.

We estimate that, if the Tribe used explosive projectiles to strike and kill whales, a maximum of three grenades per whale would be detonated based on the experience of other aboriginal whale hunters (Subsection 3.4.3.5.4, Method of Killing and Time to Death). This would result in up to 12 explosions per year if up to four whales are successfully harvested annually (or 72 explosions over a 6-year period). It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions may also cause temporary hearing threshold shifts in gray whales. However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under Alternative 2.

It is also possible there could be shots fired or grenades exploded in conjunction with struck and lost whales, but we consider this unlikely because of the way "harvest" is defined. A whale is considered

harvested once a flag or buoy has been attached (essentially, once a harpoon is successfully embedded). It is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy (refer to the Glossary and Subsection 1.1.1, Summary of the Proposed Action).

4.1.3 Alternative 3, Offshore Hunt

Alternative 3 would have the same conditions as Alternative 2 regarding the hunting season, limits on the numbers of ENP whales harvested, hunting methods, and regulatory framework. Alternative 3 would also have the same hunt area as Alternative 2, except that it would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore (Makah hunters and chase boats may nevertheless follow any struck whale trailing harpoon lines to dispatch it, regardless of distance to shore). Alternative 3 would also differ from Alternative 2 in the way in which the PCFG limit would be calculated, including a provision for female PCFG whales, and the way in which struck and lost whales would be counted against the limit (described in more detail below and displayed in Table 4-5), resulting in a limit of two struck and lost whales, compared to three under Alternative 2. To allow full consideration of different hunt methods, Alternative 3 also assumes that the Tribe would most likely conduct a motorized hunt and not use canoes, in contrast with the other action alternatives that all include the use of a wooden canoe. These and additional details are described in more detail in Subsection 2.3.2.2, Gray Whale Hunt Details.

4.1.3.1 Potential Timing of a Hunt and Number of Hunting Days

Under Alternative 3, the hunting season would be the same as under Alternative 2 (December through May), with the same expected ocean conditions. Because of the requirement that hunts be conducted at least 5 miles (8 km) from shore, for purposes of analysis we assume that under Alternative 3 the Tribe would most likely conduct a motorized hunt and not use canoes. Although the Tribe would use motorized vessels under Alternative 3, the same two conditions would determine the likely timing of a hunt and the number of hunting days—favorable ocean conditions and presence of whales.

The difference in hunting vessel might, however, result in a slightly different manner of hunting under Alternative 3 compared to Alternative 2. Under Alternative 2, we estimate that scouting and training might occur on any day with favorable ocean conditions but hunting would occur only on days in which scouts also located whales. In contrast, under Alternative 3, we expect that scouting, training, and hunting trips would be combined because hunters would use a motorized vessel and hunting would occur 5 miles (8 km) or more from shore. Therefore, considering the effort required to scout 5 miles (8 km) from shore, we assume that hunters would scout for whales on days with favorable ocean conditions and be prepared to harvest a whale if one were sighted. Thus, for Alternative 3, we assume that during March through May there would be 43.3 days of combined scouting, training, and hunting

(which is the total number of days with favorable ocean conditions during that period, as described in Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days) and that during December through February there could be an additional 17.1 days of combined scouting, training, and hunting (which is the total number of days with favorable ocean conditions during that period, as described in Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days). Together, these amount to 60 possible days of hunt-related trips (including scouting and training effort) from December through May.

To summarize, we expect days of combined scouting, training, and hunting under Alternative 3 to occur as follows:

- Most likely: March through May
    - 43.3 days combined scouting, training, and hunting days
- Less likely: December through February
    - 17.1 days combined scouting, training, and hunting days

4.1.3.2 Potential Number and Types of Vessels

Under Alternative 3, the Tribe would most likely not hunt from a wooden canoe, as they proposed, but from a motorized vessel which would carry the whaling captain, harpooner, and crew. A second motorized vessel would serve as the chase vessel and would carry the rifleman, backup harpooner, and diver. It is likely that other vessels would be involved in the hunt, at least during the first few years of hunting. Similar to the 1999 hunt, such vessels could include the Makah or NOAA research vessel, a Coast Guard enforcement vessel, one or more vessels chartered by the media, and protest vessels (Subsection 1.4.2, Summary of Recent Makah Whaling — 1998 through 2022). It is difficult to predict the number of protest vessels, but it is likely there would be fewer small personal craft (e.g., jet skis) than during the 1999 hunt because of the distance from shore. There also may be helicopters, similar to those chartered by the media during the 1999 hunt.

4.1.3.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed

Under Alternative 3, the Tribe would be allowed only two struck and lost whales (in contrast to Alternative 2, which would allow three struck and lost) as explained in this subsection. Therefore, under Alternative 3, the maximum number of whales that could be killed in a year by the Tribe would be six. This maximum number would be reached in only two scenarios: (1) if the Tribe harvested four non-PCFG whales and struck and lost two whales (that subsequently died), or (2) if the Tribe harvested

five non-PCFG whales and struck and lost one whale (that subsequently died). The latter scenario could occur, at most, in 4 out of 6 years but could not occur every year, otherwise the Tribe would exceed the 6-year harvest limit of 24 whales. In the years in which the maximum mortality of 6 whales were achieved, hunt-related mortality would represent 0.041 percent of the ENP gray whale population (estimated to be 14,526 whales) and 1.5 or 2.9 percent of PBR (based on the informational estimates of PBR calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). This level of mortality, although higher than under the No-action Alternative, would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP due to the small percentage of the stock that could be affected.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Some of the whales killed under Alternative 3 might be PCFG whales, and, of those, some might also be OR-SVI and Makah U&A whales. Under Alternative 3, there would be a limit on the *total mortality* of PCFG whales, in contrast with Alternative 2, which would impose a limit on the *harvest* of PCFG whales. That is, under Alternative 3, struck and lost whales would count against the PCFG limit, while under Alternative 2 they would not. Under Alternative 3, the annual mortality limit for PCFG whales would be equal to NMFS' informational calculation of PBR for the PCFG in its most recent stock assessment report (Subsection 3.4.2.1.4, Defining and Calculating PBR). This alternative would also have an annual mortality limit on female PCFG whales to account for the possible importance of mothers in recruiting offspring to the PCFG via matrilineal site fidelity (Subsection 3.4.3.4.1, PCFG Population Structure). The annual female PCFG mortality limit would be equal to the total PCFG mortality limit times the proportion of females in the PCFG, which is currently estimated to be approximately 50% (Aimee Lang, pers. comm., Southwest Fisheries Science Center Biologist, February 26, 2020). Table 4-5 illustrates how the total PCFG and female PCFG mortality limits would be calculated. The mortality limit using the current values for the PBR formula would be 3.52 PCFG whales of which 1.76 (3.52 times 0.5) could be PCFG female whales. The hunt would stop before these limits were exceeded in any year. Because the mortality limit would be set each year, fractions of whales or unused whales would not be carried over to a subsequent year.

Table 4-5. Alternative 3 method of calculating PCFG mortality limits.

Element	Current Value	Source for Establishing Value in Future Calculations[a]	Notes
One-half maximum net productivity rate (Rmax)	(½) 0.062 = 0.031	NMFS' stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR

Minimum population abundance of PCFG (Nmin)	227	NMFS' stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.3, PCFG Abundance and Trends
Recovery factor for PCFG	0.5	NMFS' stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
CURRENT RESULT	Total Mortality: (0.031) * (227) * 0.5 = **3.52** PCFG Female Mortality = 3.52 * 0.5 = **1.76**		

[a] Values for the elements used in this calculation would be derived from NMFS Stock Assessment Reports, the most recent of which is Carretta et al. (2023), as described under Subsection 2.3.3 Alternative 3 (Offshore Hunt). These values may change as new information becomes available.

Alternative 3 would count whales that are struck and lost against the PCFG mortality limit in proportion to the availability of PCFG whales in the coastal portion of the Makah U&A from March through May (currently0.273 PCFG whales, or 27.3 percent). It would also count a proportion of those whales as female PCFG whales based on the proportion of female whales in the PCFG during the feeding season (June through November). That proportion is currently 50 percent (Aimee Lang, pers. comm., Southwest Fisheries Science Center Biologist, February 26, 2020), with the result being that a struck and lost whale would count as 0.14 PCFG females (0.273 times 0.5). In addition, under Alternative 3 the Tribe would be limited to a maximum of two struck and lost whales per year (in comparison to the limit of three struck and lost whales proposed by the Tribe and considered under Alternative 2). Under this limit, striking and losing two whales would, on average, limit impacts on PCFG females to approximately one per year (0.53 PCFG females times two strikes).

Given these considerations and current estimates, the maximum number of PCFG whales that could be killed in a year under Alternative 3 would be four whales, at least one of which must be a struck and lost whale that is assumed to subsequently die. Also, the maximum of four whales can only occur (1) if a certain sequence of strikes occurs, and (2) a female PCFG whale is not one of the first three whales harvested. Using these conditions and the current estimates shown in Table 4-5, the following six sequences could result in the maximum four PCFG whales killed under this alternative (H = harvested whale is a landed, known PCFG whale that counts as 1.0 against the total mortality limit; S = struck and lost whale is presumed to be a PCFG whale that counts as 0.27 against the total mortality limit):

- HHSH or HSHH or SHHH = 3.27 (hunt stops because striking or harvesting another PCFG whale would exceed the total mortality limit of 3.5 PCFG whales)
- SHHS or HSHS or HHSS = 2.54 (hunt stops because the annual struck and lost limit is met)

In these scenarios, any number of non-PCFG whales could be landed, up to the maximum of five in one year or an average of four per year over 6 years.

While four would be the *maximum* number of PCFG whales that might be killed each year under Alternative 3, it is unlikely that four would actually be killed given the proportion of PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). This analysis, therefore, also considers the *likely* number of PCFG whales that might be killed per year if the full number of strikes were to occur during the spring. The calculation is based on the proportional presence of PCFG whales in the coastal portion of the Makah U&A during March through May. In addition, the analysis considers the likely number of OR-SVI and Makah U&A whales that might be killed in a tribal hunt if the full number of strikes were to occur during the spring portion of the hunting season.

There are currently no data on the proportion of PCFG whales in the offshore hunt area under Alternative 3 because most surveys have been conducted closer than 5 miles (8 km) from shore (Subsections 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements, Migratory Distribution Relative to Shore, and 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). For this analysis, we assume that PCFG whales would be present 5 miles (8 km) from shore in the same proportion they are present closer to shore. This may be a conservative assumption, as it is possible that migrating whales travel further from shore while PCFG whales travel closer to shore (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).

During the period 1996 to 2016, 27.3 percent of whales identified from March through May in the northern Washington coast survey area were PCFG whales, 26.2 percent were OR-SVI whales, and 23.4 percent were Makah U&A whales (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). Under Alternative 3, if a maximum of six ENP whales were struck or killed in a year during the spring, the likely number of PCFG whales that would be struck or killed would be 1.64 whales (six whales times 27.3 percent), the likely number of OR-SVI whales struck or killed would be 1.57 (six whales times 26.2 percent), and the likely number of Makah U&A whales struck or killed would be 1.40 (six whales times 23.4 percent). These numbers are subsets of one another (the OR-SVI is contained in the PCFG area and the Makah U&A is contained in the OR-SVI area) (Figure 3-10) so are not additive. These estimates are also displayed in Table 4-6.

If the Tribe also hunted in the winter, it is uncertain what the proportion of PCFG whales would be; thus, there could be more or fewer PCFG, OR-SVI, or Makah U&A whales killed. However, because a

proportion of all struck and lost whales would be counted against the PCFG limit, the maximum number of PCFG whales that could be killed per year would be four (as described above).

Likelihood of Striking a WNP Whale

Finally, the analysis considers the likelihood that a WNP whale may be killed in a single year and over a 6-year period. There are very limited data for WNP whales in the action area to inform this analysis (Subsection 3.4.3.2.2, WNP Seasonal Distribution, Migration, and Movements). Table 4-6 shows the calculated probability of a WNP whale being struck based on six strikes per year during the spring, using estimates derived from modeling by Moore et al. (2023). These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 3, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3.

Likely Number of ENP Whales Harvested

As under Alternative 2, the Tribe, under Alternative 3 , would be authorized to harvest a maximum of five whales in a single year or 24 whales over a 6-year period (i.e., an average of four whales harvested per year).

4.1.3.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

Under Alternative 2, we estimate that for each whale struck there would be six unsuccessful harpoon attempts, and for each day of hunting there would be 8.3 whales approached. We use the same estimates as used for Alternative 3, although there would be differences between a hunt under Alternatives 2 and 3. Under Alternative 3, the Tribe would most likely use motorized vessels for hunting and would hunt more than 5 miles (8 km) from shore, in contrast to a hunt under Alternative 2, which would involve a wooden canoe and likely be conducted closer to shore, similar to the 1999 and 2000 hunts (Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2022). It may be easier for hunters to successfully approach and strike whales from a motorized vessel than from a canoe, so it is possible that there would be fewer incidents of whales being subjected to unsuccessful harpoon attempts and approaches than estimated for Alternative 2. On the other hand, there could be more approaches under Alternative 3 than Alternative 2 because of the relatively greater ease of getting close to whales in a motorized vessel. Absent specific information about an offshore motorized hunt, and given these considerations, we relied on the same information used under Alternative 2 to estimate the potential number of unsuccessful harpoon attempts and approaches.

Under Alternative 3, with a maximum of six possible strikes per year, there might be 36 unsuccessful harpoon attempts (i.e., using the 6:1 ratio of unsuccessful harpoon attempts to successful strikes from

the combined 1999 and 2000 hunting seasons). Although hunting and scouting would be combined under Alternative 3, approaches of whales would only occur on days with whales present; thus, we use the same number of hunting days to estimate approaches as we used for Alternative 2. With up to 33.2 suitable hunting days per year in the spring (March through May), the potential number of times that tribal hunters might approach a whale would be 276 (8.3 per day times 33.2 days). If tribal members hunted during the winter as well, there could be an additional 77 approaches (8.3 per day times 9.3 days). Some of these unsuccessful harpoon attempts and approaches could be repeated incidents involving the same whale. We also estimated the number of instances in which PCFG, OR-SVI, and Makah U&A whales could be subjected to unsuccessful harpoon attempts or approaches by hunters. For these estimates, we multiplied the number of strikes and approaches times the proportion of each grouping of whales observed in the coastal portion of the Makah U&A during March through May (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). The estimates are displayed in Table 4-6.

Finally, we estimated the likelihood of an unsuccessful harpoon attempt or approach involving a WNP whale. For these estimates we relied on modeling by Moore et al. (2023), as described above (Subsection 4.1.3.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested). These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 3, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3. The estimates are displayed in Table 4-6.

Table 4-6. Estimated number of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG, OR-SVI, Makah U&A (MUA), and WNP whales under Alternative 3.

Whales		Number of Strikes[a]			Number of Unsuccessful Harpoon Attempts[b]			Number of Approaches[c]		
		Annual	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**
ENP[d]		6	36	60	36	216	360	353	2,118	3530
PCFG[e]	27.3%	1.6	9.8	16.4	9.8	59.0	98.3	96.4	578.2	963.7
OR-SVI[e]	26.2%	1.6	9.4	15.7	9.4	56.6	94.3	92.5	554.9	924.9
MUA[e]	23.4%	1.4	8.4	14.0	8.4	50.5	84.2	82.6	495.6	826.0
WNP[f]	0.8-1.2%	0.048-0.072	0.29-0.43	0.48-0.72	0.29-0.43	1.7-2.6	2.9-4.3	2.8-4.2	16.6-25.0	27.7-41.6

a. Limited by regulation.
b. Calculated using number of unsuccessful harpoon attempts per successful strike (6:1), based on experience during 1999 and 2000 hunts combined.
c. Calculated using an estimate of 8.3 approaches per day of hunting, based on experience during the 2000 hunt, and a high estimate of 42.5 suitable hunting days per year.
d. ENP estimates are maximum values.
e. Percentage estimates are based on the springtime whale analysis by Calambokidis et al. (2019) which compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this FEIS for PCFG whales, which requires a whale to have been seen in at least 2 years). This results in estimates that are likely higher and therefore more conservative than estimates that would be derived from a comparison with whales observed in at least 2 years. We conclude that this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range. Note that OR-SVI and MUA are nested regions within the PCFG range.
f. Median probability based on modeling by Moore et al. (2023) given an ENP gray whale population abundance range of approximately 11,000 to 16,000 animals.

4.1.3.5 Potential Number of Shots Fired or Grenade Explosions

For the reasons described under Alternative 2, we estimate there would be 16 rifle shots for each harvested whale. This would result in up to 64 rifle shots per year (16 shots times four whales harvested) and up to 384 shots over a 6-year period (64 shots annually times 6 years). If grenades were used in addition to rifles, we estimate there would also be a maximum of three grenade explosions for each whale harvested, as described under Alternative 2. Thus, under Alternative 3, we would expect up to 12 explosions per year if up to four whales are successfully harvested annually (or 72 explosions over a 6-year period). It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions could also cause temporary hearing threshold shifts in gray whales. However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under Alternative 3.

It is also possible there could be shots fired or grenades exploded in conjunction with struck and lost whales, but we consider this unlikely because of the way "harvest" is defined. A whale is considered harvested once a flag or buoy has been attached (essentially, once a harpoon is successfully embedded). It is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy (refer to the Glossary and Subsection 1.1.1, Summary of the Proposed Action).

4.1.4 Alternative 4, Summer/Fall Hunt

Alternative 4 would have the same conditions as Alternative 2 regarding the hunt area (coastal portion of the Tribe's U&A), the hunting methods, and regulatory framework. In contrast to Alternative 2, Alternative 4 would have a different hunting season (June 1 through November 30 instead of December 1 through May 31) designed to completely avoid times when a WNP whale might be present. It would also prohibit striking whales within 200 yards (183 m) of Tatoosh Island and White Rock during any month to minimize disturbance to feeding and nesting seabirds, and would require that hunters approach only known males from the ENP stock (which includes PCFG males) to account for the possible importance of mothers in recruiting offspring to the PCFG via matrilineal site fidelity. Alternative 4 would also

differ from Alternative 2 in the way in which the PCFG limit would be calculated and the way in which struck and lost whales would be counted against the limit (described in more detail below and displayed in Table 4-7). These and additional details are described in Subsection 2.3.4, Alternative 4 (Summer/Fall Hunt).

4.1.4.1 Potential Timing of a Hunt and Number of Hunting Days

Under Alternative 4, the hunting season would be June 1 through November 30—the opposite time of year from the hunting season in Alternatives 2 and 3 (December through May)—and hunting could occur any time during this period.

Under Alternative 2, where hunting would be more likely to occur during the spring, the factors most likely to influence the number of hunting days would be ocean conditions and the availability of whales. In contrast, under Alternative 4, there would be several months with many days of favorable ocean conditions (especially from June through September) (Table 4-2); thus, ocean conditions would not be a limiting factor. Under Alternative 4, the factor most likely to affect the number of hunting days would be the ability of the hunters to locate and strike a known male PCFG whale. As described in Subsection 3.4.3.4.2 (PCFG Seasonal Distribution, Migration, and Movements), the Makah Tribe's marine mammal biologist participates in a collaborative effort to survey gray whales by surveying the Makah U&A throughout the year but primarily during the summer feeding season. The survey involves searching for, approaching, photographing, and/or taking biopsies of whales. The biopsy effort is a reasonable proxy for estimating the likely success of hunters in locating, approaching, and striking a known male (i.e., biopsied and cataloged as a male). According to the Tribe's analysis (J. Scordino, pers. comm., Makah Tribe Marine Mammal Biologist, July 31, 2013) a reasonable estimate of the maximum number of days it would take for tribal hunters to locate and strike a known male is 7 days. We have reviewed this analysis and concur that it is reasonable.

4.1.4.2 Potential Number and Types of Vessels

The hunt under Alternative 4 would involve the same number and types of vessels as the hunt under Alternative 2.

4.1.4.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed

The potential number of ENP whales killed under Alternative 4 would be determined by the PCFG limit, which would be one based on current abundance estimates and mixing ratios. Any whale struck would be counted as a PCFG whale (Subsection 2.3.4, Alternative 4 (Summer/Fall Hunt)). Table 4-7 illustrates how the PCFG limit would be calculated. Because Alternative 4 (like Alternative 2) would

allow up to seven strikes per year, the number of ENP whales potentially killed could be as high as seven, but this would require the PCFG abundance to more than triple, which is highly unlikely.

Table 4-7. Alternative 4 method of calculating PCFG mortality limits.

Element	Current Value	Source for Establishing Value in Future Calculations[a]	Notes
One-half maximum net productivity rate (Rmax)	(½) 0.062 = 0.031	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
Minimum population abundance of PCFG (Nmin)	227	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.3, PCFG Abundance and Trends
Recovery factor for PCFG	0.35	Wade (1998)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
Other sources of human-caused mortality	1.7	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.4 PCFG Status, Carrying Capacity (K), and Related Estimates
CURRENT RESULT	Total Mortality: (0.031) * (227) * 0.35 = 2.46 – 1.7 = **0.76**[b]		

[a] Values for some of the elements used in this calculation are derived from NMFS Stock Assessment Reports, the most recent of which is Carretta et al. (2023), as described under Subsection 2.3.4 Alternative 4 (Summer/Fall Hunt). These values (e.g., for Rmax and Nmin) may change as new information becomes available.

[b] Hunting could not occur when the PCFG mortality limit is less than 1.0 whales. However, when the annual mortality limit is less than 1.0 but greater than 0.5 during 2 consecutive years, the values would be aggregated to allow for the mortality of one PCFG whale during the second year.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Under Alternative 4, there is a very high likelihood that killed whales would be PCFG males because of the requirement to approach only known males and many of these cataloged males have been seen previously in the PCFG seasonal range. Because the hunt would occur in the Makah U&A in the summer months, any PCFG whale killed would also be an OR-SVI and Makah U&A whale. (If the PCFG abundance increased dramatically in the future, resulting in an increased PCFG mortality limit, any whales killed would likely be PCFG, OR-SVI, and Makah U&A whales for the same reasons.)

Also, unused portions of the PCFG mortality limit would not carry over to a subsequent year, except that when the mortality limit is less than 1 but greater than 0.5 during 2 consecutive years, it would be aggregated to allow for the mortality of one PCFG whale during the second year. The purpose of not allowing mortality limits to carry over is to prevent mortality of multiple PCFG whales in a single year

(unless the calculated mortality limit allowed for more than one whale to be killed[7]). The purpose of allowing a carry-over when the mortality limit is greater than 0.5 but less than 1 is to afford the Tribe an opportunity to hunt at least every other year but with a harvest limit that is sensitive to declines in PCFG abundance or if PCFG whales are killed in unexpected numbers by other sources of human-caused mortality (the current level of human-caused mortality averages about 1.7 whales per year) (Carretta et al. 2023).

No hunting would be permitted when the PCFG mortality limit for a single year is less than 0.5, nor would the mortality limit carry over. The purpose of this provision is to prohibit a hunt if the PCFG experiences a significant decline or if PCFG whales are killed in unexpected numbers by other sources of human-caused mortality.

Likelihood of Striking a WNP Whale

The hunting season under Alternative 4 is designed to avoid the potential for striking a WNP whale. It is extremely unlikely that a WNP whale would be struck under Alternative 4 because such whales would be feeding in the WNP during the summer feeding period.

Likely Number of ENP Whales Harvested

The maximum number of whales the Tribe could harvest based on current information would be one every other year because of the PCFG limit. It is possible that the Tribe would harvest no whales in multiple consecutive years, either because of the difficulty of locating and striking only known males or because, under Alternative 4, a struck and lost whale would count against the PCFG limit, thus ending the hunt for that year. We therefore consider the *likely* harvest under Alternative 4 to be between zero and one whale, with an average of 0.5 whales per year. This represents 0.0034% of the ENP gray whale population, and 0.12%, 0.19%, or 0.38% of PBR (based on the informational estimates of PBR calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). This level of mortality, although higher than under the No-action Alternative, would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP due to the small percentage of the stock that could be affected.

4.1.4.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

Under Alternative 2, we estimated that for each whale struck there would be six unsuccessful harpoon attempts, and for each day of hunting there would be 8.3 whales approached. It is possible that the ratio of unsuccessful harpoon attempts to successful strikes could be lower under Alternative 4 because whales approached during the summer feeding period may be more likely to be milling and less likely

[7] For example, the mortality limit could reach two whales in a single year if the PCFG minimum population estimate increased to 240 whales and all other calculation values in Table 4-7 remained constant.

to be traveling than whales found during the spring, making them more vulnerable to a successful strike. Nevertheless, for purposes of this analysis, we use the observed ratio of 6:1 for Alternative 4, as this represents the best information available based on actual experience from the 1999 and 2000 hunts. With only one strike under Alternative 4, we would therefore expect six (one strike times six unsuccessful harpoon attempts) unsuccessful harpoon attempts.

With a likelihood of 7 hunting days every other year, the potential number of times that tribal hunters might approach a whale would be 58 (8.3 times per day times 7 days) in those years. Some of these unsuccessful harpoon attempts and approaches might be repeated incidents involving the same whale. We also estimated the number of instances in which PCFG, OR-SVI, and Makah U&A whales might be subjected to unsuccessful harpoon attempts or approaches by hunters. For these estimates, we assumed that any whale subjected to unsuccessful harpoon attempts or approaches by hunters in the coastal portion of the Makah U&A between June 1 and November 30 would be a PCFG whale and, therefore, would also be an OR-SVI and Makah U&A whale. The estimates are displayed in Table 4-8.

Finally, we estimated the likelihood of an unsuccessful harpoon attempt or approach involving a WNP whale. It is extremely unlikely that a WNP whale would be struck under Alternative 4 because such whales would be feeding in the WNP during the summer feeding period. Therefore, we assume the proportion of WNP whales present in the hunt area during the summer hunt months is 0 (Table 4-8).

Table 4-8. Estimated number of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG. OR-SVI, Makah U&A, and WNP whales under Alternative 4.

Whales		Number of Strikes[a]			Number of Unsuccessful Harpoon Attempts[b]			Number of Approaches[c]		
		Annual	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**
ENP		0.5	3	5	3	18	30	29	174	290
PCFG[d]	100%	0.5	3	5	3	18	30	29	174	290
OR-SVI[d]	100%	0.5	3	5	3	18	30	29	174	290
MUA[d]	100%	0.5	3	5	3	18	30	29	174	290
WNP[e]	0%	0	0	0	0	0	0	0	0	0

a. Limited by mortality limit for PCFG whales.
b. Calculated using number of unsuccessful harpoon attempts per successful strike (6:1), based on experience during the 1999 and 2000 hunts combined.
c. Calculated using an estimate of 8.3 approaches per day of hunting, based on experience during the 2000 hunt, and a high estimate of 7 hunting days.
d. 100 percent estimates based on requirement to approach only known ENP males, the high likelihood that these would be PCFG whales, and the conservative assumption that any known PCFG male in the Makah U&A during the hunting season is presumed to be a Makah U&A whale. Note that OR-SVI and Makah U&A are nested regions within the PCFG range.
e. Values assumed to be zero because there are no records of WNP whales in the Makah U&A during the June through November timeframe associated with this alternative.

4.1.4.5 Potential Number of Shots Fired or Grenade Explosions

For the reasons described under Alternative 2, we estimate there would be 16 shots fired for each whale harvested. Thus, under Alternative 4, we would expect up to 16 shots fired every other year (16 shots times one whale harvested every other year) and up to 48 shots over a 6-year period. If grenades are used in addition to or instead of a rifle, we estimate there would also be three grenade explosions for each whale harvested. Thus, under Alternative 4 we would expect up to three grenade explosions every other year and up to 9 explosions over a 6-year period.

It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions may also cause temporary hearing threshold shifts in gray whales. However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under Alternative 4.

It is also possible there could be shots fired or grenades exploded in conjunction with struck and lost whales, but we consider this unlikely because of the way "harvest" is defined. A whale is considered harvested once a flag or buoy has been attached (essentially, once a harpoon is successfully embedded). It is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy (refer to the Glossary and Subsection 1.1.1, Summary of the Proposed Action).

4.1.5 Alternative 5, Split-season Hunt

Alternative 5 would have the same conditions as Alternative 2 regarding the hunt area (coastal portion of the Tribe's U&A), hunting methods, and regulatory conditions. In contrast to Alternative 2, Alternative 5 would have a different "split-season" hunting period (December 1 through December 21 and May 10 through May 31, instead of December 1 through May 31). Alternative 5 would also differ from Alternative 2 in the way in which the PCFG limit would be calculated and the way in which struck and lost whales would be counted against the limit (described in more detail below and displayed in Table 4-9). These and additional details are described in Subsection 2.3.5, Alternative 5 (Split-Season Hunt).

4.1.5.1 Potential Timing of a Hunt and Number of Hunting Days

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to Alternative 2 which has a 6-month-long hunting season. As described under Alternative 2, factors most likely to affect the timing of a hunt and number of hunting days would be ocean conditions and presence of whales (Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days).

The hunting seasons under Alternative 5 would be December 1 through 21 and May 10 through 31. Similar to Alternative 2, we expect that tribal members under Alternative 5 would only hunt in favorable ocean conditions when whales have been detected in the hunt area. In contrast to Alternative 2, we focused our review of data for wind speed and wave height in the hunt area for just the periods of December 1 through 21 and May 10 through 31 and concluded that the proportion of days with favorable ocean conditions was 22.5 percent for December and 78.0 percent for May (NOAA National Data Buoy Center 2013). Using those proportions (instead of the monthly values in Table 4-2 used for Alternative 2) yields 4.7 days of favorable ocean conditions in December (21 days times 0.225 = 4.7) and 17.2 days of favorable ocean conditions in May (22 days times 0.780 = 17.2).

As under Alternative 2, we expect that hunting under Alternative 5 would only occur on days with favorable ocean conditions and whales present in the hunt area. Applying the proportion of days that whales are present from Table 4-2 yields 3.5 days of favorable ocean conditions and whales present for December 1 through 21 (4.7 days times 0.75 = 3.5) and 11.2 days of favorable ocean conditions and whales present for May 10 through 31 (17.2 days times 0.65 = 11.2) for a total of 14.7 hunting days per year. Also, as with Alternative 2, we expect hunting would be most likely to occur in the spring (May) however, we also consider the potential impacts of a winter hunt because it is possible that tribal members might hunt in December.

Under Alternative 5, there may also be days in which tribal members scout for whales using a motorized vessel. As with Alternative 2, we assume scouting may occur on every day with favorable ocean conditions. During May 10 through 31, as described above, there are a total of 17.2 days with favorable ocean conditions; thus, we assume there could be 17.2 days of scouting and training effort during May, which is the most likely time for hunting to occur. If tribal members chose to hunt during December as well, there could be an additional 4.7 days with favorable ocean conditions, for a total of 22 possible days of hunt-related trips (including scouting and training effort) under Alternative 5.

To summarize, we expect days of hunting and scouting[8] to occur under Alternative 5 as follows:

[8] Some scouting days could result in hunting days if a whale is located by scouts and then hunted.

- Most likely: May 10 through 31
  - 17.2 scouting and training days, 11.2 hunting and training days
- Less likely: December 1 through 21
  - 4.7 scouting and training days, 3.5 hunting and training days

4.1.5.2 Potential Number and Type of Vessels

The hunt under Alternative 5 would involve the same number and types of vessels as the hunt under Alternative 2.

4.1.5.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed

Alternative 2, the Tribe's proposal, would include a regulatory limit of seven strikes per year, which would limit the number of whales killed per year to seven. In contrast, Alternative 5 does not include a strike limit, but the mortality limit for PCFG whales in concert with the IWC limit on total catches would effectively limit the number of strikes per year, and thus, limiting the number of whales killed to four per year, on average, with a maximum of five in a single year. This maximum number would be reached in only three scenarios: (1) if the Tribe harvested the annual maximum (under the IWC catch limit) of 5 non-PCFG whales, (2) if the Tribe harvested four non-PCFG whales and then harvested a PCFG whale, or (3) if the Tribe harvested four non-PCFG whales and then struck and lost a fifth whale (assumed to have subsequently died). A total mortality of up to 5 whales in a given year (assuming all struck and lost whales die) represents 0.034 percent of the current ENP gray whale population abundance (estimated to be 14,526 whales) and 1.2 or 2.4 percent of PBR (based on the informational estimates of PBR calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). This level of mortality, although higher than under the No-action Alternative, would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP due to the small percentage of the stock that could be affected.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Some of the whales killed under Alternative 5 might be PCFG whales, and of those, some might also be OR-SVI and Makah U&A whales. Under Alternative 5, a mortality limit would be set on PCFG whales equivalent to 10 percent of PBR as reported in NMFS' most recent stock assessment report (Subsection 3.4.2.1.4, Defining and Calculating PBR). Table 4-9 illustrates how the limit would be calculated. Under current conditions, the PCFG mortality limit would be 0.35 whales. Because this limit represents less than one whale, it would differ from the mortality limits in other alternatives in

that it would be allowed to accumulate across years for the purposes of calculating how frequently a PCFG whale could be killed or struck and lost. Although this PCFG mortality limit would always be less than one whale, the Tribe could hunt in any year—including the first year—until they either (1) kill a PCFG whale or (2) strike and lose any whale. If either of those two outcomes occur, the PCFG mortality limit would be applied to determine the number of years during which the Tribe would need to take a hiatus from hunting (i.e., until the accumulated mortality limits would add up to at least one whale).

For example, if the Tribe killed a PCFG whale in the first year of hunting, the PCFG mortality limit would be reduced to zero, and there would be a hiatus until mortality limit calculations had accumulated (over subsequent years) to yield a value greater than or equal to one whale. In this example, and using current calculated values, the Tribe could not hunt again until year 4, because it would take 3 years for a PCFG mortality limit of 0.35 whales to reach at least one whale (i.e., 0.35 whales/year times 3 years = 1.05 whales).

Alternatively, if the Tribe strikes and loses any whale in the first year of hunting then the PCFG mortality limit would be reduced from one whale by a fraction equal to the proportional presence of PCFG whales in the coastal portion of the Makah U&A during the season in which it was struck (e.g., 0.27 whales in the spring when the Tribe is most likely to hunt). As a result, if a whale is struck and lost during the spring, then the PCFG mortality limit would be reduced to 0.73 whales (1 whale minus 0.27 whales), and hunting would cease until the next year, when the mortality limit calculations had accumulated to yield a value greater than or equal to one whale (i.e., 0.73 whales plus 0.35 whales in year 2 = 1.08 whales). And if the Tribe strikes and loses a whale in year 2, then hunting would cease until year 3, and so on (i.e., hunting could occur every year under this continued struck-and-lost scenario).

In the case of either a killed or a struck-and-lost whale and if new information which changes the PCFG mortality limit (such as a change in the minimum population size estimate) became available during the hiatus period, it could affect the length of that hiatus. For example, in the scenario above for a killed whale, if the PCFG mortality limit was 0.35 whales in the year of the kill but increased to 0.5 in subsequent years, then the Tribe would only need to take a 1-year hiatus from hunting (i.e., 0.5 whales/year times 2 years = 1 whale at the start of year 3).

Table 4-9. Alternative 5 method of calculating PCFG mortality limits.

Element	Current Value	Source for Establishing Value in Future Calculations[a]	Notes

One-half maximum net productivity rate (Rmax)	(½) 0.062 = 0.031	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
Minimum population abundance of PCFG (Nmin)	227	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.3, PCFG Abundance and Trends
Recovery factor for PCFG	0.5	NMFS' stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
CURRENT RESULT	Total Mortality: (0.031) * (227) * 0.5 = 3.3 * 0.10 = **0.35**		

[a] Values for the elements used in this calculation are derived from NMFS Stock Assessment Reports, the most recent of which is Carretta et al. (2023), as described in Subsection 2.3.5 Alternative 5 (Split-season Hunt). These values may change as new information becomes available.

Using the struck and lost example above and assuming that every struck-and-lost whale was a PCFG whale that died, then the *maximum* number of PCFG whales that might be killed under Alternative 5 would be approximately one whale per year. However, it is unlikely that would actually be the case given the proportion of PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt (Table 4-10). Taking into account that spring proportion yields a more *likely* estimate of one PCFG whale struck and lost (and dies) every 4 years.[9] If the Tribe also hunted in the winter, it is uncertain what the proportion of PCFG whales would be; thus, there could be more or fewer whales killed (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).

Likelihood of Striking a WNP Whale

The split hunting season under Alternative 5 is designed to avoid the potential for striking a WNP whale during times that are outside the June through November season that defines the PCFG. However, there are very limited data for WNP whales in the action area to inform this analysis (Subsection 3.4.3.2.2, WNP Seasonal Distribution, Migration, and Movements). Therefore, we calculated the likelihood of a Makah hunt striking (killing) a WNP gray whale (Table 4-10) using the estimates derived from modeling by Moore et al. (2023) based on the best data available. These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 5, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3.

[9] This is estimated by dividing one "successful" strike on a PCFG whale by the 27.3 percent chance of that strike actually being on a PCFG whale, which yields 3.7 strike attempts (rounded to 4 strike attempts). Because hunting could occur every year under a struck-and-lost scenario, it would take 4 years to make 4 strike attempts and achieve the expected strike of one PCFG whale.

Likely Number of ENP Whales Harvested

For a variety of reasons, it is extremely unlikely the Tribe would harvest an average of four whales per year over 6 years under Alternative 5. As described above in this subsection, the limit on PCFG whales under current conditions would be 0.35 per year, or one PCFG whale every 3 years. Given that the proportion of PCFG whales present in the coastal portion of the Makah U&A during the spring hunting season is 27.3 percent, the chances are that one out of about every four whales struck would be a PCFG whale. If the Tribe harvested a PCFG whale, there would be a 2-year hiatus for the PCFG mortality limit to re-set at one whale, based on current information. If the Tribe struck and lost a whale, it would count as 0.27 of a PCFG whale, and hunting would cease until the following year.

In addition to the constraints imposed by the PCFG mortality limit, the hunting season of 22 days in May would make it difficult for the Tribe to harvest more than one whale. For these reasons, we assume under Alternative 5 that if the Tribe successfully harvested a non-PCFG whale it would end the hunt for that year rather than risk killing a PCFG whale; thus, one would likely be the maximum number of whales harvested in a year. Given that one PCFG whale would likely be struck every fourth attempt (and the condition that killing a PCFG whale would invoke a 2-year hiatus under current conditions), the Tribe might harvest a whale in 4 out of 6 years if it did not strike and lose any whales. For Alternative 5, we therefore assume the harvest might be zero to one whale per year under current conditions.

4.1.5.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

Under Alternative 2, we estimate that for each whale struck there would be six unsuccessful harpoon attempts, and for each day of hunting there would be 8.3 whales approached. A hunt under Alternative 5 would occur in the same area, within a subset of the same time period, and using the same methods as the hunt under Alternative 2. We therefore apply the same assumptions to a hunt under Alternative 5 as under Alternative 2 regarding the number of unsuccessful harpoon attempts per successful strike, and the number of whales approached per day of hunting (Subsection 4.1.2.4, Potential Number of Unsuccessful Harpoon Attempts and Approaches).

Under Alternative 5, with a maximum of five strikes annually (and an average of four per year over 6 years), there might be 24 unsuccessful harpoon attempts (four strikes times six unsuccessful harpoon attempts). With a potential for up to 14.7 hunting days per year, the potential number of times that tribal hunters might approach a whale would be 122 (8.3 whales per day times 14.7 days). Some of these attempted strikes and approaches could be repeated incidents involving the same whale. We also estimated the number of instances in which PCFG, OR-SVI, and Makah U&A whales could be subjected to unsuccessful harpoon attempts or approaches by hunters. Under Alternative 5, there would

be an annual PCFG mortality limit—currently calculated at 0.35 whales. Given the struck and lost accounting described above (which factors in the proportional presence of PCFG whales and estimates one being struck every 5 years), we estimate 0.25 annual strikes on PCFG whales and use this value to estimate the number of unsuccessful harpoon attempts. The number of approaches on PCFG whales also takes into account the proportional presence of PCFG whales. Related approach and attempted strike estimates for OR-SVI and Makah U&A whales are based on the proportion of each subgroup of whales previously observed in the coastal portion of the Makah U&A during March through May (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). The estimates are displayed in Table 4-10.

Finally, we estimate the likelihood of an unsuccessful harpoon attempt or approach involving a WNP whale. For these estimates, we relied on modeling by Moore et al. (2023), as described above (Subsection 4.1.5.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested). These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 5, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3. The estimates are displayed in Table 4-10.

Table 4-10. Estimated number of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG, OR-SVI, Makah U&A, and WNP whales under Alternative 5.

Whales		Number of Strikes			Number of Unsuccessful Harpoon Attempts[b]			Number of Approaches[c]		
		Annual	6-year	10-year	Annual	6-year	10-year	Annual	6-year	10-year
ENP		5[a]	24[a]	40	30	144	240	122	732	1220
PCFG[d]	27.3%	0.25[e]	1.5	2.5	1.5	9.0	15.0	33.3	199.8	333.1
OR-SVI[d]	26.2%	0.24[f]	1.4	2.4	1.4	8.6	14.3	32.0	191.8	319.6
MUA[d]	23.4%	0.21[g]	1.2	2.1	1.2	7.5	12.5	28.5	171.3	285.5
WNP[h]	0.8-1.2%	0.040-0.060	0.19-0.29	0.32-0.48	0.24-0.36	1.2-1.7	1.9-2.9	0.98-1.5	5.9-8.8	9.8-14.6

a. Limited by regulation and by the PCFG mortality limit and method of accounting for struck and lost whales as PCFG whales (five would be the maximum in any one year and no more than 24 could be struck over 6 years).
b. Calculated using number of unsuccessful harpoon attempts per successful strike (6:1), based on experience during 1999 and 2000 hunts combined.
c. Calculated using an estimate of 8.3 approaches per day of hunting and a high estimate of 14.7 hunting days (11.2 days in May plus 3.5 days in December).
d. Percentage estimates are based on the springtime whale analysis by Calambokidis et al. (2023) which compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this FEIS for PCFG whales, which requires a whale to be have been seen in at least 2 years). This approach results in estimates that are likely higher and, therefore, more conservative than estimates derived from a comparison with whales observed in at least 2 years. We conclude this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range. Note that OR-SVI and MUA are nested regions within the PCFG range.
e. Hunting would be managed so that the average annual mortality of PCFG whales would not exceed 10 percent of PBR (currently 0.35 whales per year). The values shown are based on the proportion of PCFG whales in the MUA during the spring and the estimate that one PCFG whale is struck every 5 years.
f. Based on the proportional presence (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements), 95 percent of PCFG whales in the MUA during March through May are also OR-SVI whales (0.259 divided by 0.273 = 0.95, and 0.95 times 0.25 = 0.24).
g. Based on the proportional presence (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements), 83 percent of PCFG whales in the MUA during March through May are also MUA whales (0.2254 divided by 0.273 = 0.83, and 0.83 times 0.25 = 0.21).
h. Median probability based on modeling by Moore et al. (2023) given an ENP gray whale population abundance range of approximately 11,000 to 16,000 animals.

4.1.5.5 Potential Number of Shots Fired or Grenade Explosions

For the reasons described under Alternative 2, we estimate there would be 16 rifle shots fired for each whale harvested. Thus, under Alternative 5, we would expect up to 16 shots fired per year (16 shots times one whale harvested) and up to 96 shots over a 6-year period. If grenades are used instead of or in addition to a rifle, as described under Alternative 2, we estimate there would be three grenade explosions for each whale harvested. Thus, under Alternative 5, we would expect up to three grenade explosions per year and up to 18 explosions over a 6-year period.

It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions may also cause temporary hearing threshold shifts in gray whales. However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under Alternative 5.

It is also possible there could be shots fired or grenades exploded in conjunction with struck and lost whales, but we consider this unlikely because of the way "harvest" is defined. A whale is considered harvested once a flag or buoy has been attached (essentially, once a harpoon is successfully embedded). It is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy (refer to the Glossary and Subsection 1.1.1, Summary of the Proposed Action).

4.1.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area (coastal portion of the Tribe's U&A), hunting season (December 1 through May 31) and hunting methods. In contrast to Alternative 2, Alternative 6 would have different limits on strikes. Under Alternative 2, there would be a limit of seven strikes per year, while under Alternative 6 there would be a limit of 7 strikes over a 2-year period, or 3.5 strikes per year on average. Alternative 6 would also differ from Alternative 2 in the way in which the PCFG mortality limit would be calculated and the way in which struck-and-lost whales would be counted against the mortality limit (described in more detail below and displayed in Table 4-11). Finally,

Alternative 6 would differ from Alternative 2 in the regulatory regime adopted, in particular that permits would be issued for a shorter term (3 years instead of 5) and the waiver of the take moratorium and implementing regulations that would last only 10 years whereas the waiver and regulations under Alternatives 2 through 5 would last in perpetuity. These and additional details are described in Subsection 2.3.6, Alternative 6 (Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits). It is not possible to determine whether a new waiver and regulations would be implemented after the waiver under Alternative 6 expired, or what such a waiver and regulations would allow. However, it is possible that Alternatives 2 through 5 could result in a far greater number of strikes, unsuccessful harpoon throws, and approaches over time than Alternative 6 due to the lack of expiration of the waiver period. Because of the uncertainty around the events following the expiration of the waiver period under Alternative 6, for the purposes of this analysis, we examine and compare alternatives in the subsequent sections over a 10-year period.

4.1.6.1 Potential Timing of a Hunt and Number of Hunting Days

Under Alternative 6, the hunting season would be the same as under Alternatives 2 and 3 (December 1 through May 31). Also under Alternative 6, the hunt area would be the same as under Alternative 2 (anywhere in the coastal portion of the Tribe's U&A) and the hunt methods would be the same as under Alternative 2 (use of a wooden canoe and motorized chase vessels).

Because Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods as Alternative 2, we assume there would be the same number of hunting, scouting and training days under Alternative 6 as under Alternative 2. Together, these amount to 60 possible days of hunt-related trips (including scouting and training effort) from December through May. For the reasons described under Alternative 2, this number may be an overestimate. To summarize, we expect days of combined scouting, training, and hunting under Alternative 3 to occur as follows:

- Most likely: March through May
    - 43.3 scouting and training days, 33.2 hunting and training days
- Less likely: December through February
    - 17.1 scouting and training days, 9.3 hunting and training days

4.1.6.2 Potential Number and Types of Vessels

The hunt under Alternative 6 would involve the same number and types of vessels as the hunt under Alternative 2.

4.1.6.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed

Under Alternative 6, the maximum number of whales that could be killed per year by the Tribe would be determined by the total limit on strikes, which would be no more than four in a single year and seven over 2 years (or 3.5 per year on average). Thus, the maximum number of whales that could be killed would be four in a single year, seven over 2 years, and 3.5 per year on average. This level of mortality represents 0.024 percent of the current ENP gray whale population abundance (estimated to be 14,526 whales) and 0.85 percent or 1.7 percent of PBR (based on the informational estimates of PBR calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). Although higher than under the No-action Alternative, this level of hunt-related mortality would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP due to the small percentage of the stock that could be affected.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Some of the whales killed might be PCFG whales, and, of those, some might be OR-SVI and Makah U&A whales. Under Alternative 6, a limit would be set on PCFG mortality equal to NMFS' calculation of PBR in its most recent stock assessment report (Subsection 3.4.2.1.4, Defining and Calculating PBR) minus other sources of human-caused mortality. Table 4-11 illustrates how the limit would be calculated. The mortality limits using the current values for the PBR formula and current levels of human-caused mortality as reported in the most recent NMFS stock assessment report (Carretta et al. 2023) would be 1.0 whales total. Because the mortality limit would be set each year, fractions of whales or unused whales would not be carried over to a subsequent year.

Table 4-11. Alternative 6 method of calculating PCFG mortality limits.

Element	Current Value	Source for Establishing Value in Future Calculations[a]	Notes
One-half maximum net productivity rate (Rmax)	(½) 0.062 = 0.031	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
Minimum population abundance of PCFG (Nmin)	227	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.3, PCFG Abundance and Trends
Recovery factor for PCFG	0.5	NMFS' stock assessment report (Carretta et al. 2023)	See Subsection 3.4.2.1.4, Defining and Calculating PBR
Other sources of human-caused mortality	1.7	NMFS' Stock assessment report (Carretta et al. 2023)	See Subsection 3.4.3.4.4 PCFG Status, Carrying Capacity (K), and Related Estimates
CURRENT RESULT	Total Mortality: (0.031) * (227) * 0.5 = 3.52– 1.7 = **1.82 (Rounded down to 1.0)**		

[a] Values for the elements used in this calculation are derived from NMFS Stock Assessment Reports, the most recent of which is Carretta et al. (2023), as described in Subsection 2.3.6 Alternative 6 (Different Limits on Strike and PCFG, and Limited Duration of Regulations and Permits). These values may change as new information becomes available.

Under Alternative 6, the limit on the maximum number of PCFG whales killed would be equal to the overall strike limit. While 3.5 would, on average, be the *maximum* number of PCFG whales that might be killed each year under Alternative 6, it is unlikely that many would actually be killed given the proportion of PCFG whales present in the Makah U&A during the spring portion of the hunting season, when the Tribe is most likely to hunt. The proportion of PCFG whales in the Makah U&A during the winter portion of the hunting season is unknown. This analysis therefore also considers the *likely* number of PCFG whales that might be killed per year, if the full number of strikes were to occur during the spring. The calculation is based on the proportional presence of PCFG whales in the coastal portion of the Makah U&A during the likely timing of a Makah hunt (March through May). In addition, the analysis considers the likely number of OR-SVI and Makah U&A whales that might be killed in a tribal hunt, if the full number of strikes were to occur during the spring portion of the hunting season.

During the period 1996 to 2016, 27.3 percent of whales identified from March through May in the northern Washington coast survey area were PCFG whales, 26.2 percent were also OR-SVI whales, and 23.4 percent were also Makah U&A whales (Subsection 3.4.3.4.3, PCFG Abundance and Trends). If an average of 3.5 whales were killed per year under Alternative 6, the likely number of PCFG whales

that would be killed would be 0.96 (an average of 3.5 whales killed times 27.3 percent), the likely number of OR-SVI whales killed would be 0.92 (an average of 3.5 whales killed times 26.2 percent), and the likely number of Makah U&A whales killed would be 0.82 (an average of 3.5 whales killed times 23.4 percent). These numbers are subsets of one another (the OR-SVI is contained in the PCFG area and the Makah U&A is contained in the OR-SVI area) (Figure 3-10) so are not additive. These estimates are also displayed in Table 4-12.

If the Tribe also hunted in the winter, it is uncertain what the proportion of PCFG whales would be; thus, there could be more or fewer PCFG, OR-SVI, or Makah U&A whales killed. However, because all struck and lost whales would be counted against the PCFG limit, the average maximum number of PCFG whales that could be killed per year would be 3.5, as described above.

Likelihood of Striking a WNP Whale

We calculated the likelihood of a Makah hunt striking (killing) a WNP gray whale based on 3.5 strikes per year during the spring and using the analysis from Moore et al. (2023) described above under Alternative 2. These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 6, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3. Table 4-12 shows the probability of a WNP whale being struck.

Likely Number of ENP Whales Harvested

Under Alternative 6, the limit of seven strikes over 2 years would limit the maximum number of whales harvested to seven over 2 years, or 3.5 per year on average.

4.1.6.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

Under Alternative 2, we estimate that for each whale struck there would be six unsuccessful harpoon attempts, and for each day of hunting there would be 8.3 whales approached. A hunt under Alternative 6 would occur in the same area, within the same time period, and using the same methods as the hunt under Alternative 2. We therefore apply the same assumptions to a hunt under Alternative 6 as under Alternative 2.

Under Alternative 6, with a maximum average of 3.5 strikes per year, there might be 21 unsuccessful harpoon attempts (3.5 strikes times six unsuccessful harpoon attempts). With up to 33.2 hunting days per year in the spring, the potential number of times that tribal hunters might approach a whale would be 276 (8.3 per day times 33.2 days). If tribal members hunted during the winter as well, there could be an additional 77 approaches (8.3 per day times 9.3 days) for a total of 353 approaches per year. Some of these attempted strikes and approaches could be repeated incidents involving the same whale. We also estimate the number of instances in which PCFG, OR-SVI, and Makah U&A whales could be

subjected to unsuccessful harpoon attempts or approaches by hunters. For these estimates, we multiplied the number of strikes and approaches times the proportion of each subgroup of whales observed in the coastal portion of the Makah U&A during March through May (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). The estimates are displayed in Table 4-12.

Finally, we estimate the likelihood of an unsuccessful harpoon attempt or approach involving a WNP gray whale. For these estimates we relied on modeling by Moore et al. (2023), as described above (Subsection 4.1.6.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested). These are highly precautionary estimates of the maximum potential impact to WNP gray whales under Alternative 6, for the same reasons as described under Alternative 2 in Subsection 4.1.2.3. The estimates are displayed in Table 4-12.

Table 4-12. Estimated numbers of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG, OR-SVI, Makah U&A, and WNP whales under Alternative 6.

Whales		Number of Strikes[a]			Number of Unsuccessful Harpoon Attempts[b]			Number of Approaches[c]		
		Annual	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**	**Annual**	**6-year**	**10-year**
ENP		3.5	21	35	21	126	210	353	2,118	3530
PCFG	27.3%[d]	0.96	5.7	9.6	5.7	34.4	57.3	96.4	578.2	963.7
OR-SVI	26.2%[d]	0.92	5.5	9.2	5.5	33.0	55.0	92.5	554.9	924.9
MUA	23.4%[d]	0.82	4.9	8.2	4.9	29.5	49.1	82.6	495.6	826.0
WNP[e]	0.8-1.2%	0.028-0.042	0.17-0.25	0.28-0.42	0.17-0.25	1.0-1.5	1.7-2.5	2.8-4.2	16.6-25.0	27.7-41.6

a. Limited by regulation.
b. Calculated using the number of unsuccessful harpoon attempts per successful strike (6:1), based on experience during the 1999 and 2000 hunts combined.
c. Calculated using an estimate of 8.3 approaches per day of hunting and a total of 42.5 hunting days per year.
d. Percentage estimates are based on the springtime whale analysis by Calambokidis et al. (2023) which compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this FEIS for PCFG whales, which requires a whale to be have been seen in at least 2 years). This results in estimates that are likely higher and therefore more conservative than estimates that would be derived from a comparison with whales observed in at least 2 years. We conclude that this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range. Note that OR-SVI and Makah U&A are nested regions within the PCFG range.
e. Median probability based on modeling by Moore et al. (2023) given an ENP gray whale population abundance range of approximately 11,000 to 16,000 animals.

4.1.6.5 Potential Number of Shots Fired or Grenade Explosions

For the reasons described under Alternative 2, we estimate there would be 16 shots fired for each whale harvested. Thus, under Alternative 6 we would expect up to 56 shots fired per year on average (16 shots times 3.5 whales harvested on average) and up to 336 shots over a 6-year period. If grenades are used in addition to or instead of a rifle, as described under Alternative 2, we estimate there would be three grenade explosions for each whale harvested. Thus, under Alternative 6 we would expect up to 10.5 (rounded up to 11) grenade explosions per year and up to 63 explosions over a 6-year period.

It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions may also cause temporary hearing threshold shifts in gray whales. However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under Alternative 6.

It is also possible there could be shots fired or grenades exploded in conjunction with struck and lost whales, but we consider this unlikely because of the way "harvest" is defined. A whale is considered harvested once a flag or buoy has been attached (essentially, once a harpoon is successfully embedded). It is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy (refer to the Glossary and Subsection 1.1.1, Summary of the Proposed Action).

4.1.7 Alternative 7, Composite Alternative—Preferred

Alternative 7 is made up of various components from action alternatives 2 through 6. There are two aspects of this composite alternative that differ from the other action alternatives:

(1) It relies on an alternating-year hunt schedule whereby winter/spring hunts would begin in December of the same calendar year that summer/fall hunts occur, and summer/fall hunts would begin in the next calendar year following the end of a winter/spring hunt. The result is that there is a 1-month gap (November) between the end of a summer/fall hunt and the start of a winter/spring hunt and then a 13-month gap between the end of a winter/spring hunt and the

start of the next summer/fall hunt, and so on. Therefore, there would be up to five winter/spring hunts and five summer/fall hunts over the 10-year waiver period.

(2) It is evaluated both (a) with and without low abundance thresholds for ENP gray whales, and (b) with a static low abundance threshold for the PCFG, below which hunting would cease. For our analysis, we have considered four potential scenarios: no low abundance threshold for the ENP stock, a threshold of 11,000 whales, a threshold of 16,000 whales, and a threshold of 18,000 whales. The thresholds are analyzed as Alternatives 7(a), 7(b), and 7(c), respectively. If an ENP abundance threshold is implemented and a cease-hunt were triggered by that threshold, hunting could resume once the ENP population abundance estimate increased above the selected threshold. For the PCFG, we proposed two thresholds in tandem with one another. They consist of a population abundance estimate of 192 whales and a minimum population abundance estimate of 171 whales. If either of these thresholds were triggered, hunting would cease until both estimates increased above their respective thresholds.

Under Alternative 7, in order to conduct hunting, scouting, and training activities in the winter/spring months, the Tribe would need to obtain authorization for the potential incidental take of WNP gray whales (due to the chance of taking such a whale by harassment during winter/spring hunts). If they do not obtain an incidental take authorization (ITA) for WNP gray whales, they would only be authorized to hunt and train in the summer/fall months. This could also happen if the Tribe were to obtain such authorization and subsequently struck a WNP gray whale during a winter/spring hunt (a highly unlikely event that would cause such hunts to cease). For our analysis, we assume that the Tribe will either receive ITSs for hunting in all five winter/spring hunt seasons during the waiver period or that they will not receive permits for winter/spring hunts for the entirety of the 10-year waiver period, in which case only five summer/fall hunts would take place. It is, however, possible that the Tribe could receive permits for some of the winter/spring hunt years but not others, in which case the effects of this alternative would fall between the two scenarios considered.

Under Alternative 7, the Tribe would utilize the same hunt area and overlap with the same winter/spring hunting seasons (i.e., all or portions of the December 1 through May 31 time period) in alternating years as Alternative 2. Like Alternatives 3 through 6, Alternative 7 also includes provisions to limit the number of struck and lost whales and measures to count struck and lost whales against PCFG mortality limits. Alternative 7 also incorporates a similar, but shorter, summer/fall hunting season in alternating years to that described under Alternative 4. This split-season hunt design was first proposed under Alternative 5 to limit the likelihood that tribal hunters would strike or otherwise harm a WNP gray whale during the winter/spring migration period. However, it has been modified under

Alternative 7 to further limit potential impacts on WNP whales by restricting hunts to the summer/fall season every other year to avoid the WNP gray whale migration period. Finally, Alternative 7 incorporates the 10-year waiver period and shorter-duration permits that were proposed as additional precautionary measures under Alternative 6. Much like Alternative 6, it is not possible to determine whether a new waiver and regulations would be implemented after the waiver under Alternative 7 expired, or what such a waiver and regulations would allow. However, it is possible that Alternatives 2 through 5 could result in a far greater number of strikes, unsuccessful harpoon throws, and approaches over time than Alternatives 6 and 7 due to the lack of expiration of the waiver period. Because of the uncertainty around the events following the expiration of the waiver period under Alternative 7, for the purposes of this analysis, we examine and compare alternatives in the subsequent sections over a 10-year period.

Table 4-1 summarizes the key hunting components associated with this alternative. Although these components have already been analyzed under Alternatives 2 through 6, to aid comparison we analyze them here in aggregate with the strike limits and other provisions described in Subsection 2.1, Alternative 7.

4.1.7.1 Potential Timing of a Hunt and Number of Hunting Days

As described above, hunt seasons would alternate between winter/spring hunts and summer/fall hunts. The hunting season during the winter/spring hunt mirrors the December 1 – May 31 period proposed by the Tribe in Alternative 2. Because Alternative 7 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods, we assume there would be the same number of hunting days and scouting days under Alternative 7 as under Alternative 2. Thus, we anticipate up to 60 days of hunting and hunting-related activities in winter/spring hunts under Alternative 7. To summarize, we expect days of combined scouting, training, and hunting under Alternative 3 to occur as follows:

- Most likely: March through May
    - 43.3 scouting days, 33.2 hunting days
- Less likely: December through February
    - 17.1 scouting days, 9.3 hunting days

Summer/fall hunts are less restricted by ocean and weather conditions, as described in Subsection 4.1.4.1. Instead, the estimated number of hunting days that may take place in the summer/fall hunting season is restricted only by the hunters' ability to locate and strike a whale. According to an analysis by the Tribe (J. Scordino, Pers. Comm., Makah Tribe Marine Mammal Biologist, July 31, 2013), a reasonable estimate for the maximum number of days it would take to locate and strike a *male PCFG* whale is 7 days. Under Alternative 7, the hunt is not restricted to known males during the summer/fall.

Assuming a 50:50 sex ratio (see Subsection 3.4.3.4.1, Sex Ratio of PCFG Whales), the number of whales available to hunters under this alternative is effectively double that used to estimate the amount of time it would take to locate and strike a known male. However, the analysis by the Tribe provides the best available data, so our analysis under Alternative 7 maintains the assumption that it will take a maximum of 7 days for hunters to locate and strike a whale. This allows for a precautionary approach in this case, as the Tribe may strike a male or female PCFG whale unless or until the limit of 16 PCFG whales or 8 PCFG females is reached. Also, Alternative 7 allows up to two strikes in summer/fall hunts but only if the first strike results in a struck and lost whale. Therefore, it is possible that summer/fall hunts would involve up to 14 days of hunting if the first strike does not result in a landed whale, or up to 7 days if the first struck whale is landed.

For the limited 10-year waiver period under this alternative, there could be a maximum of five winter/spring hunting seasons and five summer/fall hunting seasons. This amounts to up to 300 days of hunting and hunting-related activities in winter/spring hunts during the waiver period (60 hunting days per year times 5 years) and up to 70 days of hunting-related activities in summer/fall hunts (14 hunting days per year times 5 years). Thus, under Alternative 7, there could be an average of 37 hunting days per year over the waiver period (370 total hunting days divided by 10 years).

However, it is possible that the Tribe may not receive authorization to hunt during some or all of the winter/spring hunt seasons. This could happen, for example, if the Tribe did not obtain an ITA for WNP gray whales. Under this scenario, it is possible that the Tribe would not be authorized to hunt at all during the winter/spring seasons, meaning that only 5 total seasons of hunting (during the summer/fall months) would occur over the waiver period This amounts to up to 70 days of hunting-related activities in summer/fall hunts (14 hunting days per year times 5 years) and an average of 7 hunting days per year throughout the waiver period (70 total hunting days divided by 10 years). Also, if the tribe conducted a winter/spring hunt and accidentally struck a WNP gray whale (a statistically improbable event), then all hunting would be suspended unless and until NMFS determined that measures had been taken to ensure no additional WNP gray whales are struck during the duration of the permit. This would result in a cease hunt for the duration of the permit, unless measures were identified to ensure no additional WNPs would be taken. Hunting could remain suspended for some, if not all, of the remaining winter/spring hunt seasons for the duration of the waiver period. Therefore, there could be some intermediate number of winter/spring hunt seasons over the course of the waiver period between the minimum of 0 if the Tribe does not receive an ITA and maximum of 5 if they do receive an ITA and do not strike a WNP gray whale.

4.1.7.2 Potential Number and Types of Vessels

The hunt under Alternative 7 would involve the same number and types of vessels as the hunt under Alternative 2.

4.1.7.3 Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested

Potential Number of ENP Whales Killed and Harvested

The maximum potential number of ENP whales killed under Alternative 7 would be 25 over a 10-year waiver period (averaging 2.5 whales killed per year) (Table 4-13). Up to three whales may be killed in winter/spring hunts, and up to two whales may be killed in summer/fall hunts, if the first whale was struck and lost. Only one whale may be harvested in summer/fall hunts, so it is possible that in some years only one will be killed. However, we assume that all struck and lost whales subsequently die. This level of mortality represents 0.017 percent of the ENP gray whale population and 0.61 percent or 1.2 percent of PBR (based on the informational estimates of PBR calculated in Subsection 3.4.3.3.4 ENP Status, Carrying Capacity, and Related Estimates). This level of mortality would not be likely to have a discernable effect on the ENP stock's abundance or rate of growth or on the stock's abundance relative to OSP due to the small percentage of the stock that could be affected.

If the Tribe receives authorization to hunt during the winter/spring season every year, Alternative 7 would result in higher mortality than the No-action Alternative and Alternatives 4 and 5 but lower mortality than Alternatives 2, 3, and 6. Removing the winter/spring hunts from the annual mortality estimation would reduce the overall mortality of the hunt under Alternative 7 to the same level as Alternative 4. Other scenarios, where the Tribe hunted in some but not all winter/spring seasons, could result in levels of annual mortality that fall somewhere in between the values examined above, none of which would be likely to lead to discernible effects on the ENP gray whale stock's abundance.

The total number of ENP whales killed under Alternative 7 could also be limited by the number of PCFG whales struck, as well as by low abundance thresholds for the PCFG and for the ENP stock in any given year. In addition to a WNP gray whale strike, hunting would cease under the following potential scenarios: (1) the total PCFG strike limit of 16 whales is reached; (2) the total PCFG female strike limit of eight whales is reached; (3) the most recent or forecasted PCFG abundance estimate falls below 192 whales; (4) the most recent or forecasted PCFG minimum abundance estimate falls below 171 whales; or (5) NMFS sets a low abundance threshold for the ENP stock and the stock's abundance estimate falls below that threshold of either (a) 11,000, (b) 16,000, or (c) 18,000 whales. If either of the first two conditions were met, the hunt would cease for the remainder of the 10-year waiver period.

If any of the abundance estimates for PCFG or ENP gray whales dropped below their thresholds, the hunt would cease until the relevant estimate(s) increased to above the threshold.

Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed

Under Alternative 7, the maximum number of PCFG whales that may be killed is 16 over the 10-year waiver period, with an additional limit of eight strikes on PCFG females. In summer/fall hunts, we assume that 100% of the whales struck would be members of the PCFG. Because the hunt would occur in the Makah U&A, any PCFG whale killed during the summer/fall would also be an OR-SVI and Makah U&A whale. Therefore, during summer/fall hunts when the strike limit is two whales, up to two PCFG whales—and, therefore, two OR-SVI and two Makah U&A whales—could be killed, unless the first strike results in a landed whale, which would end the hunt for that season.

Although a total of 16 PCFG whales might be killed over the 10-year waiver period, it is unlikely that 16 would actually be killed, given the proportion of PCFG whales present in the Makah U&A during the winter and spring months. During winter/spring hunts, the mixing proportions for PCFG, OR-SVI, and Makah U&A whales during the time when the hunt would take place are 27.3%, 26.2%, and 23.4%, respectively, as described in subsection 4.1.2.3 above. If all three strikes were used in a winter/spring hunt, it is likely that 0.82 of those would be on PCFG whales (3 strikes times 27.3%), 0.79 on OR-SVI whales (3 strikes times 26.2%), and 0.70 on Makah U&A whales (3 strikes times 23.4%). To aid comparison with other alternatives, Table 4-13 summarizes these Alternative 7 strike estimates annually and over the span of 6 and 10 years. Assuming that the Tribe receives authorization to hunt every year in alternating seasons, the average PCFG mortality would be 1.4 whales per year. This would be higher than expected under the No-action Alternative and under Alternatives 4, 5, and 6, but less than under Alternatives 2 and 3. It is also lower than the informational PBR of 3.5 whales calculated by NMFS (Carretta et al. 2023).

Likelihood of Striking a WNP Whale

Moore et al. (2023) provides a detailed analysis for the probability of striking a WNP whale under Alternative 7. Based on the best available information, that analysis assumed that WNP whales would only be encountered during winter/spring hunts because such whales have not been sighted in or near the Makah U&A during the summer/fall months. Using the best data currently available on the presence of WNP whales in the ENP range and assuming that all allowable strikes and training harpoon throws are utilized throughout the course of the 10-year waiver period during winter/spring months, they estimate that for an individual strike on a gray whale, the expected probability of it being a WNP whale is between 0.8% and 1.2%, assuming an ENP abundance of between 16,000 and 11,000 animals

respectively. According to Moore et al. (2023), the probability of striking one WNP gray whale over the 10-year waiver period is between 11.1 and 16.3%, assuming all 15 winter/spring strikes are utilized. In other words, we would expect one WNP whale to be struck every 61 to 90 years. It is unlikely that all of the assumptions of this analysis will be met, as it is unlikely that all hunt activities will occur in the winter/spring months and that the full allowance of strikes and training harpoon throws will be utilized each year. Therefore, these are precautionary estimates representing the maximum potential impact to WNP gray whales under Alternative 7. To aid comparison with other alternatives, Table 4-13 summarizes these Alternative 7 strike estimates annually and over the span of 6 and 10 years. The risk to WNP whales under Alternative 7 is less than under Alternatives 2, 3, 5, and 6 but more than under the No-action Alternative and Alternative 4, assuming the Tribe receives authorization to hunt in the winter/spring months. Under this alternative, if a struck whale was identified as a member of the WNP stock, hunting would cease until measures have been taken to prevent striking another WNP whale.

4.1.7.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches

During winter/spring hunts under Alternative 7, we expect the ratio of unsuccessful harpoon attempts to successful strikes would be similar to Alternative 2, resulting in 18 unsuccessful harpoon attempts (three strikes times six unsuccessful harpoon attempts) on ENP gray whales. However, consistent with our assumptions for Alternative 4, the ratio could be lower during Alternative 7's summer/fall hunts because whales approached during the feeding season may be more likely to be milling and less likely to be traveling than whales found during the migratory season, making them more vulnerable to a successful strike. Nevertheless, for this analysis and consistent with our assumptions for Alternative 4, we use the observed ratio of 6:1 for Alternative 7, as that represents the best information available based on experience from the 1999 and 2000 hunts. With up to two strikes under Alternative 7, we would expect 12 unsuccessful harpoon attempts during summer/fall hunts. Unsuccessful harpoon attempts on a whale that has already been struck do not count against the limit of attempts that may be authorized under a permit. Assuming that the Tribe receives authorization to hunt in the winter/spring months, this would result in an average of 15 unsuccessful strike attempts per year over the 10-year waiver period. This would result in more behavioral disturbance from strike attempts under Alternative 7 than under the No-action Alternative and Alternative 4, but less than under Alternatives 2, 3, 5, and 6.

Consistent with Alternatives 2, 3, and 6, we assume there could be a maximum of 353 approaches on ENP gray whales per year. This would result in more behavioral disturbance due to approaches than under the No-action Alternative and Alternatives 4 and 5, unless the Tribe does not receive authorization to conduct hunting and training activities in the winter/spring seasons. These would be in the form of hunt-related approaches or approaches made by crews/vessels training to hunt. Some of

these approaches may be repeated incidents involving the same whale. We also estimated the number of PCFG, OR-SVI, and Makah U&A whales that may be subjected to unsuccessful harpoon attempts and approaches. However, if the Tribe is only authorized to hunt in the summer months, we assume that all whales approached would be PCFG whales. Therefore, the Tribe would be limited to 142 approaches per year. Our results are shown in Table 4-13.

Estimates for unsuccessful harpoon attempts and approaches on WNP whales are based on the analysis by Moore et al. (2023). Their analysis assumed that all approaches (hunting and training) in a given year would occur during the winter/spring when WNP whales may be present. Given that assumption, if 353 approaches are made every year during the 10-year waiver, we would expect up to 27.7 to 41.6 WNP whales to be approached (0.8% and 1.2% times 3,530 approaches) (Table 4-13). Thus, Alternative 7 would result in the same potential level of behavioral disturbance to WNP gray whales due to approaches as Alternatives 2, 3, and 6, but more than the No-action Alternative and Alternatives 4 and 5. However, it is likely that fewer than the maximum expected number of WNP whales would be approached because we would expect a substantial number of approaches to occur during the summer when ocean conditions are more favorable for training and, during summer/fall hunts, when approaches are restricted to July through October. If the Tribe does not receive permits for winter/spring hunts, unsuccessful strike attempts and approaches will be limited to the summer/fall hunt months when WNP gray whales are not expected to be present.

4.1.7.5 Potential Number of Shots Fired or Grenade Explosions

For the reasons described under Alternative 2 (Subsection 4.1.2.5), we estimate there would be 16 rifle shots and three grenade explosions (if grenades are used) for each harvested whale. In winter/spring hunts, we estimate up to 48 shots fired (16 shots times three whales harvested) and up to nine grenade explosions (three grenade explosions times three whales harvested) per year. In summer/fall hunts, only one whale may be harvested; however, two whales may be pursued and struck if the first whale is struck and lost. To be precautionary, in summer/fall hunts, we estimate up to 32 shots fired (16 shots times two whales) and up to six grenade explosions (three grenade explosions times two whales) per year. However, it is unlikely that all of these shots and explosions would occur if (1) the first whale is harvested or (2) it was struck and lost and able to evade hunters quickly and not elicit all of the estimated shots and explosions. If the Tribe receives authorization to hunt in the winter/spring months, the maximum average annual number of rifle shots and grenade explosions under Alternative 7 would be 40 and 8, respectively.

It is possible that rifle shots and grenade explosions could result in behavioral disturbance of nearby whales. Grenade explosions may also cause temporary hearing threshold shifts in gray whales.

However, it is unlikely that hunters would fire rifles or grenades at a whale before it has been "made fast" with a harpoon attached to a buoy. As a result, they can largely limit the impacts of gunshots and grenade explosions to the whale being harvested by first separating it from any nearby whales. In addition, effects would be related to the timing and location of the noise relative to the nearby whale's location and activity. Any noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source, and the duration of the sound is expected to only last a few seconds. Given this, any disturbance from the use of weapons be temporary, and it is unlikely that these activities will have a discernable impact on the ENP gray whale stock's abundance, rate of growth, or distribution, or that these activities will affect their migration under this Alternative. Still, the risk of disturbance associated with rifle shots and grenade explosions under Alternative 7 is higher than under the No-action Alternative and Alternatives 4 and 5 but less than under Alternatives 2, 3, and 6.

Table 4-13. Estimated number of strikes, unsuccessful harpoon attempts, and approaches of ENP, PCFG, OR-SVI, Makah U&A, and WNP whales under Alternative 7.

Whales & Mixing Proportions	Number of Strikes				Number of Unsuccessful Harpoon Attempts				Number of Approaches		
	Winter/Spring Hunt / Summer/Fall Hunt				Winter/Spring Hunt / Summer/Fall Hunt						
	Annual	**6-Yr**	**10-Yr**	**10-Yr Total[a]**	**Annual**	**6-Yr**	**10-Yr**	**10-Yr Total[a]**	**Annual**	**6-Yr Total**	**10-Yr Total[a]**
ENP Winter/Spring = 100% Summer/Fall= 100%	3 / 2	9 / 6	15 / 10	25	18 / 12	54 / 36	90 / 60	150	353[b]/142[c]	2118[b]/852[c]	3530[b]/1420[c]
PCFG Winter/Spring = 27.3% Summer/Fall= 100%	0.82 / 2	2.5 / 6	4.1 / 10	14.1[d]	4.9 / 12	14.7 / 36	24.6 / 60	84.6	142[e]	852[e]	1420[e]
OR-SVI Winter/Spring = 26.2 % Summer/Fall= 100%	0.79 / 2	2.4 / 6	3.9 / 10	13.9	4.7 / 12	14.1 / 36	23.6 / 60	83.6	142[e]	852[e]	1420[e]
MUA Winter/Spring= 22.54% Summer/Fall= 100%	0.70 / 2	2.1 / 6	3.5 / 10	13.5	4.2 / 12	12.6 / 36	21.1 / 60	81.1	142[e]	852[e]	1420[e]
WNP Winter/Spring= 0.8-1.2% Summer/Fall= 0%	0.024-0.035 / 0	0.071-0.11 / 0	0.12-0.16 / 0	0.12-0.18	0.14-0.21 / 0	0.42-0.64 / 0	0.71-1.06 / 0	0.71-1.06	2.8-4.2[f]	16.6-25.0[f]	27.7-41.6[f]

a. The 10-Yr Total values for strike limits and unsuccessful harpoon attempts are based on the assumption that the Tribe will receive authorization for winter/spring hunts to occur in alternating years. Under this scenario, there will be 5 winter/spring hunts and 5 summer/fall hunts over the course of the waiver period. If the Tribe does not receive permits for winter/spring hunts, the 10-year totals are those values reported for Summer/Fall hunts under the preceding 10-yr columns.

b. The maximum approach estimates for ENP gray whales assume that the Tribe has received permits to conduct training and hunting approaches during the winter/spring months. The approach limits are the same for winter/spring hunt years and summer/fall hunt years, and they assume that each year the Tribe will make the maximum allowable approaches (hunting and training) on gray whales.

c. If the Tribe does not receive permits to conduct hunting and training activities in the winter/spring months, hunting and training approaches will be limited to the summer/fall months when we assume that every whale approached is a PCFG whale. Therefore, the number of approaches will be limited to 142 annually.

d. For comparison, the maximum allowable number of strikes on PCFG whales is 16 over the 10-year waiver period.

e. These PCFG, OR-SVI, and MUA approach estimates are conservative because they assume that all approaches (hunting and training) in a given year occur during the summer/fall period when 100% of the whales encountered are assumed to be PCFG, OR-SVI, and MUA whales, and that the Tribe will use all of the allowable approaches for PCFG whales (142 approaches). If the Tribe receives a permit to conduct hunting and training activities to occur in the winter/spring months, we would expect some of the approaches to occur during the winter/spring period.

f. These WNP approach estimates–based on Moore et al. (2023)–are conservative because they assume that all approaches (hunting and training) in a given year occur during the winter/spring period when WNP whales may be present. Realistically, we would expect a substantial number of approaches to occur outside this period, i.e., during the summer when ocean conditions are more favorable for training and, in summer/fall hunts, when hunting approaches are restricted to July–October.

4.1.7.6 Low Abundance Thresholds

The impacts to the affected environment under Alternative 7 are analyzed without a low abundance threshold for the ENP stock (Preferred) as well as with three potential thresholds, below which hunting would cease. Regardless of whether a low-abundance threshold is defined, NMFS would retain discretion to deny issuance of a hunt permit if NMFS determined that a hunt would adversely affect the ENP gray whale stock's status. The alternative of not including an ENP gray whale low-abundance threshold provides NMFS the most flexibility to evaluate the effect of an individual hunt permit on the ENP gray whale stock based on contemporaneous environmental conditions and the best scientific information available at that time.

Sub-alternative 7(a) would set a low abundance threshold of 11,000 ENP gray whales. This threshold represents the lowest estimated abundance from which the population has increased in the 54-year time series of data for the stock. Under Sub-alternative 7(b), the abundance threshold would be 16,000 animals. This threshold is based on the OSP analysis conducted by Punt and Wade (2012), which concluded that the MNPL for the ENP gray whale stock at that time was approximately 16,000 whales. Setting the abundance threshold at the estimated MNPL for the stock would prevent a hunt from taking place if the population dropped below OSP as calculated in 2012, however, recent information suggests that the stock's OSP may have changed since Punt and Wade's 2012 analysis (see Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates). Finally, under Sub-alternative 7(c), the abundance threshold would be 18,000 animals. This threshold uses the upper 95% confidence interval of the most recent abundance estimate before the start of the ongoing 2019 UME (30,000 whales) as an estimate of carrying capacity (K) to update the Punt and Wade (2012) analysis, resulting in an estimated MNPL of approximately 18,000 whales. Based on the most recent ENP gray whale stock abundance estimate, hunting could be permitted under Sub-alternative 7(a) but not under Sub-alternatives 7(b) and (c) until current abundance increased. None of the low-abundance thresholds represent an adaptive management approach which accounts for current environmental conditions or consider the ENP gray whale stock's status relative to current carrying capacity.

Alternative 7 would implement two abundance thresholds for PCFG gray whales in tandem with one another: an abundance estimate (N) of 192 whales and a minimum abundance estimate (N_{min}) of 171 whales. The most recent or forecasted abundance *and* minimum abundance estimates must remain above these levels for hunting to be authorized. These thresholds represent the lowest population abundance estimates during a recent stable period (1996 through 2017) during which the population has grown in the time series of data from 1996 through 2017.

Although it is difficult to determine the likelihood of triggering any of the abundance thresholds during the 10-year waiver period, implementing such a threshold increases the probability that hunting may cease for one or more years. This would result in fewer whales struck, subjected to unsuccessful harpoon attempts, and approached than the estimates reported in Table 4-13.

4.2 Water Quality

4.2.1 Introduction

This subsection addresses the potential for the alternatives to affect water quality in the action area, including marine water and groundwater. No hunt-related activities, with the possible exception of whale butchering activities, would take place above the high-tide line. There is no potential to affect surface water quality, including streams and tributaries in Water Resource Inventory Areas 19 and 20. Two issues pertain to the potential effects under each alternative on water quality of whale hunt-related activities. First is the potential for spills of vessel fuel or other contaminants as a result of collisions or other incidents involving marine vessels associated with the hunt, including observers and protesters. Second is the potential for groundwater contamination because of leaks of fluids from whale carcasses or tissues that may be disposed of eventually in a landfill. The method for disposing of any unused portions of harvested whales could include towing out to sea or disposal in a landfill (currently located several hundred miles inland in Klickitat County, Washington) (refer to Subsection 3.2.7, Solid Waste Disposal). This analysis addresses the effects of temporary storage at the Makah transfer station. Effects of disposal at sea are addressed in Subsection 4.3, Marine Habitat and Species.

None of the alternatives has the potential to affect drinking water quality, because no hunt-related activities would have the potential to affect current or future drinking water sources in the action area. The potential effects of whale butchering activities on water quality for the marine aquatic ecosystem would be negligible because the amount and longevity of any toxins would be minimal. Similarly, there would be no potential for any long-term effects on the management of shellfish beds in the action area. The following subsections discuss these points in greater detail.

4.2.1.1 Drinking Water Sources

As described in Subsection 3.2.4, Drinking Water Sources, all drinking water in the action area comes from surface water sources. Under the action alternatives, activities related to hunting and butchering whales would occur in marine or intertidal areas and therefore would not expose any current drinking water sources to whale-derived contaminants. Of the three potential future water sources identified in Subsection 3.2.4, Drinking Water Sources, two are surface water and would likewise be unaffected. The third option is a desalinization plant at the outlet of the Wa'atch River. The mechanism used to

treat the water at such a plant (reverse osmosis) would produce water that meets federal standards for drinking water even if contaminants are present at the water collection site (for example, reverse osmosis is used to polish secondary effluent from wastewater treatment plants, rendering it suitable for use as drinking water). Therefore, there is no potential for whale-derived contaminants to affect any of the potential future drinking water sources that have been identified in the action area. Temporary storage of whale carcass material at a transfer station would have the potential to affect only groundwater, so no drinking water sources could be affected. The potential effects on groundwater are discussed in Subsection 4.2.2.2, Groundwater Contamination.

4.2.1.2 Marine Waters

In marine and intertidal waters, whale hunting and butchering under the action alternatives would produce two broad classes of potential contaminants: organic material (e.g., blood, lymph, and digestive tract contents) and bioaccumulated contaminants (e.g., PCBs, DDT). During a successful whale hunt, the initial strike and kill would be expected to release substantial amounts of organic matter, which would continue to leak out of the carcass as it is hauled to the beach. The likely effects of this material would be attraction of predators to the blood scent, avoidance of blood by common prey fish species, and secondary effects of decreased dissolved oxygen associated with the breakdown of the organic material by marine bacteria. These effects would extend over a relatively short period (likely several hours) and would have a very low probability of affecting the marine environment in any detectable manner for more than a day or two. Struck and lost whales may also release organic material and bioaccumulated contaminants into the marine environment in a similar manner to whales that die and decompose at sea, however they would not be hauled to the beach and therefore these impacts would remain offshore and would not likely be detectable above the baseline levels of the No Action Alternative.

Any bioaccumulated contaminants in a whale carcass would be associated primarily with whale blubber, most of which would be removed and used for subsistence or ceremonial purposes. As described in Subsection 1.4.2 (Summary of Recent Makah Whaling — 1998 through 2007), following the successful hunt in 1999, Makah tribal members removed almost all edible portions of the meat and blubber from the whale within approximately 12 hours of towing the whale to shore. Under the action alternatives, if hunting and butchering were to proceed as they did in 1999, there would be little opportunity for contaminant release into the environment through decomposition while a whale is on the beach because the portions with the highest concentrations of contaminants (primarily blubber) would be removed in approximately 12 hours. If the unused portions of the carcass were towed out to sea for post-harvest disposal, some bioaccumulated contaminants might be released into the marine

ecosystem. The amount of toxins released from a flensed carcass, however, would be substantially less than the amount from a whale that died and decomposed entirely at sea. Given the size of the ocean area in which carcasses would be disposed, the removal of most of the blubber from carcasses prior to disposal, and the likely death and decomposition of some whales in the area naturally, the expected impact to the marine environment from carcass disposal would be negligible in any given year or over a period of years.

4.2.1.3 Shellfish Beds

As noted in Subsection 3.2.5 (Shellfish), shellfish beds in the action area can be closed to harvest because of the presence of human fecal coliforms or toxic algal blooms. Fecal coliforms are not harmful to shellfish but may be used to indicate the presence of sewage-borne organisms (pathogens) that cause disease in humans. The release of fecal coliforms into intertidal waters, therefore, would have the potential to affect aquaculture or subsistence harvest of shellfish only if the Washington Department of Health or Makah Fisheries chose to close a beach to harvest as a precautionary measure. Under the action alternatives, butchering a whale on the beach might release fecal coliforms into the intertidal area, where filter-feeding shellfish could accumulate them. Fecal coliforms from a whale, however, do not indicate an elevated risk of the presence of human pathogens. In addition, fecal coliforms are freshwater organisms that typically start to die off within 12 to 48 hours of exposure to marine water.

Regarding toxic algal blooms, research in Puget Sound has not established a statistically significant link between natural or human activities and toxic algal blooms. There is no evidence to suggest that the death of a whale (an ongoing natural process) would affect the probability of a toxic algal bloom occurring and thus requiring a shellfish harvest closure.

Based on the information above, it is improbable that whale hunt-related activities under the action alternatives would lead to long-term closures of shellfish beds inside the Makah U&A. If, through independent monitoring, the Washington Department of Health or Makah Fisheries found elevated levels of fecal coliforms and closed a beach (which would represent a cautious response to the presence of fecal coliforms in a whale carcass on the beach), the closure could last a few days until the waste material from the whale was diluted and dispersed by the tidal activity.

4.2.2 Evaluation Criteria

Two criteria were used to determine the potential for effects on water quality under the alternatives. The first is the likelihood of an increase in the risk associated with fuel spills or the introduction of

other toxic substances into the environment. The second is the likelihood of an increase in the risk associated with leakage from whale carcass material temporarily stored at the Makah Transfer Station.

4.2.2.1 Spills

Spills could result from collisions between vessels, equipment failure, or accidental release (e.g., while fueling or if a vessel capsized). No spills were reported from the 1999 and 2000 hunts, despite a collision between a protest vessel and a law enforcement vessel. If any spills occurred, effects would be minor and short-lived, even if they occurred in a semi-contained area such as Neah Bay. The volume of fuel or other contaminants carried by any hunt-related vessels would be miniscule compared to the volume of water in any potential receiving waters (e.g., Neah Bay, the Strait of Juan de Fuca, and the Pacific Ocean). A spill of fuel or similar fluids would not mix with water but would form a thin layer on the surface, continually spreading while it evaporated, broke apart, was hydrolyzed by ultraviolet light, and was decomposed by bacteria. This would probably occur over hours or days. The nearshore portion of the Makah U&A corresponds largely with the area to be avoided for the OCNMS, which was designated with the intention of reducing the potential for catastrophic oil spills from large ships (greater than 400 gross tons) carrying large amounts of bunker fuel. Any vessels involved in whale hunts, protest activities, or law enforcement would be substantially smaller than that, so any spills in the Makah U&A would not violate the intention of the area to be avoided.

The risk of spills would depend primarily on the amount of hunt-related vessel traffic in the action area, including Makah vessels and associated protest, media, and law enforcement vessels. Vessels and aircraft associated with each hunt would likely be similar to those associated with the previous hunts, as described in Subsection 3.11.3.2.1, Atmospheric Noise. It is possible that the amount of vessel traffic associated with each hunting expedition (including observation, protests, law enforcement, and media coverage) would vary under the action alternatives. For example, hunts conducted during summer (i.e., under Alternative 4) could attract more observers, protesters, or media coverage than hunts at other times of year. Alternatives that allow more hunts might attract less public interest over time and, therefore, less media coverage. Because of the difficulty of predicting such variations and how they might affect the precise amount of vessel traffic, this analysis assumes that each hunting expedition would be accompanied by the same amount of vessel traffic.

The risk of spills might also depend on the hunting season. Hunts conducted during the winter months might face a higher risk of encountering unanticipated storms that could cause vessels to capsize, as compared with hunts conducted during the summer. Thus, the risk of spills is likely to depend on the number of days with hunt-related trips and the season when hunting occurs. Under any of the action

alternatives, the risk from oil spills could be addressed by modifying or supplementing existing spill response plans (i.e. NWACP 2020) (Subsection 3.2.6, Spill Prevention).

4.2.2.2 Groundwater Contamination

As noted above, the method of disposing of any unused portions of harvested whales would either be disposal at sea or in a distant landfill after temporary storage at the Makah Transfer Station. The method would likely depend on the location where the whale was landed and butchered. Under the action alternatives, if any unused portions of whale carcasses were placed in the Makah Transfer Station, the potential would exist for contaminants from the carcass to leak and mix with groundwater. The risk of groundwater contamination would depend on 1) the concentration of water-soluble contaminants in the unused portions of the carcass, and 2) the amount of tissue delivered to the facility. The greatest concentrations of contaminants occur in blubber, most of which would be removed and used for subsistence or ceremonial purposes. Contaminants in any residual blubber on a carcass would likely be hydrophobic substances such as PCBs and DDT. If any such substances leaked at the Makah Transfer Station, they would adhere to soils and would have a very low probability of reaching groundwater in quantities likely to be toxic. Groundwater, however, does not serve as a drinking water source in the action area.

It is not possible to predict in advance the proportion of harvested whale carcasses that would be disposed of via the Makah Transfer Station, the amount of material on any of those carcasses, or the concentration of contaminants in any of those carcasses. Therefore, the most reliable indicator of the potential risk of groundwater contamination is the number of whales that would be harvested under a particular alternative. This number would depend primarily on harvest limits. In addition, restrictions on hunting seasons and on the harvest of identified whales might affect the Tribe's ability to harvest the full limit allowed.

4.2.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to pose risks to water quality in the action area. For each alternative, the discussion addresses the potential number of occasions on which hunt-related activity may pose a risk of spills, and the potential amount of waste material from harvested whales that may pose a risk of groundwater contamination.

The lowest risk of adverse effects on water quality would occur under the No-action Alternative because no whale hunts would be permitted. The risk under the action alternatives would increase compared to the No-action Alternative, with the amount of increase dependent on the number of days of scouting, training, and hunting, the hunting season, and the number of whales harvested. Table 4-1

identifies the number of likely days of hunting and the number of whales likely to be harvested under each alternative, and Subsection 4.1, Introduction, describes the rationale for those numbers.

Compared to the No-action Alternative, the risk of spills would increase under any of the action alternatives because of increases in vessel traffic on days when tribal members are scouting or hunting for whales. The greatest increases in the risk of spills would occur under Alternatives 2, 3, and 6, under which hunt-related trips would likely occur on approximately 60 days from December through May when vessels might encounter unanticipated storms and capsize. The increased risk of spills would be lower under Alternative 5 than under Alternatives 2, 3, and 6 because hunt-related trips would likely occur on approximately 22 days in December and May. The increased risk would be even lower under Alternative 4, under which hunt-related trips would likely occur on only 7 days. In addition, hunt-related trips under Alternative 4 could be conducted during the summer months, when the risk of vessels capsizing in unanticipated storms would be reduced compared to the other action alternatives. Alternative 7 is associated with an overall average of 37 days per year with hunt-related activities over the course of the 10-year waiver period; however, those days are split between winter and summer months. Up to 60 days with hunt-related trips could occur in winter/spring hunt years, while up to 14 could occur in summer/fall hunt years if the first whale struck by hunters is struck and lost.

As described above, the most reliable indicator of the potential risk of groundwater contamination is the number of whales that would be harvested under a particular alternative. The No-action Alternative carries the least risk of groundwater contamination because no whales would be delivered to a distant landfill via the Makah Transfer Station beyond those that might be delivered under current conditions (e.g., the possible disposal of a stranded animal). Under Alternative 4, the number of whale carcasses could increase, relative to the No-action Alternative, by a maximum of one every other year (under current conditions). The maximum potential increase in the number of whale carcasses delivered to the Makah Transfer Station would be greater under the other action alternatives, ranging from an average of 2 per year under Alternative 7 to as many as 5 per year under Alternatives 2, 3, and 5. However, as discussed in the individual analyses below, the actual number would likely be less because of restrictions on mortality of PCFG whales.

Under Alternatives 6 and 7, the waiver of the MMPA take moratorium and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analyses for Alternatives 6 and 7 consider effects only over a 10-year period.

4.2.3.1 Alternative 1, No Action

Under the No-action Alternative, no Makah whale hunt would be authorized and no whale hunting or associated activities (such as vessel traffic, protests, whale butchering, and carcass disposal) would be expected to occur in the action area. Therefore, the amount of marine vessel traffic and the risk of spills in the action area would not differ from current levels. With the possible exception of waste material from drift whales (which could be towed out to sea or disposed of on land), no whale tissue or carcasses would be delivered to the Makah Transfer Station. If any leakage occurred at the station, the effluent would not be different from current conditions and the risk of groundwater contamination would remain at current levels under the No-action Alternative.

4.2.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, vessel traffic associated with hunt-related trips would be expected to occur on approximately 60 days from December through May, primarily during the spring. Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), this would result in an increased risk of fuels or other contaminants being released into the marine environment. As described above, because the vessels associated with hunting would be small, any spills would be localized and rapidly diluted to undetectable concentrations in the Pacific Ocean or local bays. Non-water-soluble contaminants such as petroleum-based fuels would disperse and break down in hours or days. Also, risks from spills could be addressed by modifying or supplementing existing spill response plans.

Under Alternative 2, effects to groundwater are expected to be negligible. The limit on the number of harvested whales would be an average of four whales per year over 6 years, with no more than five in any one year. The limit on the number of PCFG whales killed per year would be three, based on current population estimates (Table 4-1). In addition, only PCFG whales harvested, not whales struck and lost, would be counted toward that limit. It is therefore unlikely that limits on PCFG whale mortality would restrict the total number of whales harvested per year under Alternative 2. It is not possible to predict the proportion of carcasses from those harvested whales that may be disposed of in a distant landfill or the Makah Transfer Station, but the maximum number would correspond to the harvest limits (an average of four per year and no more than five in any single year). If any leakage occurred, the effluent might contain contaminants, which could enter groundwater. However, groundwater is not used as a source of drinking water in the action area. Thus, for the reasons described above, there would be no expected effect on drinking water sources.

4.2.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same limits on the number of whales harvested as Alternative 2, but would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore

and would impose additional restrictions on the mortality of PCFG whales. As under Alternative 2, vessel traffic associated with hunt-related trips under Alternative 3 would likely occur on approximately 60 days from December through May. Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), this would result in an increased risk of fuels or other contaminants being released into the marine environment.

Compared to Alternative 2, the risk of fuels or other contaminants being released into the marine environment may be greater because the hunting party would likely be in a motorized vessel rather than a canoe, resulting in a greater number of motorized vessels engaged in each hunt-related trip. As described above, because the vessels associated with hunting would be small, any spills would be rapidly diluted to undetectable concentrations in the Pacific Ocean or local bays. Non-water-soluble contaminants such as petroleum-based fuels would disperse and break down in hours or days. Also, risks from spills could be addressed by modifying or supplementing existing spill response plans.

Under Alternative 3, effects to groundwater are expected to be negligible. The maximum number of whales that could be harvested under Alternative 3 would be the same as under Alternative 2 (an average of four per year, with no more than five in any one year). In contrast to Alternative 2, however, whales struck and lost would be counted toward the annual mortality limit for PCFG whales, potentially reducing the total number of whales that could be harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested (Subsection 4.1.3, Alternative 3, Offshore Hunt). Under current conditions, up to four whales may be harvested per year under Alternative 3 (Table 4-5). Alternative 3 could thus have a smaller increase (relative to the No-action Alternative) in the risk of groundwater contamination than would Alternative 2. However, groundwater is not used as a source of drinking water in the action area. Thus, for the reasons described above, there would be no expected effect on drinking water sources.

4.2.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. The maximum number of whales harvested under current conditions would be limited to one ENP male whale every other year. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4, Summer/Fall Hunt), vessel traffic associated with hunt-related trips under Alternative 4 would be likely to occur on a total of 7 days every other year. Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 4 would result in an increased risk of fuels or other contaminants being released into the marine environment. The increase would, however, be smaller than under any of the other action alternatives because vessel traffic would be likely to occur on 7 days

every other year, compared to approximately 60 days per year under Alternatives 2 and 3. In addition, hunt-related trips under Alternative 4 could be conducted during the summer months when the risk of vessels capsizing in unanticipated storms would be reduced compared to the other action alternatives. Also, risks from spills could be addressed by modifying or supplementing existing spill response plans.

Under Alternative 4, effects to groundwater are expected to be negligible. The maximum number of whales that could be harvested under Alternative 4 (under current conditions) would be limited to one every other year. It is possible, however, that no whales could be harvested in some additional years if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for the year). Alternative 4 would therefore result in an increased risk of groundwater contamination from material delivered to the Makah Transfer Station, relative to the No-action Alternative, but the increase would be smaller than under any of the other action alternatives. However, groundwater is not used as a source of drinking water in the action area. Thus, for the reasons described above, there would be no expected effect on drinking water sources.

4.2.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year.

Based on the length of the hunting season, vessel traffic associated with hunt-related trips under Alternative 5 would likely occur on a total of 22 days per year. This could decrease to 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 5 would result in an increased risk of fuels or other contaminants being released into the marine environment. The increase would be greater than under Alternative 4 (which would be expected to result in 7 days of hunt-related vessel traffic per year) but less than under Alternatives 2, 3, 6, and 7 (which would be expected to result in approximately 37, on average, to 60 days of hunt-related vessel traffic per year). As under the other action alternatives, risks from spills could be addressed by modifying or supplementing existing spill response plans.

Under Alternative 5, effects to groundwater are expected to be negligible. Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year (Subsection 4.1.5, Alternative 5, Split-season Hunt). During years in which no whales are struck and lost, and no PCFG whales are killed, the maximum limit for the number of whales harvested would be the same as under Alternatives 2 and 3. Compared to the No-action Alternative, therefore, Alternative 5 would result in an increased potential for contaminants to enter groundwater. Under some

scenarios, the potential increase could be as high as under Alternative 2, but the more likely increase would be similar to that expected for Alternative 4. However, groundwater is not used as a source of drinking water in the action area. Thus, for the reasons described above, there would be no expected effect on drinking water sources.

4.2.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods and would, therefore, result in the same number of days (60) with hunt-related trips. Thus, the increased risk of fuels or other contaminants being released into the marine environment would be about the same as under Alternatives 2 and 3, compared to the No-action Alternative. As under the other action alternative, risks from spills could be addressed by modifying or supplementing existing spill response plans.

Under Alternative 6, effects to groundwater are expected to be negligible. Alternative 6 would include greater restrictions than Alternatives 2 and 3 on the maximum number of whales that could be killed per year and per 2 years, resulting in a maximum of 3.5 whales harvested per year on average. As a result, Alternative 6 would result in an increased potential, compared to the No-action Alternative, for contaminants to enter groundwater. This increase would be less than under Alternatives 2 and 3 (under which a maximum of four whales could be harvested per year on average) but greater than under Alternatives 4, 5, and 7 (under which a maximum of one to 2, on average, whales could be harvested per year). However, groundwater is not used as a source of drinking water in the action area. Thus, for the reasons described above, there would be no expected effect on drinking water sources.

4.2.3.7 Alternative 7, Composite Alternative—Preferred

As with the other action alternatives, Alternative 7 could result in an increased risk of fuel or other contaminants being spilled into the marine environment compared to the No-action Alternative. During winter/spring hunts, an estimated 60 days of hunt-related activities would occur during a period with rough ocean conditions, increasing the risk of spills due to capsizing or colliding. During summer/fall hunts, there would be 7-14 days with hunt-related trips during a period when more favorable ocean conditions would lessen the risk of such spills. However, because of the more favorable conditions, more recreational vessels could be present in the action area, resulting in an increased risk of vessel collisions. This impact may be mitigated by the small number of days involving hunt-related trips, the location of the hunts in this large and remote area of the Pacific Ocean, the small size of vessels, and U.S. Coast Guard regulations associated with the moving exclusionary zone.

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number of 37 days with hunt-related trips (300 winter/spring days plus 70 summer/fall days divided by the 10-year span of the waiver period) (Subsection 4.1.7 Alternative 7, Composite Alternative). Alternative 7 would, therefore, result in a smaller risk of spills than Alternatives 2, 3, and 6 (each with 60 days of hunt-related trips). However, Alternative 7 would result in a greater risk than the No-action Alternative (0 days), as well as Alternatives 4 and 5 (14 and 22 days of hunt-related trips, respectively). As under the other action alternative, risks from spills could be addressed by modifying or supplementing existing spill response plans.

In any year, effects to groundwater are expected to be negligible under Alternative 7. A maximum of three whale carcasses would be stored at the Makah Transfer Station during winter/spring hunts and one carcass during summer/fall hunts. With an average harvest of two whales per year over the 10-year waiver period, any risk to groundwater quality under Alternative 7 would be lower than under Alternatives 2, 3, and 6, which each allow for three to five carcasses to be stored at the transfer station per year. Alternative 7 would pose a small but higher risk than Alternatives 4 and 5 (up to one carcass per year) and the No-action Alternative (0).

If the Tribe does not receive authorization to hunt during some or all of the winter/spring hunting seasons, the overall impacts of Alternative 7 on water quality could be lower than estimated here. However, it is difficult to determine the likelihood and magnitude of such a scenario in such a way as to compare it against the other six alternatives. Implementing one of the low abundance thresholds for the ENP stock included in Sub-alternatives 7(a) through (c) may also reduce the impacts on water quality below those analyzed above under Alternative 7 without a threshold. As described below in Subsection 4.4.3.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock, the threshold under Sub-alternative 7(a) is the least likely to be triggered or reduce the number of authorized hunting years over the waiver period of the three sub-alternatives, and, therefore, the least likely to reduce the number of days with hunt-related trips and the number of whales harvested. Sub-alternative 7(c), on the other hand, carries the highest likelihood of being triggered and could reduce the number of authorized hunting years significantly. Therefore, we expect impacts on water quality might be lowest under Sub-alternative 7(c) and highest under Sub-alternative 7(a).

4.3 Marine Habitat and Species

4.3.1 Introduction

This Subsection evaluates the potential for the seven alternatives to affect marine habitat and associated biological resources within the action area. It includes a discussion of the likely ecological

consequences of two possible types of effects that were identified through the internal and public scoping processes (Subsection 1.5.2.1, Marine Habitats and Species): (1) potential direct effects from hunt-related activities, such as disturbance associated with marine vessel traffic or disposition of whale carcasses, and (2) potential indirect effects resulting from the removal or harassment of gray whales from the local ecosystem, such as reduced benthic disturbance by feeding whales and decreased consumption of pelagic and epibenthic prey. Consistent with the description of marine habitat and associated species in Subsection 3.3, Marine Habitat and Dependent Species, this analysis separately examines the potential effects on pelagic and benthic habitats.

4.3.2 Evaluation Criteria

None of the action alternatives has the potential to appreciably affect the physical features and dynamic processes of the pelagic or benthic environments (described in Subsections 3.3.3.1, Pelagic Environment, and 3.3.3.2, Benthic Environment, respectively). The ocean currents, seasonal variability, upwelling, downwelling, eddies, fronts, El Niño Southern Oscillation events, and the Pacific Decadal Oscillation that influence the pelagic environment are large-scale, physical oceanographic and climatic processes that cannot reasonably be expected to be affected by the action alternatives, which involve comparatively small-scale, short-term, localized activities. Similarly, the substrata, features (e.g., submarine canyons), and physical disturbances that make up the benthic environment also are large-scale and cannot reasonably be expected to be affected by the small-scale, short-term, and localized activities associated with the action alternatives.

Consequently, the evaluation of the action alternatives below focuses on the potential direct and indirect effects on the biological resources associated with the pelagic and benthic environments. For both the pelagic and benthic environments, two criteria were used to determine the potential for effects. The first is the amount of physical disturbance associated with conducting a whale hunt (such as vessel traffic or towing a whale), which could have direct effects on the environment. The second is the change in pelagic or benthic communities in the action area, which could result if gray whales are removed from the action area. The following subsections discuss the potential effects in greater detail and how the effects for each alternative may be assessed and differentiated.

4.3.2.1 Pelagic Environment Evaluation Criteria

4.3.2.1.1 Disturbance of Pelagic Species

Hunt-related activities, such as vessel traffic or hauling of whale carcasses, could disturb fish or other pelagic species. This evaluation criterion relates to the potential risk that the action alternatives may affect the distribution and abundance of fish or other pelagic species in the action area. The amount of disturbance and any resulting change in fish distribution or abundance would depend primarily on the

amount, distribution, and timing of hunt-related vessel traffic in the action area. The amount of anticipated vessel traffic would depend on the number of hunts initiated and how many whales could be struck or harvested under a given action alternative. The distribution of vessel traffic would depend on the hunt area and the specific location of pursued whales at the time of a hunt.

4.3.2.1.2 Changes in the Pelagic Community

This evaluation criterion relates to the potential ecological consequences of a whale hunt on the pelagic environment. If the consumption of pelagic prey by gray whales represents a significant factor in determining zooplankton species abundance or plays a significant role in structuring planktonic communities, it is possible that the abundance, species composition, and spatial distribution of pelagic organisms could be altered if whales were harassed in or removed from the action area. The amount of ecological change induced by a whale hunt would depend on the relative change in whale presence and prey consumption, as well as the importance of whale prey consumption relative to oceanographic/climatic processes in determining the dynamics of zooplankton species assemblages in the action area.

4.3.2.2 Benthic Environment Evaluation Criteria

4.3.2.2.1 Disturbance of Benthic Habitat

Potential direct impacts to the benthic habitat from hunting gray whales might result from disturbances associated with increased vessel traffic and disposition of carcasses (relative to the No-action Alternative). Such impacts could include (1) disturbance or damage to eelgrass, surfgrass, kelp beds, or kelp rafts; (2) an increase in the number or generation of kelp rafts; (3) disturbance to nearshore rocky and soft-bottom communities; and (4) disturbance or damage to shellfish resources. Each of these potential impacts is considered under the evaluation criterion for assessing disturbances to the benthic habitat and is described in more detail in the following paragraphs.

Hunt-related activities, such as nearshore vessel traffic and hauling whale carcasses, could result in the disturbance of marine plant or kelp beds at or near landing beaches. This analysis considers the frequency and severity of such hunt-related disturbances relative to the natural levels of physical disturbance in the action area. Additionally, the capacity of these marine plant and macroalgal species for growth and recolonization in response to disturbance is an important consideration. The amount of hunt-related disturbance would depend primarily on the amount of hunt-related vessel traffic in the action area. The amount of vessel traffic that may be expected would depend on the number of hunts initiated and how many whales could be struck or harvested under a given action alternative.

Floating rafts of kelp and associated biota occur within the action area. Kelp rafts are generated by storms and other disturbance events that dislodge kelp holdfasts from their attachment to the

substratum. Although kelp rafts are free-floating and associated with the pelagic environment, they are considered in this analysis as part of the benthic habitat as they are the product of benthos disturbance. They are ecologically important to benthic communities as potential vectors of dispersal for benthic species and as possible sources of organic material upon sinking. Hunt-related activities such as vessel traffic could potentially generate kelp rafts by disturbing stands of kelp. Additionally, kelp rafts are susceptible to damage or disturbance if struck by the propellers of vessels associated with the hunt. Any hunt-related generation or disturbance of kelp rafts would occur in the context of background physical processes affecting the generation and disturbance of kelp rafts in the action area. The amount of hunt-related disturbance would depend primarily on the amount of hunt-related vessel traffic in the action area. The amount of vessel traffic that may be expected would depend upon the number of hunts initiated and the number of whales that could be struck or harvested under a given action alternative.

The hauling and landing of whale carcasses on rocky or soft-bottomed nearshore habitats could result in the disturbance of associated species and communities. This analysis considers the frequency and severity of such hunt-related disturbance relative to background levels of natural disturbance (e.g., storms, wave action, and predation). The amount of hunt-related disturbance would depend primarily on how many whales could be harvested under a given action alternative.

The landing of whale carcasses on beaches with shellfish resources could result in disturbance of these shellfish communities (the potential for hunt-related activities to result in the closure of beaches to shellfish harvest is evaluated in Subsection 4.2, Water Quality). This analysis considers the frequency and severity of such hunt-related disturbance relative to background levels of natural disturbance (e.g., storms, wave action, and predation). The amount of hunt-related disturbance to shellfish communities would depend primarily on how many whales could be harvested under a given action alternative.

4.3.2.2.2 Changes in Disturbance-dependent Benthic Communities

Potential indirect impacts on the benthic habitat from hunting gray whales may occur if benthic-feeding gray whales were harassed in or removed from the ecosystem. Such impacts include changes in the relative level of benthic disturbance because of a decrease in the number of benthic-feeding gray whales and changes in the abundance or distribution of benthic prey species because of a decrease in the quantity of benthic food consumed by gray whales.

If feeding-associated disturbance by benthic-feeding gray whales represented a significant factor in structuring benthic communities, benthic communities could be altered if whales were harassed in or removed from the action area. Background physical processes may include disturbance by storms, wave action, and movement and accumulation of sediments (e.g., turbidity currents). Background biological processes may include seasonality and variability of surface water productivity and delivery

of organic material to the benthic communities. The amount of ecological change induced by a whale hunt would relate to changes in whale presence, as well as the importance of whale prey consumption relative to other physical and biological processes in determining the dynamics of benthic species assemblages in the action area.

This analysis also considers the potential ecological consequences of a whale hunt on the benthic environment. If the consumption of benthic prey by gray whales represents a significant factor in determining species abundance and distribution, the abundance, species composition, and spatial distribution of benthic food items might be altered if whales were removed from or harassed in the action area. The amount of ecological change induced by a whale hunt would relate to changes in whale presence and prey consumption, as well as the importance of whale prey consumption relative to other physical and biological processes in determining the dynamics of benthic species assemblages in the action area.

4.3.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect pelagic and benthic habitats and associated biological resources in the action area. For each alternative, risks to both pelagic and benthic environments are discussed. The analysis evaluates potential effects resulting from direct disturbance and indirect ecological effects of a whale hunt under a given alternative.

The marine environment of the action area, as noted in Subsection 3.3.1, Introduction, is highly energetic, productive, and variable as a result of the dynamic physical oceanographic processes and the high levels of physical disturbance characteristic of the Washington coast. The abundance, recruitment, distribution, and variation in marine species and communities in the action area strongly reflect the underlying physical environment. When evaluated in the context of this energetic and dynamic environment, evaluation of the alternatives indicates that none of them has the potential to appreciably affect pelagic or benthic habitats or the associated organisms and communities. The following subsections discuss these conclusions in more detail.

4.3.3.1 Alternative 1, No Action

Under Alternative 1, the No-action Alternative, no whale hunt would be permitted, no associated activities (e.g., increased vessel traffic) would be expected to occur, and no whales would be harassed in or removed from the action area. The dynamic processes described in Subsection 3.3.3, Existing Conditions, would be expected to continue in both the pelagic and benthic environments. No direct disturbance resulting in the altered presence or abundance of fish or other pelagic species would be expected, nor would pelagic species or the community experience any indirect ecological consequences

because there would be no hunting activities. Similarly, no direct disturbance would affect marine plant or kelp beds, kelp rafts, nearshore communities, or nearshore shellfish resources, nor would benthic species and communities experience indirect ecological effects.

4.3.3.2 Alternative 2, Tribe's Proposed Action

Whale hunts would be permitted under Alternative 2, resulting in an expected increase in hunt-related vessel traffic over the No-action Alternative, as well as the harassment or removal of whales from the action area. Hunt-related trips would be expected to occur on approximately 60 days per year under Alternative 2. An average of four whales could be harvested per year, with no more than five harvested in a single year. No more than seven whales could be struck per year, and no more than 42 could be struck over a 6-year period. No more than three whales could be struck and lost in any year. Limits on the hunting season (December 1 through May 31) may make it difficult for tribal members to harvest the full number of whales allowed. The hunt area would consist of the coastal portion of the Tribe's U&A.

4.3.3.2.1 Pelagic Environment

Compared to the No-action Alternative, Alternative 2 would likely result in an increased level of direct disturbance because of hunt-related vessel traffic on approximately 60 days per year. These activities and the hauling of an average of four carcasses of harvested whales might disturb fish or other pelagic species in the action area. Any such disturbance would, however, likely be minor (vessels are small and the area is large and highly energetic), local (limited to waters near the activity), and of short duration (minutes to hours). Because any disturbance would be minor, localized, and short-term, it would be unlikely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the action area, compared to the No-action Alternative.

This alternative would involve pursuit and hunting of gray whales, and it would likely result in harassment or removal of whales from the action area. As noted above, the potential ecological effect on pelagic species and assemblages of removing whales from the ecosystem would depend on 1) the relative change in whale presence and prey consumption and 2) the relative importance of whale prey consumption in determining the dynamics of zooplankton species assemblages in the action area.

The consumption of pelagic prey by gray whales is not likely a significant factor in structuring pelagic communities relative to the highly variable and energetic oceanographic and climatic processes characteristic of the action area. As discussed in Subsection 3.3.3.1, Pelagic Environment, the physical features and ephemeral, seasonal, interannual, and interdecadal physical oceanographic processes largely control the abundance, distribution, and species composition of pelagic prey in the region. However, even assuming that gray whales do play a substantial role in structuring pelagic communities,

the potential relative change in the number of whales under this and the other action alternatives would be unlikely to result in any appreciable ecological effects. The number of whales allowed to be removed annually represents less than 0.1 percent of the ENP gray whale population, many of which travel close to shore through the action area each year (Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements). Furthermore, the number of whales potentially removed is substantially smaller than the observed levels of interannual variability in whale abundance within the action area. Consequently, any relative change in the quantity of pelagic prey consumed because of removal of whales under Alternative 2 would be negligible and lower than the expected levels of natural variability.

It is possible that hunting under Alternative 2 in the coastal portion of the Tribe's U&A could, over time, cause gray whales to use the area less frequently during the summer feeding period (Subsection 4.4.3.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas). Given that consumption of pelagic prey by gray whales is not likely a significant factor in structuring pelagic communities, as described above, even this outcome would not affect pelagic communities in the action area.

4.3.3.2.2 Benthic Environment

Compared to the No-action Alternative, an increased level of direct disturbance would probably occur under Alternative 2 because of hunt-related vessel traffic on approximately 60 days and the hauling of an average of four whale carcasses annually. The expected amount of disturbance to eelgrass, surfgrass, kelp beds, and shellfish communities would depend on the specific route of hunt-related vessels, as well as the location of these communities relative to the landing beach for any whale carcasses. The marine plant, macroalgal, and shellfish communities in the action area thrive in a highly energetic and disturbance-prone nearshore environment such that any hunt-related disturbance effects would likely be negligible relative to the high levels of natural background disturbance. Furthermore, the high capacity of these species for growth and recolonization suggests that hunt-related disturbance effects, if any, would be short lived. Similarly, any direct disturbance to kelp rafts would likely be negligible relative to the background physical processes affecting the generation and distribution of kelp rafts in the action area.

As discussed above, in evaluating the potential consequences for the pelagic environment of whale removal, the potential change in the number of whales under this and the other action alternatives would be small relative to the overall whale population and natural levels of variability in whale presence. Consequently, the removal of one to several whales per year would be unlikely to appreciably change background levels of benthic disturbance or the quantity of benthic prey consumed.

Furthermore, the best available information indicates that feeding aggregations (the whales) and feeding areas (the prey) are dynamic, with both small- and large-scale changes over time and space. Gray whales may play a role in structuring benthic and epibenthic communities in the action area, though the relative importance is unclear. Benthic communities are strongly affected by the presence of benthic features (e.g., submarine canyons), physical disturbance processes (such as storms, wave action, and the movement and accumulation of sediments), and ephemeral, seasonal, interannual, and interdecadal physical and biological processes affecting the delivery of organic material from productive surface waters.

Any whales struck and killed but lost would affect the benthic environment by providing "whale fall" microhabitats. This would also be the case for carcasses of any whales harvested and disposed of at sea. As a whale carcass decays on the ocean floor, it provides an ephemeral habitat associated with a unique and diverse invertebrate community. Whale falls occur naturally when individuals die and sink to the sea floor. Under Alternative 2, up to three whales may be struck and lost per year (presumably resulting in whale falls), and up to 18 whales may be struck and lost over a 6-year period. No estimates are available for the annual level of natural mortality that may occur within the action area. Such an estimate would be useful for establishing a background level of whale falls expected to occur naturally in the action area, enabling a comparison with the number of additional whale falls that might be generated under Alternative 2. Compared to the annual level of natural mortality for the ENP gray whale stock as a whole (with a population of some 14,500 and an estimated annual mortality rate of about 2 percent (Punt and Wade 2012), which works out to approximately 290 whales dying per year, most of which likely become whale falls either inside or outside of the action area), the addition of 3 whale falls annually would be minor.

4.3.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same limits on total numbers of whales struck and harvested as Alternative 2, but would impose additional restrictions on the mortality of PCFG whales and would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore. As under Alternative 2, an increased level of direct disturbance relative to the No-action Alternative would occur under Alternative 3 because of hunt-related vessel traffic on approximately 60 days.

In contrast to Alternative 2, whales struck and lost would be counted toward the annual mortality limit for PCFG whales, potentially reducing the total number of whales that could be harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested (Subsection 4.1.3, Alternative 3). Compared to Alternative 2, therefore, it is less likely that the Tribe would be able to harvest and haul to shore an

average of four whales per year under Alternative 3. The reduced likelihood that the full number of whales would be towed to shore would be expected to result in a smaller increase in effects relative to the No-action Alternative, compared to Alternative 2.

4.3.3.3.1 Pelagic Environment

The prohibition on making an initial strike within 5 miles (8 km) of shore would likely result in more hunting effort taking place farther off shore under Alternative 3 than under the other action alternatives. As a result, hunt-related vessel traffic could spend more time in the pelagic environment, with an attendant increase in the potential for disturbance of pelagic species compared to the No-action Alternative. Similar to Alternative 2, however, the risk of direct disturbance of fish and other pelagic species under Alternative 3 would be minor, localized, and of short duration. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 3 would not likely result in indirect ecological effects on pelagic communities. Thus, compared to the No-action Alternative, Alternative 3 would not be likely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the action area.

4.3.3.3.2 Benthic Environment

Similar to Alternative 2, the risk of direct disturbance of benthic marine plant, macroalgal, shellfish, and kelp raft communities under this alternative would be negligible relative to the high levels of background disturbance and the strong capacity of these species for growth and recolonization. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 3 would not be likely to result in indirect ecological effects on benthic communities. Thus, Alternative 3 would be unlikely to result in an appreciable change in benthic communities compared to the No-action Alternative.

4.3.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. The maximum number of whales harvested under current conditions would be one ENP male whale every other year (Table 4-7); because any whales struck and lost would count against the PCFG limit, the maximum number of whales struck and lost would also be one every other year. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), vessel traffic associated with hunt-related trips under Alternative 4 would be likely to occur on approximately 7 days every other year under current conditions. The effects of Alternative 4 on marine habitat and species would, therefore, be greater than the No-action Alternative but less than all other action alternatives, based on the number of hunt days and the number of whales killed.

4.3.3.4.1 Pelagic Environment

Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 4 would result in an increased risk of direct disturbance of fish and other pelagic species. The increase would, however, be smaller than under any of the other action alternatives because hunt-related vessel traffic would be likely to occur on 7 days every other year, compared to approximately 60 days under Alternatives 2 and 3. Similar to Alternative 2, this alternative would likely result in minor, local, and short-term effects on pelagic communities through direct disturbance. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 4 would not be likely to result in indirect ecological effects on pelagic communities. Thus, compared to the No-action Alternative, Alternative 4 would not be likely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the action area.

4.3.3.4.2 Benthic Environment

Similar to Alternative 2, the risk of direct disturbance of benthic marine plant, macroalgal, shellfish, and kelp raft communities under this alternative would be negligible relative to the high levels of background disturbance and the strong capacity of these species for growth and recolonization. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 4 is not likely to result in indirect ecological effects on benthic communities. Thus, Alternative 4 would be unlikely to result in an appreciable change in benthic communities compared to the No-action Alternative.

4.3.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. While up to five whales could be killed in a year, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. Based on the length of the hunting season, vessel traffic associated with hunt-related trips under Alternative 5 would likely occur on approximately 22 days per year. This could decrease to 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Therefore, effects on marine habitat and species under Alternative 5 would likely be less than those described under Alternatives 2 and 3 based on vessel traffic associated with hunt-related trips and the number of whales harvests but slightly higher than Alternative 4.

4.3.3.5.1 Pelagic Environment

Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 5 would result in an increased risk of direct disturbance of fish and other pelagic species. The increase would be greater than under Alternative 4 (which would be expected to result in 7 days of

hunt-related vessel traffic every other year) but less than under Alternatives 2 and 3 (which would be expected to result in approximately 60 days of hunt-related vessel traffic per year). Any direct disturbance effects under this alternative on fish and other pelagic species would likely be local and short-term, for the same reasons as described under Alternative 2. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 5 would not be likely to result in indirect ecological effects on pelagic communities. Because Alternative 5 would be expected to result in fewer hunting expeditions and fewer whales removed from the action area than Alternatives 2 or 3, it would have less potential for effects than those alternatives. Thus, Alternative 5 would be unlikely to result in appreciable changes in the presence, distribution, or abundance of fish and other pelagic species in the action area compared to the No-action Alternative.

4.3.3.5.2 Benthic Environment

Any direct disturbance effects under this alternative on benthic marine plant, macroalgal, shellfish, and kelp raft communities would be negligible relative to the high levels of background disturbance and the strong capacity of these species for growth and recolonization, as described under Alternative 2. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 5 is not likely to result in indirect ecological effects on pelagic communities. Because Alternative 5 would result in fewer hunting expeditions and fewer whales removed from the action area than Alternatives 2 and 3, it would have less potential for effects than these alternatives. Thus, Alternative 5 would probably not result in an appreciable change in benthic communities compared to the No-action Alternative.

4.3.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods and would, therefore, result in the same number of days (60) with hunt-related trips. Alternative 6 would include greater restrictions than Alternatives 2, 3, and 5 on the maximum number of whales that could be struck, harvested, and struck and lost per year and per 2 years, resulting in a maximum of 3.5 whales killed (either harvested or struck and lost) per year on average. Therefore, effects on marine habitat and species under Alternative 6 would likely be the same as those described under Alternatives 2 and 3, except that the number of whales harvested or struck and lost would be smaller. Vessel traffic-based effects on marine habitat and species under Alternative 6 would be slightly higher than Alternatives 4 and 5based on the number of expected hunt days per year. Also, under Alternative 6, the waiver of the MMPA take moratorium and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver

and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 6 considers hunt activities lasting only over a 10-year period.

4.3.3.6.1 Pelagic Environment

Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 6 would result in an increased risk of direct disturbance of fish and other pelagic species. Based on the likely number of days with hunt-related trips, the increase would be similar to that expected under Alternative 2. As described under Alternative 2, the risk of direct disturbance of fish and other pelagic species under this alternative would be minor, localized, and of short duration. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 6 would not be likely to result in indirect ecological effects on pelagic communities. Thus, compared to the No-action Alternative, Alternative 6 would not be likely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the action area.

4.3.3.6.2 Benthic Environment

Similar to Alternative 2, the risk of direct disturbance of benthic marine plant, macroalgal, shellfish, and kelp raft communities under this alternative would be negligible relative to the high levels of background disturbance and the strong capacity of these species for growth and recolonization. Similarly, for the reasons described under Alternative 2, any removal of whales under Alternative 6 would be unlikely to result in indirect ecological effects on benthic communities. Thus, Alternative 6 would probably not result in an appreciable change in benthic communities compared to current conditions under the No-action Alternative.

4.3.3.7 Alternative 7, Composite alternative – Preferred

Alternative 7 combines various elements from Alternatives 2 through 6. While the proposed hunt method, target species, age and reproductive status restrictions, and other environmental protection measures (Subsection 2.3.2.2.12) are the same as Alternative 2, under Alternative 7 there would be both a winter/spring hunt and a summer/fall hunt in alternating years. During winter/spring hunts, a maximum of three whales may be struck regardless of whether or not they are landed. During summer/fall hunts, a maximum of two whales may be struck but only if the first whale is lost (i.e., struck but not landed). Similar to Alternative 6, the waiver would expire after 10 years, so the analysis for Alternative 7 considers effects only over a 10-year period.

To compare the overall impact of hunt-related trips on pelagic and benthic environments under Alternative 7 to the impacts of the other six alternatives, we use an annual average number of 37 days with hunt-related trips (300 winter/spring days plus 70 summer/fall days divided by the 10-year span of the waiver period). Alternative 7 would, therefore, result in a smaller risk of disturbance than

Alternatives 2, 3, and 6 (each with 60 days of hunt-related trips per year). However, Alternative 7 would result in a greater risk than the No-action Alternative (0 days) as well as Alternatives 4 and 5 (an average of 3.5 days and 22 days of hunt-related trips, respectively). The overall impact of whale falls/carcass disposal under Alternative 7 (up to 2.5 whales per year on average) would also be intermediate to the other alternatives, i.e., lower than the three to five whales under Alternatives 2, 3, and 6, and slightly higher than the zero to one whales under the No-action Alternative, Alternative 4, and Alternative 5. If the Tribe does not receive authorization to hunt during some or all of the winter/spring hunting seasons, the overall impacts of Alternative 7 on the marine habitat could be lower than estimated here; however, it is difficult to determine the likelihood and magnitude of such a scenario in such a way as to compare it against the other action alternatives.

Implementing a low abundance threshold for the ENP stock may also reduce impacts on the marine habitat and species below those already analyzed under Alternative 7 without a threshold. As described below in Subsection 4.4.3.7.1, Change in Abundance and Viability of the ENP Gray Whale Stock, the threshold under Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips and the number of whales harvested over the waiver period of the three sub-alternatives. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to the marine habitat while 7(a) could result in the greatest potential impact.

4.3.3.7.1 Pelagic Environment

As with the other action alternatives, Alternative 7 would result in an increased risk of direct disturbance of fish and other pelagic species compared to the No-action Alternative. During winter/spring hunts, there would be an estimated 60 days of hunt-related trips and the hauling of up to three carcasses of harvested whales which might disturb fish or other pelagic species in the action area. During summer/fall hunts, there would be 7-14 days with hunt-related trips and the hauling of one harvested whale carcass. Any such disturbance would, however, likely be minor (vessels are small and the area is large and highly energetic), local (limited to waters near the activity), and of short duration (minutes to hours). Because any disturbance would be minor, localized, and short-term, it would be unlikely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the action area, compared to the No-action Alternative.

Also, as noted in Subsection 3.3.3.1, the consumption of pelagic prey by gray whales is not likely a significant factor in structuring pelagic communities relative to the highly variable and energetic oceanographic and climatic processes characteristic of the action area. The physical features and

ephemeral, seasonal, interannual, and interdecadal physical oceanographic processes largely control the abundance, distribution, and species composition of pelagic prey in the region. However, even assuming that gray whales do play a substantial role in structuring pelagic communities, the potential relative change in the number of whales under this and the other action alternatives would be unlikely to result in any appreciable ecological effects. The number of whales allowed to be removed under Alternative 7 represents far less than 0.1% of the ENP gray whale population on an annual basis, and less than 0.2% over the 10-year waiver period (based on the current abundance estimate). Furthermore, the number of whales potentially removed is substantially smaller than the observed levels of interannual variability in whale abundance within the action area. Consequently, any relative change in the quantity of pelagic prey consumed because of removal of whales under Alternative 7 would be negligible and lower than the expected levels of natural variability.

Hunting under Alternative 7 may remove gray whales from the Tribe's U&A during the summer feeding period. Given that consumption of pelagic prey by gray whales is not likely a significant factor in structuring pelagic communities, as described above, even this outcome would not affect pelagic communities in the action area.

4.3.3.7.2 Benthic Environment

The expected amount of disturbance to the benthic environment—especially eelgrass, surfgrass, kelp beds, and shellfish communities—would depend on the specific route of hunt-related vessels, as well as the location of these communities relative to the landing beach for any whale carcasses. Since the marine plant, macroalgal, and shellfish communities in the action area thrive in a highly energetic and disturbance-prone nearshore environment, any hunt-related disturbance effects would likely be negligible relative to the high levels of natural background disturbance. Furthermore, the high capacity of these species for growth and recolonization suggests that hunt-related disturbance effects, if any, would be short-lived. Similarly, any direct disturbance to kelp rafts would likely be negligible relative to the background physical processes affecting the generation and distribution of kelp rafts in the action area.

As discussed above, in evaluating the potential consequences for the pelagic environment of whale removal, the potential change in the number of whales under this and the other action alternatives would be small relative to the overall whale population and natural levels of variability in whale presence. Consequently, the removal of one to several whales per year would likely not appreciably change background levels of benthic disturbance or the quantity of benthic prey consumed. Furthermore, the best available information indicates that feeding aggregations (the whales) and feeding areas (the prey) are dynamic, with both small- and large-scale changes over time and space.

Gray whales may play a role in structuring benthic and epibenthic communities in the action area, though the relative importance is unclear. Benthic communities are strongly affected by the presence of benthic features (e.g., submarine canyons), physical disturbance processes (such as storms, wave action, and the movement and accumulation of sediments), and ephemeral, seasonal, interannual, and interdecadal physical and biological processes affecting the delivery of organic material from productive surface waters.

Any whales struck and killed but lost would affect the benthic environment by providing "whale fall" microhabitats. This would also be the case for carcasses of any whales harvested and disposed of at sea. As a whale carcass decays on the ocean floor, it provides an ephemeral habitat associated with a unique and diverse invertebrate community. Whale falls occur naturally when individuals die and sink to the sea floor. Under Alternative 7, up to two or three whales may be struck and lost per year (presumably resulting in whale falls). No estimates are available for the annual level of natural mortality that may occur within the action area. Such an estimate would be useful for establishing a background level of whale falls expected to occur naturally in the action area, enabling a comparison with the number of additional whale falls that might be generated under the action alternatives. Compared to the annual level of natural mortality for the ENP gray whale stock as a whole (with an estimated annual mortality rate of about 2% (Punt and Wade 2012), which works out to approximately 290 whales dying per year, most of which likely become whale falls either inside or outside of the action area), the addition of two to three whale falls annually under Alternative 7 would be minor.

4.4 Gray Whales

4.4.1 Introduction

This section addresses the potential for the alternatives to affect gray whales across a range of biological scales, from individual whales to entire stocks. The analysis considers potential effects on abundance and viability of the two recognized gray whale stocks—ENP and WNP—and further analyzes potential effects to the ENP stock at the scale of gray whales in the PCFG range as well as the Makah U&A and OR-SVI survey areas within the PCFG range. Although the PCFG is not considered a "population stock" under the MMPA, our analysis also considers potential effects on its abundance and viability (biological concepts normally associated with a discrete stock) because: (1) the Tribe has proposed a management scheme that manages separately for PCFG whales (for example, by setting an allowable bycatch limit); (2) the IWC has concluded it is "plausible" that the PCFG is a demographically distinct feeding aggregation; and (3) we have concluded that the PCFG "may warrant consideration" in the future as a stock under the MMPA.

For whales that have been documented using the Makah U&A and OR-SVI areas, our analysis considers potential effects on the numbers of whales that use those areas, for reasons described in Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas. Our analysis does not consider the viability of whales using these survey areas because our stock assessment reports (e.g., Carretta et al. 2023) have not suggested that these smaller units may be stocks, the genetic information does not indicate that there could be stock structure below the PCFG, and monitoring of movements of photographically identified whales suggest that they use a larger feeding area than the Makah U&A and OR-SVI (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).

For effects on individual whales, the analysis considers time to death and hunting efficiency (the ratio of harvested to struck-and-lost whales) associated with the alternative methods of striking and killing whales. These methods are limited to what NMFS considers reasonable options for striking and killing whales (Subsection 2.4.6, Employ Different Hunting Methods), including using either a toggle-point harpoon as the primary striking method and .50 caliber rifle (or .577 caliber) as the killing method or using an explosive projectile as the striking and killing method. Alternative vessels to position the harpooner are also considered, with a wooden canoe being used in Alternatives 2, 4, 5, 6, and 7 and a motorized vessel being used in Alternative 3.

Section 5, Cumulative Effects, considers whether the effects to gray whales that might result from implementing any of the alternatives would be likely to have cumulative effects in the context of past actions, other contemporaneous actions, or reasonably foreseeable future actions that may affect gray whales, such as other human or natural sources of mortality, potential development in the action area, or global climate change.

4.4.2 Evaluation Criteria

Five criteria were used to determine the potential for effects to gray whales under the alternatives: (1) change in abundance and viability of the ENP gray whale stock; (2) change in abundance and viability of the WNP gray whale stock; (3) change in abundance and viability of PCFG whales; (4) change in numbers of gray whales that use the Makah U&A and OR-SVI survey areas; and (5) welfare of individual whales. The following sections discuss risks to gray whales at each of these scales and how the effects of the alternatives may be assessed and differentiated.

4.4.2.1 Change in Abundance and Viability of the ENP Gray Whale Stock

As described in Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling, the catch limit for the ENP gray whale stock set by the IWC for 2019 through 2025 would remain the same under all seven

alternatives—980 whales over 7 years (averaging 140 whales per year), with a strike limit of 140 whales in any one year. The difference among the alternatives is how much of that catch limit would be allocated to the Makah Tribe. Because it is likely the United States would transfer any unused share of the catch limit to Russia (Subsection 4.1.1, Alternative 1) and all seven alternatives contemplate the same overall catch limit for the stock, all of the alternatives would likely have the same effect on the abundance and viability of the ENP gray whale stock as a whole.

Hunt-related stress on gray whales (particularly pursuit and unsuccessful harpoon attempts) under the six action alternatives could differ from the No-action Alternative if a Makah hunt resulted in a greater level of indirect mortality or reduced reproduction than a Chukotkan hunt. Indirect mortality would result if stress caused by hunting increased the whales' susceptibility to predation or disease and ultimately increased the level of mortality beyond whales directly killed during hunting (Subsection 3.4.3.5.2, Whale Response to Being Pursued). Gray whales being pursued by whale-watching vessels have been observed to change course and alter swimming speed and respiratory patterns, potentially indicating stress (see Subsections 3.4.3.6.5, Offshore Activities and Underwater Noise and 3.4.3.6.6, Vessel Interactions).

As described above, if no harvest is allocated to the Makah Tribe, the entire IWC catch limit of 980 gray whales over 7 years would likely be available for harvest by the Chukotka Natives of the Russian Federation. No information is available on the proportion of whales approached and subjected to unsuccessful harpoon attempts in the Chukotkan hunt. Thus, it is likely that the harvest limit of 140 whales would occur under two possible scenarios. Under the first scenario, the quota would be transferred, and the Chukotkan Natives would harvest a maximum of 140 whales per year while the Makah would not harvest whales (i.e., the No-action Alternative). Under the second scenario, the Chukotkan Natives would harvest a maximum of 135 whales per year while the Makah would harvest a maximum of 5 whales per year (the most the Makah can harvest under any of the action alternatives). If the quota is not transferred (which is considered unlikely), the harvest limit would be up to 135 whales harvested by Chukotkan Natives.

Given that we expect the quota would be transferred and the number of whales harvested would be the same under the two scenarios, it is likely that any stress-related impacts would be similar regardless of whether the Makah or the Chukotkan hunters harvested the five whales. While it is possible that, given the Chukotkan hunters' experience, there would be fewer unsuccessful harpoon attempts and approaches on individual whales in a Chukotkan hunt (which could reduce stress-related impacts), these differences are likely to be negligible given that over 96 percent of the whales would be harvested by Chukotkan Natives under either scenario. That is, only a small percentage (approximately 3.5) of the

harvest differs between the two scenarios. Thus, it is likely that the difference in stress-related impacts between the alternatives is negligible. If the Makah allocation is harvested by neither the Makah nor the Chukotka Natives (e.g., if the quota is not transferred), the difference would be seven fewer whales struck per year (per the Tribe's proposal), which is less than 6 percent of the average number of ENP gray whales allocated for harvest by the Chukotkans. Thus, the difference among the alternatives in stress-related impacts is likely to be negligible, regardless of whether or not a transfer of quota would occur under the No Action alternative.

The overall viability of a marine mammal stock that exhibits different life history traits, such as different feeding strategies, could be affected by the loss of components of the stock that exhibit such traits. In the case of ENP gray whales, it is possible that the viability of the stock as a whole depends on the existence and persistence of different feeding aggregations. However, sighting data and diet studies indicate that ENP gray whales, including PCFG whales, have the ability to switch feeding areas over time (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem), suggesting that the loss of a feeding aggregation such as the PCFG may not affect the viability of the overall ENP stock. This analysis considers the potential for actions to affect PCFG whales, and that analysis is one component of the analysis of effects to viability of the ENP stock.

4.4.2.2 Change in Abundance and Viability of the WNP Gray Whale Stock

The WNP gray whale stock is not targeted for harvest under any of the alternatives. As described in Subsection 3.4.3.2, Western North Pacific (WNP) Gray Whales, the IWC has not established a catch limit for WNP gray whales, and these whales are not considered in the catch limit established for ENP gray whales (see above). The most recent population assessment of WNP gray whales (Cooke et al. 2017) estimates that there are approximately 290 individuals (excluding calves) in the WNP stock (with a 90 percent confidence interval of 271 to 311 animals), with the abundance increasing at annual rates of 2-5% during recent years (Cooke 2018a).

As described in Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements, very little is known about the migratory routes and wintering areas of WNP gray whales. However, recent research has discovered 60 cases where whales identified from the WNP have also been sighted in the ENP. This represents approximately 21 percent of the WNP gray whale population (Cooke et al. 2017). Cooke et al. (2019) estimated that 45 to 80 percent of Sakhalin gray whales migrate to the ENP in the winter. The sighting data available on WNP migrations and movements suggest that whales from this stock could be encountered in the coastal portion of the Makah U&A during the hunting season proposed by the Tribe under Alternative 2, perhaps with the exception of May 10 to 31 and December 1 to 21, as WNP gray whales have not been sighted in the area during those times. The lack of WNP

whale sightings during these periods, despite active gray whale surveys occurring in May within and adjacent to the Makah U&A, indicate it is unlikely these whales would be encountered by Makah hunters during this timeframe. For all but one of the alternatives (Alternative 4, which was developed to completely avoid times when a WNP whale might be present), we estimate the likelihood of hunters killing a WNP gray whale if the maximum number of strikes were to occur and consider the potential implications on the abundance and viability of the WNP stock as a whole.

4.4.2.3 Change in Abundance and Viability of PCFG Whales

Whales in the PCFG are relevant to our analysis because the IWC considers it plausible that they are a demographically distinct feeding group using a unique summer range and NMFS has determined that the PCFG may warrant consideration as a separate stock in the future. The PCFG is also relevant to the Makah's proposal (Alternative 2) because the Tribe proposes to set an allowable bycatch level that would apply to any whale identified in the PCFG seasonal range (not just whales seen in 2 or more years). Two alternatives (Alternative 4 and 7) include hunting regulations that would specifically target whales in the PCFG seasonal range (i.e., whales in the PCFG area when PCFG whales are present) to avoid impacts to WNP whales. The remaining action alternatives would seek to avoid mortality of PCFG whales through time and area restrictions, or to regulate impacts to PCFG whales through mortality/strike limits.

As noted in Subsection 4.1, Introduction, all seven alternatives (including the No-action Alternative) are likely to result in the same level of harvest from the ENP gray whale stock as a whole because of the likely transfer of any unused share of the catch limit to Russia. It is unlikely that PCFG whales would be present in the area of the Chukotka hunt and thus killed if the U.S. share of the catch limit was transferred.

The alternatives vary in the number of PCFG whales that might be affected by hunting. Under Alternative 1, no PCFG whales would be hunted in the Makah U&A. Under current conditions, Alternative 2 would have the greatest effect because it might result in a maximum of five PCFG whales killed per year (Subsection 4.1.2.3), or 50 whales over 10 years. Alternative 3 poses the next highest risk to PCFG whales, with a maximum potential mortality of four PCFG whales killed per year (Subsection 4.1.3.3), followed by Alternative 6 with a maximum potential mortality of 3.5 PCFG whales per year (Subsection 4.1.6.3), or 40 and 35 whales respectively over 10 years. Alternative 4 and Alternative 5 pose the lowest risk to PCFG whales, with an annual mortality limit of 0.76 and 0.35 respectively. Under these alternatives, PCFG mortality limits are allowed to accrue over consecutive years. Therefore, one PCFG whale may be killed every other year under Alternative 4 (Subsection 4.1.4.3) and one may be killed every third year under Alternative 5 (Subsection 4.1.5.3). This

represents up to five PCFG whales killed over 10 years under Alternative 4 and up to four PCFG whales killed over 10 years under Alternative 5, if one is struck and lost. Alternative 7 does not set an annual mortality limit for PCFG whales but does limit total mortality for PCFG whales over the course of the 10-year waiver period to 16 whales, up to 8 of which may be females. Under current conditions, we expect the Tribe might kill an average of 1.4 PCFG whales per year if all strikes are utilized. In addition, Alternatives 2 to 7 vary in (1) the number of whales that may be struck and lost during hunting (we assume that whales that are struck will die), (2) the mortality limits on PCFG whales and how struck and lost whales would be allocated towards those limits, and (3) the timing and location of hunting. These variations may have different effects on the abundance of PCFG whales.

Subsection 3.4.3.4.3, PCFG Abundance and Trends describes the abundance of PCFG whales. During June 1 through November 30, for 1996 to 2019, 888 unique whales were observed in the PCFG range at least once. Table 3-8 shows the numbers of unique whales observed in the PCFG survey areas each year from 1999 to 2020 (158 whales on average), the number that are newly seen (34 whales on average), and how many of those newly seen whales were seen in a subsequent year (14 whales on average[10]). As described in Subsection 3.4.3.4.3, PCFG Abundance and Trends, the numbers of newly seen whales each year are variable (ranging from 8 to 71 whales) and only a rough approximation of the number of whales that are actually new to the PCFG each year for two reasons: there are likely more whales present each year than are photographed and identified, and it is likely that some whales were present in a previous year but were not photographed and identified. On average, 41 percent of the newly seen whales in the PCFG seasonal range were subsequently seen again and thought to have recruited into the PCFG (Table 3-8). This information demonstrates that many new whales are seen each year in the PCFG seasonal range, and of these, variable but large numbers of whales are seen again. Similarly, variable but large numbers of whales are never seen again in the PCFG seasonal range.

In any given year in which PCFG whales were killed under Alternatives 2 through 7, the total abundance of PCFG whales would be reduced by the number of whales killed (either harvested or struck and lost). Over time, an ongoing hunt could reduce the abundance of PCFG whales, compared to the No-action Alternative. The extent to which a hunt would reduce abundance over time would depend on the number of PCFG whales killed and the rate at which new recruits would replace killed whales. As described in Subsection 3.4.3.4.1, PCFG Population Structure, new animals enter the PCFG as calves born to PCFG mothers (internal recruitment) or as non-calf immigrants (external recruitment).

[10] For this estimate, we exclude 2020 because whales newly seen in that year have not had a chance to be re-sighted.

Whales are identified as calves when they are accompanied by their mother. Once the calf is weaned it may not be recognized as a calf. During the years 2008 to 2017, there were 12.3 new recruits on average annually, of which 7.9 were not identified as calves and 4.4 were identified as calves (Calambokidis et al. 2019). The calf proportion could possibly be higher because some of the new non-calf whales may have entered the PCFG earlier as a calf and were not seen. Regardless of year-to-year variability in both internal and external recruits, alternatives that remove fewer whales are less likely to affect PCFG abundance in subsequent years because there are fewer whales to replace.

With respect to viability of the PCFG, a reduction in abundance of PCFG whales over time could decrease the likelihood that the PCFG is viable, compared to the No-action Alternative. As described in Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates [IWC Implementation Review of PCFG Gray Whales], in 2012 the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) using various versions of the proposal as candidate Strike Limit Algorithms (SLAs) and assuming a consistent level of non-hunting human-caused mortality. The analysis also incorporated 33 evaluation trials and 22 robustness trials (including one where harvests were strongly female-biased). In testing these and other SLA variants, the Scientific Committee did not reference the PCFG's viability per se but did draw conclusions about the PCFG's status with respect to carrying capacity (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates).

The key management and conservation objectives in the IWC's assessment of aboriginal hunt requests includes ensuring they (1) do not seriously increase risks of extinction (highest priority), (2) enable hunts "in perpetuity," and (3) maintain stocks at the highest net recruitment level (and if below that, ensure they move towards it). The SLA variants are tested using a 100-year time horizon, so it is reasonable to conclude that when test results meet the IWC's conservation objectives for a group of whales, the number of strikes analyzed would not be expected to compromise the group's long-term viability. Therefore, the Scientific Committee's conclusions can be interpreted to mean that the Tribe could hunt and PCFG whales would be viable in perpetuity as long as the bycatch formula tested by the IWC is used to limit the strikes on PCFG whales (including struck and lost whales in May) and annual monitoring is conducted to assess the proportion of PCFG whales available to Makah hunters.

In the 2020 Implementation Review, the Scientific Committee received updated abundance estimates for the PCFG through 2017, extending the time series that had been previously considered. The Scientific Committee agreed that the additional years of data did not alter their existing advice "with respect to the suitability of the either the Gray Whale SLA or the Makah Management Plan for the provision of advice on the Chukotkan and proposed Makah hunts" (IWC 2021b). In 2021, the Scientific Committee also reviewed the circumstances of the current unusual mortality event (UME)

and concluded that it fell within the testing parameters for the SLA (Givens and Weller 2021). In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events (Punt et al. 2023, IWC 2023a).

Based on current conditions, the Alternative 2 formula for setting a PCFG bycatch level yields a bycatch limit of 3.0 PCFG whales per year, which is greater than the likely number of PCFG whales that might be killed under any of the other action alternatives (0.35 to 4 whales per year),. Other action alternatives would set a bycatch limit (Alternative 2) or mortality limit (Alternatives 3 through 6) for the PCFG using a formula that includes minimum abundance, and as such, the limit may change over time if the abundance of PCFG whales changes. By contrast, Alternative 7 has a static PCFG strike/mortality limit, but a hunt would be prohibited if the PCFG abundance and/or minimum abundance reached a low threshold.

4.4.2.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Areas

This analysis also considers effects on gray whales that have been sighted in two areas that are subsets of the survey areas in the PCFG range: (1) the Makah U&A, which includes the northern Washington coast and Strait of Juan de Fuca survey areas, and (2) the OR-SVI survey area, which includes the Makah U&A as well as adjacent coastal survey areas from Oregon to southern Vancouver Island (including the Strait of Juan de Fuca but excluding interior waters of Puget Sound). As directed by the court in *Anderson v. Evans* (2004) and described in Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements, this analysis considers likely effects of the alternatives on the number of gray whales that may be present during the summer period in these survey areas as a way to evaluate local effects. The areas chosen do not necessarily correspond to areas that are biologically meaningful to individual whales or groups of whales, but they are nevertheless used to analyze potential local effects because of their overlap with the proposed hunt area.

Although all of the action alternatives restrict hunting to the coastal portion of the Makah U&A, the analysis of all of the alternatives considers gray whale numbers in both portions (coastal and Strait of Juan de Fuca) of the Makah U&A. This is because of the overlap of whales identified in both areas. If there were a decrease in the number of whales using the coastal portion of the Makah U&A under alternatives that limit hunting to that area, it could also result in a decrease in the number of whales using the Strait of Juan de Fuca.

In addition to the Makah U&A, this analysis also focuses on the OR-SVI survey area. Calambokidis et al. (2004a) recommended using the OR-SVI area as a logical and reasonable management area for considering impacts of gray whale harvests in the Makah U&A (an area within the OR-SVI area)

because of the relatively high rates of interchange. Over 60 percent of whales seen in the OR-SVI survey area are also seen in the northern Washington coast/Strait of Juan de Fuca survey areas (Makah U&A), compared to about 38 percent of whales seen in the PCFG also being seen in the northern Washington coast/Strait of Juan de Fuca survey areas (Makah U&A) (Calambokidis et al. 2019) (Subsection 3.4.3.4.1, PCFG Population Structure).

There are at least two different ways to consider the number of whales using the Makah U&A and OR-SVI survey areas during the summer feeding period: (1) the total number of animals in a single summer feeding period of June through November (which includes PCFG and non-PCFG whales), and (2) the number of animals that regularly use the area during the summer feeding period (i.e. PCFG whales). The first analysis would emphasize the role whales play in the area (for aesthetic, economic, marine habitat, or other values) and how changes in the total number of whales might affect that role. The second analysis would emphasize the whales as a group and the effects of alternative actions on the numbers in that group.[11] For either analysis, a quantitative approach is only possible using the number of identified whales. As described in Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements, it is almost certain that more whales are present in any year than are photographed and identified. Because the number of whales identified is a minimum estimate of the number present, using it overestimates impacts, which is appropriate for a conservative analysis of the potential effects on the environment of alternative actions. For additional context, we also compare the likely number of whales killed under each alternative to the most recent minimum abundance estimate for whales seen in the OR-SVI survey region (Harris et al. 2022). Although an abundance estimate is calculated for the Makah U&A survey region, Calambokidis et al. (2014) has cautioned against doing so based on its small size and sighting data demonstrating that most whales disperse across a much larger area (Subsection 3.4.3.4.3, PCFG Abundance and Trends, Estimating Numbers of Whales for Subregions Within the PCFG Range).

This portion of the analysis considers the potential change in numbers of gray whales using these local survey areas that might result if PCFG whales are killed during hunting (either harvested or struck and lost). Additional stress-related impacts resulting from pursuit or unsuccessful harpoon attempts are possible (Subsection 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock), but

[11] A further layer of detail in the first analysis would be to estimate a total number of "whale days," because some whales may spend more time in a given area than others. A further layer of detail in the second analysis would be to assign some type of weighting based on the "value" a whale has depending on how many years it had visited an area or how much time it had spent in a particular area. In both cases, the survey data are not sufficiently detailed or complete to support such estimates. Even with additional survey effort, the required level of detail and completeness would be nearly impossible to obtain given the whales' mobility, the expansiveness of the area, and practical limitations on the surveyors' viewing range and timing (e.g., lack of nighttime surveys).

no information is available or could reasonably be obtained that would support an estimate of stress-related impacts on PCFG whale abundance. While stress-related impacts on abundance cannot be estimated, there is information available to qualitatively assess these impacts. Non-lethal hunt activities, particularly approaches, are not likely to have a significantly different effect on whales than research activities, would be short-term in nature, and would likely be recovered from. While it is possible that approaches or unsuccessful harpoon attempts could result in increased stress response that causes changes in behavior (e.g., moving to a new feeding area, increased swimming speed), these changes are likely to be small and temporary. Thus, they are unlikely to result in long-term impacts to individuals or abundance. It is also possible that animals could reduce their usage of or stop using an area because of the disturbance associated with a hunt. While possible, the data do not show that these activities will cause PCFG whales to leave the range, nor will the disturbance likely deter whales that may temporarily relocate to other areas from eventually retuning to resume feeding in the Makah U&A or OR-SVI region. Subsection 4.1, Introduction, describes both the maximum and the likely number of PCFG, OR-SVI, and Makah U&A whales that could be killed under each alternative from a combination of being harvested or struck and lost. That information is summarized in Table 4-14.

Table 4-14. Number of PCFG, OR-SVI, and Makah U&A whales that may be killed under each alternative (maximum and likely), assuming a low abundance threshold is not triggered.

Group of Whales		**No Action**	**Alternative 2[a]**	**Alternative 3**	**Alternative 4**	**Alternative 5[b]**	**Alternative 6**	**Alternative 7**
		Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr	Annual / 6-Yr / 10-yr[c]
Maximum # Killed		0	7 42 70	6 36 60	0.5[d] 3 5	1 6 10	3.5 21 35	Summer/fall 2; Winter/spring 3 15 25
PCFG Whales 27.3%	***Likely # Killed[e]***	0	1.9 11 19	1.6 9.8 16.4	0.5 3 5	0.25 1.5 2.5	0.96 5.7 9.6	Summer/fall 2; Winter/spring 0.82 8.5 14
OR-SVI Whales 26.2%			1.8 11 18	1.6 9.4 15.7		0.24 1.4 2.4	0.92 5.5 9.2	Summer/fall 2; Winter/spring 0.79 8.4 14
Makah U&A Whales 23.4%			1.6 9.8 16	1.4 8.4 14.0		0.21 1.3 2.1	0.82 4.9 8.2	Summer/fall 2; Winter/spring 0.70 8.1 13.5

a. Likely estimates for Alternative 2 are based on 7 strikes per year.

b. Based on current estimates and assumes that all whales are struck and lost and subsequently die (see accounting rationale under Subsection 4.1.4 Alternative 5, Split-Season Hunt, *Maximum and Likely Number of PCFG, OR-SVI, and Makah U&A Whales Killed*).
c. Annual values based on a maximum of 2 whales struck in a summer/fall hunt and 3 whales struck in a winter/spring hunt. Six- and ten-year values are based on these alternating annual values.
d. Only male PCFG whales can be approached under this alternative. Theoretically, a maximum of seven whales could potentially be killed under this alternative, but this would require the PCFG abundance to more than triple, which is highly unlikely. The likely estimates reported here are based on the assumption that all whales are PCFG, OR-SVI, and MUA whales, and the current estimate of 1 whale killed every 2 years (see accounting rationale under 4.1.3 Alternate 4, Summer/Fall Hunt).
e. These numbers represent an estimate based on proportional presence in early season photo-identification data reviewed by Harris et al. (2022) and on an assumption of number of whales struck each year (see Tables 4-4, 4-6, 4-8, 4-10, and 4-12). Six- and ten-year estimates are rounded to the nearest whole number (except for Alternative 5 which relies on the carry-over of any unused fraction of the mortality limit to determine hunt frequency).

In addition, Subsection 3.4.3.4.3, PCFG Abundance and Trends, and Tables 3-8 through 3-10, describe gray whale use of PCFG survey areas—including the OR-SVI and Makah U&A areas—during the summer feeding period. These tables also show the numbers of new whales that visit the OR-SVI and Makah U&A survey areas each year, and how many of those returned in subsequent years. Also, as reflected in the increasing trends in sightings/discovery curves of unique whales (Figures 3-10a and 10b), new whales are consistently sighted and recruited in each of the survey regions. All of these data are considered in our analysis of each alternative.

In any given year in which a harvest occurred under Alternatives 2 through 7, the total number of gray whales present during the summer in the Makah U&A and OR-SVI survey areas would be at least temporarily reduced by the number of whales killed (either harvested or struck and lost) that would otherwise have spent all or part of the summer in these survey areas. The abundance of PCFG whales would also be at least temporarily reduced by the number of such whales killed. It is possible that a killed PCFG whale that would otherwise have spent all or part of the summer in the Makah U&A or OR-SVI areas (whether returning or not) could be replaced during the same year by a whale from outside those areas, as many whales feeding during the summer throughout the PCFG range move great distances among survey areas, likely attracted by the presence of prey (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). During the course of the summer feeding period, it is therefore possible that whales not previously seen in the Makah U&A or the OR-SVI survey areas (e.g., from west Vancouver Island or northern California) would travel through these areas and stay to feed on available prey. Whether replacement would occur in the same year would depend on the number of whales removed, the availability of prey within the local survey areas relative to its availability in outside areas, and the opportunity for whales from outside the area to discover an unexploited source of prey. As a matter of probabilities, the smaller the number of whales removed, the greater the chance a removed whale would be randomly replaced by a new whale in the same year. Thus, alternatives with lower rates of removal are likely to have less effect on total numbers of PCFG whales in the Makah U&A or OR-SVI survey areas during the year in which hunting occurs.

Over time, an ongoing hunt could reduce the numbers of whales in the Makah U&A and the OR-SVI survey areas, compared to the No-action Alternative. The extent of this reduction over time would depend on the number of PCFG whales killed and the rate at which new recruits would replace killed whales, as discussed above in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales. Although it is not possible to predict the potential decrease in numbers of whales, it is reasonable to expect that the fewer the number of whales removed, the less the decrease. Regardless of whether hunting occurs, gray whale numbers in the Makah U&A or OR-SVI survey areas during the summer feeding period are expected to fluctuate over time as prey availability fluctuates in these areas relative to other feeding areas.

The number of whales in the Makah U&A or OR-SVI survey areas could also be affected if gray whales changed their distribution and habitat use in response to a tribal hunt under the action alternatives. Responses could include changes in the distance from shore that whales travel during migration, changes in the amount of time spent by whales while in the Makah U&A or OR-SVI areas, or changes in the approachability of whales. Gray whales being pursued by whale-watching vessels have been observed to change course and alter swimming speed and respiratory patterns temporarily (Subsection 3.4.3.6.6, Vessel Interactions). Studies of whale-watching activities in the lagoons of Baja California documented that gray whales were less likely to flee as the season progressed (Subsection 3.4.3.6.5, Offshore Activities and Underwater Noise). It is reasonable to expect that whales approached by Makah whale-hunting vessels would react temporarily in a similar manner. It is uncertain what the long-term effects would be on whales exposed to repeated approaches. The studies of whale-watching activities suggest the whales might become habituated and have less of a reaction the more frequently they are approached. While we have limited information on how whales would react to unsuccessful harpoon attempts, the reaction may be similar to that observed in whales that are tagged or biopsied. Such reactions could range from subtle to overt (e.g., a brief flinch to fluke slapping and rapid swimming) but are most likely temporary changes in behavior (Subsection 3.4.3.5.3, Whale Response to Being Struck). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area.

During migration, it is uncertain what factors affect gray whale distribution and habitat use. While there is evidence that gray whales will alter course or swimming speed in response to disturbances, there is no evidence that the alteration is more than temporary (Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts). Clarke and Moore (2002) found there was little evidence that gray whales disturbed by human activities travel far in response to disturbances or remain disturbed for long.

During feeding, the factor most strongly affecting gray whale distribution and habitat use is likely the availability of prey. Darling et al. (1998) and Moore et al. (2007) document abandonment of feeding areas and establishment of new feeding areas linked to natural variation in prey availability. Feeding gray whales change location and habitat to exploit the optimum prey species at any one time, based on abundance, density, size, caloric content, and predation pressure. Such factors may vary by season and year, depending on environmental variability and the population dynamics of prey (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem).

Gray whales using the PCFG portion of the summer range tend to move up and down the coast during the feeding period, presumably searching for prey. Some whales remain in local survey areas for weeks or months, while others may be present only for brief periods (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). It is possible that a hunt and associated activities in the Makah U&A might disturb whales, causing them to move elsewhere in search of feeding opportunities. The severity of this effect would depend, in part, on the extent of the disturbance. Thus, alternatives that result in more whales approached or subjected to harpoon attempts, or result in more days of hunting, are likely to cause more disturbance of feeding gray whales. The severity of the effect would also depend, in part, on the sensitivity of gray whales to disturbance in feeding areas. Available information indicates that feeding gray whales may not abandon feeding areas because of hunt-related disturbance. For example, the pursuit of gray whales during the aboriginal hunt in the Chukotkan region of Russia does not appear to have diminished the opportunity for that subsistence hunt, as it has been ongoing for many decades. This indicates that, at least in one part of their summer range, gray whales have not abandoned areas where they have been subjected to many years of hunting.

Some disturbance-related information is available for gray whales in the Makah U&A and elsewhere in the PCFG region, mostly during the spring migration period. In 1999, Makah whaling crews hunted for up to 11 hours per day on 4 days between May 10 and 17, and actively pursued gray whales (including harpoon throws) at various locations on three days. In addition, aircraft and a number of protest vessels were active near the hunters, and two of these vessels were observed to come in contact with gray whales: one ran over the top of a whale and temporarily stunned it, and another vessel hit the flukes of a diving whale. In 2000, Makah crews hunted an average of 7 hours per day on 7 days between April

17 and May 29. During that time, hunters encountered an estimated 58 whales and made three harpoon throws, one of which may have grazed an animal. Aircraft and protest vessels were also active during the 2000 hunt. Despite this activity, gray whales continued to be sighted in the Makah U&A, OR-SVI, and PCFG survey areas during and after hunting had stopped in 1999 and 2000 (as well as the following year, 2001), including several PCFG whales that were sighted in the Makah U&A during consecutive years and one that was sighted there during all 3 years (J. Laake, pers. comm., NOAA Fisheries Statistician, March 11, 2014).

More recently, during the unauthorized hunt in September 2007 (i.e., during the summer feeding period), the Makah Tribe's biologist reported on the distribution and behavior of gray whales in the vicinity of the whale that had been harpooned, shot, and eventually killed in the Strait of Juan de Fuca (Subsection 3.4.3.5.2, Whale Response to Being Pursued). Anecdotal reports noted that other gray whales could be seen spouting in the area during the hunt and seemed unaffected by the hunt and Coast Guard and fishing boats in the area. Three days after the hunt the biologist sighted two gray whales within 0.6 miles (1 km) of where the killed whale had been harpooned, and noted that these whales exhibited "normal feeding behaviors and showed no escape behavior or agitation when approached by the vessel for photographs." While it is not possible to say how many whales would have been present without these hunt-related disturbances, taken together, these reports suggest that gray whales would not abandon the Makah U&A or other areas in the PCFG range as a result of limited hunt-related activity (e.g., compared to that of the Chukotkan gray whale hunt).

Concerns about whales avoiding or abandoning the Makah U&A as a result of hunt-related activity could be addressed by continued monitoring aimed at detecting changes in whale distribution and habitat use, although it would be difficult to detect trends in whale presence, and changes in distribution would more likely be related to changes in prey distribution rather than hunt-related activity. Other options to address this concern include setting limits on the numbers of whales that could be approached, subjected to strike attempts, or struck and lost.

4.4.2.5 Welfare of Individual Whales - Method of Striking and Killing; Time to Death; Hunting Efficiency

The Tribe proposes to hunt gray whales using a toggle-point harpoon to strike and secure whales and a .50 caliber rifle to kill those that have been struck and secured. The Tribe also proposes a number of measures to contribute to the safety and efficiency of the hunt, including a minimum distance from a whale before firing; minimum visibility conditions under which a weapon may be fired; motorized chase vessels to pursue whales, to provide a shooting platform, and to tow killed whales to shore; and training for hunters. In addition to the Tribe's proposed hunting weapons, this analysis considers the

option of using explosive projectiles to strike and kill gray whales, either attached to a hand-thrown harpoon or delivered by a shoulder gun. These techniques have been used in the Chukotka Native gray whale hunt. Explosive projectiles may contain black powder or penthrite. The Proposed Hunting Method portion of Subsection 2.3.2.2., Gray Whale Hunt Details, describes these hunting weapons, either of which may be used with any of the action alternatives (Alternatives 2 through 7).

This analysis examines the manner of death and the time to death of individual whales using either of two different general hunting methods: (1) a toggle-point harpoon for striking whales and a .50 or .577 caliber rifle for killing whales, or (2) an explosive projectile for both striking and killing whales, delivered either using a hand-thrown darting gun (a striking weapon that attaches a line and floats to the whale) or a shoulder gun (a killing weapon that does not secure the whale and is not used until the whale is secured by a hand-thrown harpoon or darting gun). It also examines the potential for individual whales to be struck and lost, compared to whales struck and successfully landed (referred to as hunting efficiency). The more efficient the hunt, the greater the likelihood that fewer whales would be struck and lost in reaching the hunting quota, thus limiting impacts to fewer individual whales. Also, more efficient hunts could reduce the number of encounters with whales exhibiting aggressive behavior (i.e., as in the Chukotkan hunts, Subsection 3.4.3.5.3 Whale Response to Being Struck).

For Alternatives 2, 4, 5, 6, and 7, in addition to the weapons described above, the Tribe would use a 30-foot (9.1-m) wooden canoe to transport and position the harpooner. For Alternative 3, the harpooner would most likely be transported and positioned using a motorized vessel. For the reasons described in Subsection 4.1.3.4, Potential Number of Unsuccessful Harpoon Attempts and Approaches, this analysis assumes that a hunt under Alternative 3 using all motorized vessels would be about as efficient as a hunt using a canoe to position the harpooner. This section does not focus on the welfare of individual whales (refer to Subsection 3.4.3.5, Welfare of Individual Whales) that would be the target of pursuit or unsuccessful harpoon attempts but not killed. Welfare effects on those whales are considered at the scale of the ENP gray whale stock and of whales that use local survey areas (Subsection 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock, and Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI areas). This section does, however, consider whether approaches by Makah hunting vessels and unsuccessful harpoon attempts would affect gray whale distribution and habitat use.

4.4.2.5.1 Method of Striking and Killing, Time to Death

A toggle-point harpoon penetrates the epidermis and blubber of the whale and toggles open to secure the whale. The area of trauma is the area penetrated by the harpoon. There is evidence that a harpoon strike causes pain, as whales may respond to being struck by diving, thrashing, or ramming a boat

(Subsection 3.4.3.5.3, Whale Response to Being Struck). Following the harpoon strike that secures the whale, the whale is shot with bullets targeted at the brain or central nervous system to cause death by penetrating and damaging the brain or central nervous system. Like the harpoon strike, a bullet causes trauma in the area of penetration. Time to death for the whale killed with a .577 caliber bullet in the Makah hunt in 1999 was 8 minutes from the time the whale was struck with the harpoon until it was rendered insensible from the second of two rifle shots. Time to death for the whale killed in the unauthorized hunt in 2007 was 11 hours from the time the whale was struck (or the first shot was fired) until the whale apparently died and sank. In the 2008 Chukotka Native hunt, the Russian Federation reported that the maximum number of shots per gray whale killed (120 animals) was 140 and the mean and maximum time to death was 31 minutes and 95 minutes, respectively. It is reasonable to expect that average time to death in a Makah hunt using a .50 or .577 caliber rifle as the killing weapon would be shorter than average time to death in the Chukotka Native hunt because the Makah Tribe would use a higher caliber rifle, which would kill a gray whale more effectively than a lower caliber rifle used by the Chukotka Native hunters (Subsection 3.4.3.5.4, Method of Killing and Time to Death). It is also possible that other requirements of the Makah hunt (minimum visibility conditions, minimum shooting distance, use of a look-out, and training) would result in a shorter time to death than documented in the Chukotka Native hunt.

The time to death of the whale during the unauthorized Makah gray whale hunt in 2007 is not a valid comparison to the expected time to death in an authorized hunt for the following reasons. During the 2007 unauthorized Makah gray whale hunt, many of the procedures proposed by the Makah were not followed (such as training of the shooter) (Subsection 3.15.2.2, Weapon Safety Regulations and Authorities). In addition, the at-sea intervention of the Coast Guard and NOAA's subsequent deliberation regarding what action to take with the wounded whale prevented the tribal members or tribal authorities from taking further action to kill the whale more expeditiously. In addition, it is not known what ammunition the unauthorized hunters used or the number of times that each rifle was fired. The Makah marine mammal biologist reported that the hunters were in possession of both a .460 and a .577 caliber rifle, and that four harpoons were embedded in the whale and 16 bullet wounds were observed. The experience of the 2007 unauthorized hunt emphasizes the importance of adopting and enforcing procedures governing the safety and humaneness of the hunt, in the event a hunt is authorized.

Concerns about time to death for individual whales, particularly in light of the unauthorized Makah hunt in September 2007, could be addressed by improved enforcement of the regulations proposed by the Makah to govern a hunt, including training of riflemen and other members of the whaling crew,

maintenance and control of weapons and ammunition, and requirements for a chase boat with a lookout. It is uncertain whether use of an explosive projectile instead of a rifle could reduce time to death. Other options for reducing time to death include improved enforcement of the moving exclusionary zone (MEZ) so protest vessels do not disrupt the hunt and hunting during better weather conditions (Alternatives 4 and 7).

The alternative method of striking and killing whales is the use of explosive projectiles, delivered either by a hand-thrown darting gun or a shoulder gun (Subsection 3.4.3.5.4, Method of Killing and Time to Death, Explosive Grenade as the Killing Weapon). Explosive projectiles cause more extensive trauma at the site of penetration than a harpoon or bullet and can cause trauma at a farther distance from the site of penetration. Unlike a toggle-point harpoon, which would not kill a whale immediately, an explosive projectile used for striking a whale may result in instantaneous or nearly instantaneous insensibility or death. In 2006, for whales killed using a darting gun with a black powder explosive projectile, Chukotka Native hunters reported an average time to death of 32 minutes for 88 whales (minimum 3 minutes, maximum 3 hours). In the 2002 season, the average time to death was also 32 minutes (maximum of 56 minutes) and hunters used an average of 2.7 darting gun projectiles per whale killed; this ratio has remained relatively stable during the past decade. In field trials with penthrite grenades in the Alaska bowhead hunt, time to death was on average 50 percent of the time to death as compared to using black powder grenades. It is uncertain what the average time to death would be for gray whales killed in a Makah gray whale hunt using explosive projectiles as the striking and killing weapon, though it is possible that average time to death would be lower than with the alternative method (toggle-point harpoon and rifle) because the striking weapon has the potential to quickly kill the whale or render it insensible.

4.4.2.5.2 Timing of Hunt and Time to Death

Regardless of the method selected, whales killed under Alternative 4 or 7 (i.e., a summer/fall hunt scenario) might experience the shortest time to death. This is because the other action alternatives could include hunting during winter and spring months when weather and sea conditions are less favorable, which might hamper the accuracy of hunters using harpoons, rifles, or explosive projectiles. Less accurate weapon strikes would likely increase the time to death (Subsection 3.4.3.5.4, Method of Killing and Time to Death). Also, under Alternative 4 and the summer/fall hunt under Alternative 7, it is likely that whales would exhibit feeding behaviors (e.g., milling in a localized area and shorter dive times) that might allow hunters to better position themselves for more accurate weapon strikes. Alternative 7 and the other action alternatives do allow for hunting in May when ocean conditions are also relatively good. However, there is also a greater chance that hunters would encounter actively

migrating whales during this time, likely making them more difficult to intercept and strike with high accuracy.

4.4.2.5.3 Hunting Efficiency

Of the more than 1,100 whales harvested by Chukotkan hunters during the period 2003 to 2011, less than 3 percent have been struck and lost (averaging 2.3 percent per year) (i.e., a hunt efficiency rate of over 97 percent). In recent years, the Chukotkan hunters report an average of 1 percent struck and lost (Table 3-12). The Russian Federation reported that Chukotka Native hunters experienced fewer whales struck and lost when explosive projectiles were used. Given the lack of experience with a Makah gray whale hunt, it is not possible to predict the proportion of whales likely to be struck and lost under any of the alternatives, nor is it possible to predict the relative proportion of struck-and-lost whales using the alternative hunting methods. The Makah proposal (Alternative 2) would allow for 18 whales struck and lost over 6 years and 24 harvested (24 out of 42 whales equals a 57 percent efficiency rate). For purposes of analyzing impacts on gray whales, NMFS assumes that the Tribe would each year reach the maximum limits on whales that could be struck (based on current conditions and estimates). For each action alternative the limits are as follows:

- **Alternative 2**: seven strikes per year, of which at most three can be struck and lost, and at most four on average can be harvested. Efficiency rate = 57 percent (assuming four whales harvested out of seven strikes).
- **Alternative 3**: six strikes per year, of which at most two can be struck and lost, and at most four on average can be harvested. Efficiency rate = 67 percent (assuming four whales harvested out of six strikes).
- **Alternative 4**: one strike every other year; whale is either struck and lost or harvested. Efficiency rate = 100 percent (assuming a struck whale is harvested).[12]
- **Alternative 5**: five strikes per year, of which at most one can be struck and lost, and at most four on average can be harvested. Efficiency rate = 80 percent (assuming four whales harvested out of five strikes).
- **Alternative 6**: four strikes per year, of which at most four can be struck and lost, and at most four on average can be harvested. Efficiency rate = 100 percent (assuming all struck whales are harvested).

[12] As noted in the text, under current conditions we assume there would be one strike every other year. While in theory, there could be up to seven strikes per year under this alternative, that is extremely unlikely given that the minimum population estimate for PCFG whales would need to more than triple while other variables (such as Rmax and the recovery factor) remained the same.

- **Alternative 7**: Winter/spring hunt year: three strikes or struck and lost (up to three harvested); efficiency rate = 100 percent (assuming three whales harvested out of three strikes). Summer/fall hunt year: two strikes or struck and lost, up to one harvested (therefore two strikes allowed only if the first whale was struck and lost). Efficiency rate = 50% (assuming one whale harvested out of two strikes).

Concerns about hunting efficiency could be addressed by decreasing the allowable numbers of whales struck and lost in a Makah hunt. Concerns could also be addressed by allowing hunting during more favorable weather conditions, which might improve the accuracy of hunters using harpoons, rifles, or explosive projectiles. More accurate weapon strikes might result in fewer whales struck and lost and thus a higher efficiency rate. In addition, better weather conditions would make it easier to land a killed whale, potentially decreasing the proportion of struck and lost whales.

4.4.3 Evaluation of Alternatives

The following sections consider the potential for each of the alternatives to affect (1) a change in abundance and viability of the ENP gray whale stock, (2) a change in abundance and viability of the WNP gray whale stock, (3) a change in abundance and viability of PCFG whales, (4) a change in numbers of gray whales using the Makah U&A and OR-SVI survey areas, or (5) the welfare of individual whales. The various alternatives incorporate mitigation measures (e.g., hunt timing and harvest limits), and we have highlighted additional mitigation considerations, as appropriate, in our analysis.

To summarize, the risk of adverse effects on the abundance of the ENP gray whale stock as a whole would likely be the same under all of the alternatives because the IWC catch limit remains the same under all alternatives. Based on past practice, it is reasonable to expect that the United States would transfer, and the Chukotka Natives would harvest, any unused Makah share of the catch limit. The result would likely be that the same total number of whales would likely be removed from the stock by hunting. The difference between the No-action Alternative and the action alternatives is that under the action alternatives, some of that harvest would take place by Makah hunters in the coastal portion of the Makah U&A. Thus, none of the action alternatives would likely affect the abundance of the ENP gray whale stock as a whole, compared to the No-action Alternative. Expected effects of the alternatives in the event the United States did not transfer any unused portion of the catch limit to Russia are discussed in detail below.

The risk of adverse effects on the WNP gray whale stock would be lowest under the No-action Alternative (no hunting) and Alternative 4, which is designed to avoid WNP gray whales by limiting

hunting to the summer and fall months when WNP gray whales would be feeding off Sakhalin Island. The likely effects of the other action alternatives on the WNP gray whale stock, in the event that a WNP gray whale is inadvertently struck, are described below.

With respect to impacts on the PCFG, Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales, summarizes the best available information pertaining to PCFG whales and the basis for NMFS' conclusion that the PCFG seems to be a distinct feeding aggregation and may warrant consideration as a separate stock in the future (Carretta et al. 2023). If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and any of the action alternatives compromised the viability of the PCFG, there could be an effect on the long-term viability of the ENP stock as a whole (Subsection 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock). However, given that the entire herd migrates through the PCFG range twice each year, and given the evidence that individual whales vary their use of feeding areas inside and outside of this range, both across years and within years, it is likely that whales would continue to discover and use the PCFG feeding areas, even if an action alternative temporarily reduced the abundance of PCFG whales. The lowest risk to PCFG gray whales that have been seen in the Makah U&A and OR-SVI survey areas would occur under the No-action Alternative, because it is unlikely that PCFG whales would be present in the area of the Chukotka hunt and thus killed under the No-action Alternative. The risks to whales in the PCFG range would be higher under the action alternatives because of the likelihood that some PCFG whales (including Makah U&A whales and OR-SVI whales) would likely be killed in a Makah hunt. For each action alternative, the maximum and likely numbers of PCFG whales that might be killed in a year (based on current estimates) are as follows (from Table 4-1):

- **Alternative 2**: 5 PCFG whales maximum, 1.9 whales likely
- **Alternative 3**: 4 PCFG whales maximum, 1.6 whales likely
- **Alternative 4**: 1 PCFG whale every other year maximum and likely
- **Alternative 5**: 1 PCFG whale maximum, 0.25 (1 whale every 4 years) likely
- **Alternative 6**: 3.5 PCFG whales maximum, 0.96 whales likely
- **Alternative 7**: winter/spring hunts: 3 PCFG whales maximum, 0.82 whales likely. Summer/fall hunts: 2 PCFG whales maximum, 2 whales likely (assuming the first is struck and lost)

4.4.3.1 Alternative 1, No Action

Under the No-action Alternative, we would not allocate a gray whale quota to the Makah Tribe and no authorized hunting by the Tribe would occur. As described in Subsection 4.1.1.3, Potential Number of

ENP and PCFG Whales Killed, the current annual and 7-year IWC catch limits set for ENP gray whales are based on a joint request of the Russian Federation (for Chukotka Natives) and the United States (for the Makah Tribe). Because the United States would likely transfer any unused share of the catch limit to Russia, the number of gray whales that may be landed from the ENP stock during the 7-year period from 2019 through 2025 would likely be the same under the No-action alternative as under current conditions (980 whales over 7 years, with no more than 140 whales taken in any one year). Thus, the effects on the abundance and viability of the ENP gray whale stock would likely not differ from the current conditions described in Subsection 3.4.3.3, Eastern North Pacific (ENP) Gray Whales.

Similarly, under the No-action Alternative, any stress-related impacts of ENP gray whales would be similar to current conditions, in which the Chukotkans could harvest the entire IWC catch limit. If the United States did not transfer its unused share of the catch limit for the 2 years remaining in the catch limit (2024 to 2025), there would be 14 fewer whales struck under the No-action alternative than under current conditions. That difference in stress-related impacts that would result from the reduced number of strikes is unlikely to have any effect on the abundance and viability of the ENP gray whale stock because 10 whales are a tiny fraction (less than 0.1 percent) of the 14,526 animals in this stock.

Under the No-action Alternative, the health, abundance, and habitat conditions for WNP and ENP stocks of gray whales (including PCFG whales and summer feeding whales in the Makah U&A and OR-SVI survey areas) would remain as under current conditions. Domestic prohibitions on gray whale take pursuant to section 101 of the MMPA would continue. Factors that could cause a change in distribution or habitat use, such as variability in prey abundance from environmental perturbation, vessel traffic and noise, or commercial fisheries, would similarly be expected to remain at present levels.

4.4.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, whale hunting may occur from December 1 through May 31 in the coastal portion of the Makah U&A. Annually, an average of four whales could be harvested by the Makah Tribe, a maximum of seven could be struck, and a maximum of three could be struck and lost. During any 6-year period, up to 24 whales might be harvested, with 42 struck and 18 struck and lost. As many as 353 whales may be approached by whale hunting vessels in any one year and up to 42 whales may be exposed to unsuccessful harpoon attempts. With up to four whales likely being harvested each year, there could be up to 64 rifle shots fired or 12 grenade explosions per year. While it is possible that the Tribe could hunt on 43 days between December and May, inclement weather conditions might practically limit hunting to a total of 33 days during March through May. Given the limited number of

likely hunting days available under Alternative 2, the Tribe might not be able to harvest the full number of whales allowed.

4.4.3.2.1 Change in Abundance and Viability of the ENP Gray Whale Stock

The potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 2 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1.1.3, Potential Number of ENP and PCFG Whales Killed, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the other alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 2 as under the No-action Alternative. If, over 6 years, the Makah Tribe hunts for 24 whales resulted in a higher level of stress-related impacts than would occur if those 24 whales were harvested in a Chukotkan hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting 24 whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 2 would represent an increase in mortality of at most 14 gray whales over the 2 remaining years of the catch limit (2024 through 2025) (seven struck whales per year times 2 years), compared to the No-action Alternative. Because 14 whales are a tiny fraction of the overall ENP gray whale stock (less than 0.1 percent), the increase in mortalities under Alternative 2 would be extremely unlikely to affect gray whale viability, compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 2 has the potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales, the best available information indicates that the PCFG would still be viable with a hunt under Alternative 2, so there is no reason to believe that this alternative would affect the ENP stock as a whole.

4.4.3.2.2 Change in Abundance and Viability of the WNP Gray Whale Stock

Available sighting data suggest that WNP whales could be encountered in the vicinity of the Makah U&A (Subsection 3.4.3.2.2, WNP Seasonal Distribution, Migration, and Movements) during much of the hunting season under Alternative 2, perhaps with the exception of early May to late December. Modeling based on Moore et al. (2023) estimates that between 2.8 and 4.2 WNP gray whales may be approached per year under Alternative 2. This assumes that all 353 training and hunting approaches are utilized annually, that each approach is made on a unique individual, and that all approaches are made

during the winter and spring months when WNP gray whales may be present in the hunt area. It is unlikely that all of these assumptions will be met; therefore, this is a precautionary estimate of the potential impacts to WNP gray whales under Alternative 2. Assuming that all harpoon attempts are made each year, between 0.056 and 0.084 WNP gray whales may be subjected to unsuccessful harpoon attempts annually (Table 4-4). These estimates represent an increased risk to these whales compared to the No-action Alternative.

While there is limited data on how whales would react to unsuccessful harpoon attempts the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., ranging from a subtle to overt response resulting in a potential temporary change in behavior). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels.

While the chances of killing a WNP whale are low, even over a 6-year period, the loss of WNP whales, particularly reproductive females, from this small stock could be a conservation concern depending on the number lost and the time period over which such losses occurred. To mitigate for the possibility of a Makah hunt killing a WNP whale, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed. Procedures for photographing any whale that is landed would make it likely a WNP whale would be identified if it were landed. If a WNP whale were struck and lost, it is possible, though not certain, it could be identified.

4.4.3.2.3 Change in Abundance and Viability of PCFG Whales

Compared to the No-action Alternative, Alternative 2 could reduce the abundance of PCFG gray whales, which could potentially affect the viability of the PCFG. As described in Subsection 4.1.2, Alternative 2 and Table 4-1, the current maximum number of PCFG whales that could be killed under Alternative 2 would be 5 per year. However, it is more likely that an average of 1.9 PCFG whales per year might actually be killed (and 11.5 whales over 6 years) given the high proportion of non-PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt.

If 1.9 PCFG whales were killed, it would represent a 0.9 percent reduction in the current abundance estimate of 212 PCFG whales (Harris et al. 2022). Compared to the No-action Alternative, this would represent a small decrease in abundance during the year in which PCFG whales were removed. Over time, it is uncertain whether or to what extent the death of 1.9 PCFG whales per year might decrease the abundance of the PCFG. During the years 2008 to 2017, there were 12.3 new recruits on average, 7.9 (64 percent) of which were not identified as calves (Calambokidis et al. 2019). At the current rate

of recruitment, the PCFG abundance trend appears to be stable. It is possible external recruits into the PCFG could increase, compared to the No-action Alternative, as a result of the removal of 1.9 PCFG whales, in which case the abundance of the PCFG could remain at its current level.

In contrast to the No-action Alternative, Alternative 2 could reduce the numbers of PCFG whales and potentially affect the PCFG's viability. An analysis by the IWC Scientific Committee suggests the PCFG would nevertheless remain viable with a hunt under Alternative 2. As described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) via models that use a 100-year time horizon. That committee's conclusion indicates that the PCFG would be viable as long as the hunt included a bycatch formula to limit the strikes on PCFG whales and annual monitoring was conducted to assess the availability of PCFG whales in the Makah hunt. The committee's modeling used a bycatch formula that, under population parameters at the time, yielded a bycatch limit of 3.0 PCFG whales per year. That value is slightly greater than the number of PCFG whales likely to be killed under Alternative 2 (i.e., 1.9 whales per year), which uses the same bycatch formula as the IWC analysis, indicating that the PCFG would still be viable with a hunt under Alternative 2. If the requisite monitoring indicated a higher availability of PCFG whales then the IWC would likely reassess its conclusions via a new implementation review (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates, IWC Implementation Review of PCFG Gray Whales).

During the proposed hunting season (December through May) under Alternative 2, 27.3 percent (96 whales) of the 353 whales approached during hunt activities would be expected to be PCFG whales (Subsection 4.1.2, Alternative 2) (Table 4-4). Similarly, 11 of the 42 whales potentially subjected to harpoon attempts would be expected to be PCFG whales. While some researchers have suggested that gray whales may have altered their migration distance from shore in response to vessels and other human activity, other researchers concluded there is no evidence suggesting such a relationship (see Subsection 3.4.3.6.6, Vessel Interactions). There is no data on whether this level of disturbance would cause PCFG whales to change their distribution (i.e., avoid the hunt area). However, there are several lines of evidence that indicate the disturbance would be temporary, minor in nature, and would not prevent whales that may temporarily relocate to other areas from returning. Some aspects of approaches by Makah whale-hunting canoes would cause a disturbance similar to that observed from approaches of motorized whale-watching vessels or vessels used for photo identification work. It is known that when approached by vessels some gray whales exhibit temporary behavioral responses, such as changing course, swimming speed, and respiratory patterns (Subsection 3.4.3.6.6, Vessel Interactions). However, there is no evidence that gray whales have altered their distribution or habitat

use in lagoons in their winter range in response to the presence of whale-watching vessels. Thus, whale response to approaches is likely to be temporary (minutes or hours).

It is less certain whether the intensity of unsuccessful harpoon attempts would result in more than a temporary disturbance of PCFG whales and cause them to avoid portions of their range either for a short period (days to weeks) or a longer period (for example, over a period of years). As described in Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements, the availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas. If prey is available throughout the PCFG range, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the PCFG range every year, and there is significant interchange among survey areas within this range (Subsection 3.4.3.4.3, PCFG Abundance and Trends). Thus, even if some whales do abandon an area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area. The example of gray whales hunted by Chukotka Natives may be instructive in trying to predict whether there would be a change in gray whale use of areas within the PCFG range. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area.

If hunting in the coastal portion of the Makah U&A did cause a change in distribution, it is likely that whales would shift to using adjacent areas, especially the Strait of Juan de Fuca portion of the Makah U&A and southern Vancouver Island, because those areas already have high rates of interchange with the proposed hunt area. Also, because hunting activities under Alternative 2 would end prior to the June through November feeding period, it is possible that PCFG whales might only temporarily avoid the coastal portion of the Makah U&A given that there would be 6 consecutive months with no hunt-related activities. Thus, available information indicates that gray whale distribution and habitat use under Alternative 2 would not change appreciably compared to the No-action Alternative.

4.4.3.2.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

Alternative 2 would result in gray whales being hunted in the coastal portion of the Makah U&A, which is a subset of the OR-SVI survey region and situated within the migration corridor of the entire ENP herd of gray whales. Such hunting could reduce the numbers of gray whales in these areas during the summer feeding period, as compared to the No-Action alternative, either as a result of whales being killed or as a result of feeding whales changing their distribution during the summer feeding period.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.2, Alternative 2 and Table 4-4, based on current data, the maximum number of whales previously seen in the OR-SVI or Makah U&A survey areas that may be killed would be five per year. However, it is more likely that an average of 1.8 OR-SVI whales or 1.6 Makah U&A whales might actually be killed each year (and 11 or 9.8 whales, respectively, over 6 years) given the available data regarding the presumed proportional presence of these whales in the proposed hunt area during the March through May time period, when the Tribe is most likely to hunt.

It is uncertain whether OR-SVI whales or Makah U&A whales killed under Alternative 2 would be replaced in the same year in which they were killed or in subsequent years because of the uncertainty regarding the recruitment mechanism and rate of recruitment into the PCFG and the uncertainty regarding the distribution of both PCFG and non-PCFG whales in these survey areas during the summer months. As described above in Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas, whales in these survey areas during the summer months include both whales that have visited the PCFG area in more than 2 years [PCFG whales] and whales that visit only once and are never sighted again [transient, non-PCFG whales]. Harris et al. (2022) analyzed the most recent sighting data for PCFG whales. From 1996 through 2020, there were 645 uniquely identified whales sighted in the OR-SVI area between June and November. An average of 112 whales are sighted each year, and of these an average of 24 whales are newly seen each year (ranging from 8 to 56 whales, and 11 whales for 2020). The annual average number of whales newly seen and then seen again in a subsequent year ("returning" whales) for 1996 to 2019 is 13 whales (ranging from 3 to 37 whales, and 10 whales for 2019, the most recent year reported). In the Makah U&A, 356 uniquely identified whales have been sighted from 1996 through 2020 in the June through November time period. An average of 33 whales are sighted each year, and of these an average of 14 whales are newly seen each year (ranging from 1 to 29 whales, and 18 whales for 2020). The annual average number of whales newly seen and then seen again in a subsequent year for 1996 to 2019 is 7 whales (ranging from 2 to 18 whales, and 11 whales for 2019, the most recent year reported). These sighting data, while subject to the survey limitations described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, demonstrate that many new whales are seen each year in these OR-SVI and Makah U&A areas. Of these whales, variable but large numbers are seen (or never seen) again.

Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is possible that if an average of one to two Makah U&A or OR-SVI whales were removed under Alternative 2, they would be replaced during that year with new Makah U&A or OR-SVI whales. In that case, Alternative 2 would not result in a decrease in the total

number of gray whales using the Makah U&A and OR-SVI survey areas during a given summer feeding period, compared to the No-action Alternative.

Over time, an ongoing hunt could reduce the abundance of PCFG whales and, thereby, reduce the number of PCFG whales using the Makah U&A and OR-SVI areas. The extent to which a hunt would reduce abundance over time would depend on the rate at which external recruits would replace killed whales, similar to the discussion above for change in numbers of PCFG whales (Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales). It seems likely that if the killed Makah U&A or OR-SVI whales were returning whales, they would be replaced in subsequent years with another returning whale, based on the average number of newly seen whales in the Makah U&A and OR-SVI survey areas that are then seen again in a subsequent year (7 and 13 whales, respectively). If for some reason new whales (that become returning whales) did not take the place of killed returning whales in subsequent years, the Tribe's allowable bycatch level would decrease over time because of the Tribe's proposal to establish limits on PCFG whales based on the annually updated estimate of returning OR-SVI whales. It is also possible that the removal of PCFG whales would result in the presence of more non-PCFG whales using the Makah U&A and OR-SVI during the summer months (i.e., whales that appear in the area in only one year and do not return again). This is uncertain, however, so the analysis does not assume it would occur.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

During the proposed hunting season (December through May) under Alternative 2, annually about 83 whales approached during hunt activities would be expected to be Makah U&A whales, while 93 would be expected to be OR-SVI whales (Subsection 4.1.2, Alternative 2) (Table 4-4). Thus, of the 353 whales potentially approached, approximately 23 percent (on average) would be Makah U&A whales and 26 percent would be OR-SVI whales. Of the 42 whales potentially subjected to harpoon attempts, 9.8 would be expected to be Makah U&A whales and 11 would be expected to be OR-SVI whales. It is unknown whether this level of disturbance would cause whales to change their distribution (i.e., avoid the hunt area), although evidence suggests that any changes would be temporary and minor (see Subsection 3.4.3.6.6, Vessel Interactions).

Some aspects of approaches by Makah whale-hunting canoes would cause a disturbance similar to that observed from approaches of motorized whale-watching vessels or vessels used for photo identification work. It is known that when approached by vessels some gray whales exhibit temporary behavioral responses, such as changing course, swimming speed, and respiratory patterns (Subsection 3.4.3.6.6, Vessel Interactions). However, there is no evidence that gray whales have altered their distribution or habitat use in lagoons in their winter range in response to the presence of whale-watching vessels.

While some researchers have suggested that gray whales may have altered their migration distance from shore in response to vessels and other human activity, other researchers concluded there is no evidence suggesting such a relationship. Thus, whale response to approaches is likely to be temporary (minutes or hours).

It is less certain whether the intensity of unsuccessful harpoon attempts would result in more than a temporary disturbance of Makah U&A or OR-SVI whales and cause them to avoid portions of the Makah U&A or OR-SVI either for a short period (days to weeks) or a longer period (for example, over a period of years). As described in Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements, the availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the Makah U&A and OR-SVI every year, and there is significant interchange with whales from other adjacent areas in the PCFG range (Subsection 3.4.3.4.3, PCFG Abundance and Trends). Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area. The example of gray whales hunted by Chukotka Natives may be instructive in trying to predict whether there would be a change in gray whale use of the Makah U&A and OR-SVI survey areas. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area.

Spatially, the OR-SVI area is a relatively small part (approximately 11 percent) of the entire PCFG range, but the area attracts a disproportionately high percentage (approximately 71 percent; Calambokidis et al. 2019) of PCFG whales sighted in a given year. Also, PCFG whales exhibit extensive movements during a given year and from year to year, presumably searching for prey (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem, and Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). For example, Calambokidis et al. (2014) estimated that over 60 percent of PCFG whales that had been sighted on 6 or more days were seen somewhere in the OR-SVI area and across a latitudinal range of greater than 30 nautical miles (i.e., roughly equivalent to the coastal portion of the Makah U&A) (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). Therefore, it is reasonable to expect that other PCFG whales could move in and take the place of whales that leave the Makah U&A or OR-SVI areas in response to hunting. For example, PCFG whales feeding outside the OR-SVI survey areas (e.g., whales from west Vancouver Island) could take the place of whales removed from the OR-SVI, and PCFG whales

feeding outside the Makah U&A (e.g., from southern Vancouver Island) could take the place of whales removed from the Makah U&A. In addition, if there are other feeding areas that are not subject to hunting disturbance, the whales can and may easily move to those other areas. Over time and with ongoing hunt-related disturbance, fewer whales might use the hunt area (which is just one portion of the Makah U&A and OR-SVI areas), but such abandonment might be offset to some extent by new whales that recruit to the PCFG and have not been exposed to such disturbance.

Change in Numbers - Summary

Compared to the No-action Alternative, there is a risk under Alternative 2 that the killing or disturbance of whales caused by a Makah hunt could result in decreased numbers of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). However, it is likely that gray whales would continue using these survey areas during the summer months because: (1) the IWC analysis shows that PCFG whales would remain viable with a Makah hunt as conducted under Alternative 2, (2) PCFG whales are dense and abundant in the OR-SVI area, (3) PCFG whales are highly mobile within the PCFG range, (4) there are many new and returning whales available to replace killed whales, (5) the bycatch limit for PCFG whales accounts for changes in OR-SVI whale numbers, and (6) gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area.

4.4.3.2.5 Welfare of Individual Whales

As discussed in Subsection 4.1, Introduction, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 2 and the No-action Alternative, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period, and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 2 the Makah Tribe could take up to 24 whales from the 980 whale catch limit.

A major difference between Alternative 2 and the No-action Alternative is in the number of gray whales that might be disturbed via vessel approaches and unsuccessful harpoon attempts. Assuming that Makah hunters could embark on hunting trips during 42.5 days per year, it is possible that 353 gray whales might be approached by Makah hunters per year and 42 of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.2, Alternative 2) (Table 4-4). The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters. Some individual whales who encounter Makah hunters could be subsequently encountered during a hunt by Chukotkan Natives (which would typically occur during the summer and

fall months). Thus, there is a greater potential for increased disturbance under Alternative 2 compared to the No-action Alternative. However, this increased risk is extremely low; the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. In addition, an unsuccessful harpoon attempt—the most severe form of disturbance aside from struck and lost whales—would still be limited to 42 whales, which is a very small fraction (0.3 percent) of the ENP stock.

The proportion of whales struck and lost could be greater in a Makah hunt under Alternative 2 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one percent of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 2, but the Tribe's proposal includes a potential of three whales struck and lost for four whales harvested before the seven-strike limit would be reached. The proportion of whales struck and lost under Alternative 2 could also be greater than the proportion in a Chukotka Native hunt because seasonal restrictions on the Makah hunt under Alternative 2 could result in hunts occurring in rough weather and sea conditions. Hunting under unfavorable conditions could reduce the accuracy of the hunters and make it more difficult to successfully land a killed whale (thus increasing the proportion of whales struck and lost).

Whales killed with a rifle in a Makah hunt under Alternative 2 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, compared to the No-action Alternative where the U.S. take limit is likely to be transferred to Russia, Alternative 2 could result in the same or shorter time to death, depending on the weapon used.

4.4.3.3 Alternative 3, Offshore Hunt

Alternative 3 would have the same conditions as Alternative 2 regarding the hunting season (December through May), limits on the numbers of ENP whales harvested, hunting methods, and regulatory framework. Alternative 3 would also have the same hunt area as Alternative 2, except that it would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore (Makah hunters and chase boats may nevertheless have to follow any struck whale trailing harpoon lines to dispatch it, regardless of distance to shore). Alternative 3 also assumes that the Tribe would most likely conduct a motorized hunt and not use canoes, which could result in a higher likely number of hunting days (43 compared to 33) per year. Alternative 3 would differ from Alternative 2 in that a harvested whale would

only count against the PCFG limit if it met the definition of a PCFG whale (i.e., it was sighted in at least 2 years in the PCFG seasonal range). Alternative 3 would also differ from Alternative 2 in that it would include a limit on the total mortality (including struck and lost whales) of PCFG whales (3.5 whales/year, using current estimates) and a related limit for female PCFG whales based on their proportional presence (1.8 females, using current estimates) (refer to Table 4-5). The result is that while an annual average of four whales might be harvested under either Alternative 2 or Alternative 3, the limits on PCFG whales differ. Alternative 3 would limit strikes to six whales per year and struck and lost whales to two per year. During any 6-year period, up to 24 whales might be harvested, with 36 struck and 12 struck and lost. As many as 353 whales may be approached by whale hunting vessels in any one year and up to 36 whales may be exposed to unsuccessful harpoon attempts. With up to four whales likely being harvested each year, there could be up to 64 rifle shots fired or 12 grenade explosions per year. Given the limited number of likely hunting days available under Alternative 3, the Tribe might not be able to harvest the full number of whales allowed.

4.4.3.3.1 Change in Abundance and Viability of the ENP Gray Whale Stock

Like Alternative 2, the potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 3 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1, Introduction, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the other alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 3 as under the No-action Alternative. If a Makah hunt for 24 whales over 6 years resulted in a higher level of stress-related impacts than would occur if those 24 whales were harvested in a Chukotkan Native hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting 24 whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 3 would represent an increase in mortality of at most 12 gray whales over the 2 remaining years of the catch limit (2024 to 2025) (six struck whales per year times 2 years), compared to the No-action Alternative. Because 12 whales are a tiny fraction of the overall ENP gray whale stock (less than 0.1 percent), the increase in mortalities under Alternative 3 would be extremely unlikely to affect the stock's viability compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 3 has the

potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.3.2, Change in Abundance and Viability of PCFG Whales, the best available information indicates that the PCFG would still be viable with a hunt under Alternative 3, so there is no reason to believe that this alternative would have deleterious impacts on the ENP stock as a whole.

4.4.3.3.2 Change in Abundance and Viability of the WNP Gray Whale Stock

Available sighting data suggest that WNP whales could be encountered in the vicinity of the Makah U&A (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) during much of the hunting season under Alternative 3, perhaps with the exception of early May to late December. There are some data indicating that hunters would be more likely to encounter WNP whales if hunting is restricted to offshore areas at least 5 miles (8 km) from the coast. Tracking data for two whales indicate that they could be encountered in such areas (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements). Modeling based on Moore et al. (2023) estimates the same risk of approach under Alternative 3 as Alternative 2. Assuming that all harpoon attempts are made each year, between 0.29 and 0.43 WNP gray whales may be subjected to unsuccessful harpoon attempts annually (Table 4-6). These estimates represent a similar level of risk to WNP gray whales as under Alternative 2, and an increased risk to these whales compared to the No-action Alternative.

There is limited data on how whales would react to unsuccessful harpoon attempts, but the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., ranging from a subtle to overt response resulting in a potential temporary change in behavior). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels.

While the chances of killing a WNP whale are low, even over a 6-year period, the loss of WNP whales, particularly reproductive females, from this small stock could be a conservation concern depending on the number lost and the time period over which such losses occurred. To mitigate for the possibility of a Makah hunt killing a WNP whale, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed. Procedures for photographing any whale that is landed would make it likely a WNP whale would be identified if it were landed. If a WNP whale were struck and lost, it is possible though not certain it could be identified.

4.4.3.3.3 Change in Abundance and Viability of PCFG Gray whales

Compared to the No-action Alternative, Alternative 3 could reduce the abundance of PCFG gray whales, which could potentially affect the viability of the PCFG. As described in Subsection 4.1.3, Alternative 3 and Table 4-1, the current maximum number of PCFG whales that could be killed under

Alternative 3 would be four per year. However, it is more likely that an average of 1.6 PCFG whale per year might actually be killed (and 9.8 whales over 6 years) given the high proportion of non-PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt. The annual average number is similar to that expected under Alternative 2.

If one PCFG whale were killed in a year, it would represent a 0.5 percent reduction in the current abundance estimate of 212 PCFG whales (Harris et al. 2022). This would represent a small decrease in abundance, compared to the No-action Alternative and under Alternative 2 (about half that expected under Alternative 2), during the year in which PCFG whales were removed. Over time, it is uncertain whether or to what extent the death of one PCFG whale per year might decrease the abundance of the PCFG whales. During the years 2008 to 2017, there were 12.3 new recruits on average, 7.9 (64 percent) of which were not identified as calves (Calambokidis et al. 2019). At the current rate of recruitment, the PCFG abundance trend appears to be stable. It is possible that external recruits could increase, compared to the No-action Alternative, as a result of the removal of one PCFG whale; in which case, the abundance of the PCFG could remain at its current level.

In contrast to the No-action Alternative, Alternative 3 could reduce the numbers of PCFG whales and potentially affect the PCFG's viability. As described above, the reduction under Alternative 3 would be roughly half that expected under Alternative 2. The IWC Scientific Committee's analysis suggests the PCFG would remain viable with a hunt under Alternative 3. As described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) using models with a 100-year time horizon. The committee's conclusion indicates that the PCFG would be viable using the Tribe's bycatch formula to limit the strikes on PCFG whales and with annual monitoring to assess the availability of PCFG whales in the Makah hunt. The committee's modeling used a bycatch formula that, under population parameters at the time, yielded a bycatch limit of 3.0 PCFG whales per year. That value is much greater than the number of PCFG whales likely to be killed under Alternative 3 (i.e., one whale per year), which includes PCFG mortality limits that are more restrictive than the bycatch formula in Alternative 2 and the IWC analysis, indicating that the PCFG would still be viable with a hunt under Alternative 3. If the requisite monitoring indicated a higher availability of PCFG whales, then the IWC would likely reassess its conclusions via a new implementation review (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates; IWC Implementation Review of PCFG Gray Whales).

During the proposed hunting season (December through May) under Alternative 3, 27.3 percent (96 whales) of the 353 whales approached during hunt activities would be expected to be PCFG whales (Subsection 4.1.2, Alternative 2) (Table 4-4). Similarly, 10 of the 36 whales potentially subjected to

harpoon attempts would be expected to be PCFG whales. For the reasons described under Alternative 2 (Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Gray Whales), it is unclear how whale distribution would be affected by hunt-related approaches and unsuccessful harpoon attempts. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed scores of gray whales over several years with no major changes apparent in whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in other areas in the PCFG range, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Also, because whales typically feed in shallower nearshore areas of the Makah U&A, the offshore location of hunting activities under Alternative 3 might result in little or no change in whale distribution. Many new whales are seen in the PCFG range every year, and there is significant interchange among survey areas within this range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

If hunting in the coastal portion of the Makah U&A did cause a change in distribution, it is likely that whales would shift to using adjacent areas—especially the Strait of Juan de Fuca portion of the Makah U&A and southern Vancouver Island—because those areas already have high rates of interchange with the proposed hunt area. Also, because hunting activities under Alternative 3 would end prior to the June through November feeding period, it is possible that PCFG whales might only temporarily avoid the coastal portion of the Makah U&A given that there would be 6 consecutive months with no hunting-related activities. It is also possible that PCFG whales would be less affected by hunting activities located further off shore from areas typically used by feeding whales. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area. Thus, available information indicates that, like Alternative 2, gray whale distribution and habitat use under Alternative 3 would not change appreciably compared to the No-action Alternative.

4.4.3.3.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

Compared to the No-action Alternative, Alternative 3 would result in gray whales being hunted in the coastal portion of the Makah U&A, which is a subset of the OR-SVI survey region and situated within the migration corridor of the entire ENP herd of gray whales. Such hunting could reduce the numbers of gray whales in these areas during the summer feeding period, either as a result of whales being killed or as a result of feeding whales changing their distribution during the summer feeding period.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.3, Alternative 3 and Table 4-1, the current maximum number of OR-SVI or Makah U&A whales killed would be four per year. However, it is more likely that an average of 1.6 OR-SVI whales or 1.4 Makah U&A whales might actually be killed each year (or 9.4 and 8.4 over six years) given the presumed proportional presence of these whales in the proposed hunt area during March through May when the Tribe is most likely to hunt. There is no information available to discern whether the Makah U&A whales or OR-SVI whales would be more or less likely to be encountered in the offshore hunt area established under Alternative 3. Thus, a similar number of PCFG whales would be killed under Alternative 3 compared to Alternative 2.

For the reasons described above under Alternative 2 (Subsection 4.4.3.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas, Change in Numbers as a Result of Change in Distribution of Feeding Whales), sighting data since 1996 demonstrate that many new whales are seen each year in the OR-SVI and Makah U&A areas, and of these whales, variable but large numbers are seen (or never seen) again. Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is possible that if up to one Makah U&A or OR-SVI whale were removed under Alternative 3, it would be replaced with another Makah U&A or OR-SVI whale. In that case, Alternative 3 would not result in a decrease in the total number of gray whales using the Makah U&A and OR-SVI survey areas during the summer feeding period, compared to the No-action Alternative. There is nevertheless a possibility that hunting under Alternative 3 might reduce the total number of whales using the OR-SVI area and that reduction would be less than under Alternative 2. While an ongoing hunt could reduce the number of whales returning to the Makah U&A and OR-SVI areas, it seems likely that such whales would be replaced in subsequent years given that an average of 7 newly-seen Makah U&A whales and 13 newly-seen OR-SVI whales are seen again in a subsequent year. If the PCFG abundance decreases in the Makah U&A, OR-SVI, or PCFG area because new whales (that become returning whales) do not take the place of killed PCFG whales, the calculated PCFG mortality limit would decrease over time, further reducing the effects under this Alternative. As an additional comparison, using the most recent minimum abundance estimate of 190 OR-SVI whales, an Rmax of 6.2 percent, and a recovery factor of 0.5 (based on the 2022 SAR value for PCFG whales; Carretta et al. (2023)), a PBR of 2.9 OR-SVI whales was calculated. This value is greater than the number of Makah U&A or OR-SVI whales likely removed under this alternative.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

During the likely hunting season (March through May) under Alternative 3, about 83 whales approached annually during hunt activities would be expected to be Makah U&A whales and 93 would be expected to be OR-SVI whales (Subsection 4.1.3, Alternative 3) (Table 4-6). Thus, of the 353 whales potentially approached, approximately 23 percent (on average) would be Makah U&A whales and 26 percent would be OR-SVI whales. Of the 36 whales potentially subjected to harpoon attempts, 8 would be expected to be Makah U&A whales and 9 would be expected to be OR-SVI whales (which is similar to the numbers of whales estimated under Alternative 2).

For the reasons described under Alternative 2 (Subsection 4.4.3.2.4, Change in Number of Gray Whales in the Makah U&A and OR-SVI Survey Areas; Change in Numbers as a Result of Change in Distribution of Feeding Whales), it is unclear what effect approaches and unsuccessful harpoon attempts would have on whale distribution. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed hundreds of gray whales over several years with no major changes apparent in gray whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Also, because whales typically feed in shallower nearshore areas of the Makah U&A, the offshore location of hunting activities under Alternative 3 might result in little or no change in whale distribution. Many new whales are seen in the Makah U&A and OR-SVI every year, and there is significant interchange with whales from other adjacent areas in the PCFG range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

Change in Numbers - Summary

Compared to the No-action Alternative, in which no Makah U&A or OR-SVI whales are likely to be killed or disturbed by hunting, Alternative 3 represents a potential decrease in the number of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). While the same number of whales would be approached under Alternatives 2 and 3, slightly fewer whales would be subjected to harpoon attempts under Alternative 3, and these attempts would occur much further off shore from where Makah U&A and OR-SVI whales typically feed. As with Alternative 2, it is likely that the number of PCFG whales would decrease but any decrease would be less than under Alternative 2 as fewer PCFG whales would likely be killed under Alternative 3. As with Alternative 2, it is most likely that gray whales would continue using these survey areas during the

summer months because: (1) under Alternative 3, the PCFG mortality limit is similar to the bycatch formula limit under Alternative 2 (and the IWC analysis) and the IWC analysis shows that PCFG whales would remain viable with a Makah hunt; (2) the bycatch formula for Alternative 3 is more conservative than the formula under Alternative 2 because of its treatment of struck and lost whales and female whales (Table 4-1); (3) PCFG whales are dense and abundant in the OR-SVI area; (4) PCFG whales are highly mobile within the PCFG range; (5) there are many new and returning whales available to replace killed whales; (6) the bycatch limit for PCFG whales accounts for changes in PCFG whale numbers; and (7) gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area.

4.4.3.3.5 Welfare of Individual Whales

As discussed in Subsection 4.1, Introduction, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 3, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 3 the Makah Tribe could take up to 24 whales from the 980 catch limit.

A major difference between Alternative 3 and the No-action Alternative is in the number of gray whales that might be disturbed by vessel approaches and unsuccessful harpoon attempts. Assuming that Makah hunters could embark on hunting trips during 60 days per year, it is possible that 353 gray whales might be approached per year and 36 of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.3, Alternative 3) (Table 4-6). The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters (e.g., protest, media, and enforcement vessels). Compared to Alternative 2, it is likely that such approaches could be reduced because fewer protest vessels (especially small watercraft such as jet skis) would attempt to venture 5 miles (8 km) off shore under Alternative 3. Some of the whales subjected to approaches or unsuccessful harpoon attempts could be subsequently encountered during a hunt by Chukotkan Natives (which would typically occur during the summer and fall months), so there is a greater potential for increased disturbance under Alternative 3 compared to the No-action Alternative. However, this increased risk is extremely low; the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. In addition, an unsuccessful harpoon attempt—the most severe form of disturbance aside from struck and lost whales—would still

be limited to 36 whales, which is a very small fraction (0.2 percent) of the entire ENP stock and roughly the same level of impact as Alternative 2.

Like Alternative 2, the proportion of whales struck and lost could be greater in a Makah hunt under Alternative 3 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one percent of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 3, but this alternative includes a potential of two whales struck and lost for four whales harvested before the 6-strike limit would be reached. The proportion of whales struck and lost under Alternative 3 could also be greater than the proportion in a Chukotka Native hunt because seasonal restrictions on the Makah hunt and the requirement under Alternative 3 to hunt at least 5 miles (8 km) from shore could result in hunts occurring in rough weather and sea conditions. Hunting under unfavorable conditions could reduce the accuracy of the hunters and make it more difficult to successfully land a killed whale (thus increasing the proportion of whales struck and lost).

Whales killed with a rifle in a Makah hunt under Alternative 3 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, a whale's time to death under Alternative 3 would be the same as under Alternative 2 and the same, if the hunt limits are transferred to Russia, or less compared to the No-action Alternative.

4.4.3.4 Alternative 4, Summer/Fall Hunt

Alternative 4 would have the same conditions as Alternative 2 regarding the hunt area (coastal portion of the Makah U&A, including the provision to not strike a whale within 200 yards (183 m) of Tatoosh Island and White Rock), the hunting methods, and regulatory framework. In contrast to Alternatives 2 and 3, Alternative 4 would have a different hunting season that is restricted to summer/fall months to avoid times when WNP whales might be encountered and would require hunters to approach only known ENP males. Like Alternative 3, Alternative 4 would differ from Alternative 2 in that it would include a limit on the total mortality (including struck and lost) of PCFG whales (0.76 whales/year, using current estimates; see Table 4-7). Under Alternative 4 and current conditions, the maximum number of whales that could be killed per year by the Tribe would be one whale every other year so as not to exceed the mortality limit. Unused portions of the PCFG mortality limit would not carry over to a subsequent year, unless the mortality limit is less than 1 but greater than 0.5 for 2 consecutive years. In this case, it would be aggregated to allow

for the mortality of one PCFG whale during the second year. During any 6-year period, up to three whales might be harvested, with three struck and three struck and lost. As many as 29 whales may be approached by whale hunting vessels in a hunt year and up to three whales may be exposed to unsuccessful harpoon attempts. With just one whale likely being harvested every other year, there could be up to 16 rifle shots fired or 3 grenade explosions every other year.

4.4.3.4.1 Change in Abundance and Viability of the ENP Gray Whale Stock

Like Alternatives 2 and 3, the potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 4 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1, Introduction, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 4 as under the No-action Alternative. If a Makah hunt for three whales over 6 years resulted in a higher level of stress-related impacts than would occur if those three whales were harvested in a Chukotkan hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting three whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 4 would represent an increase in mortality of at most one gray whale over the 2 remaining years of the catch limit (2024 to 2025) (one struck whale every other year) compared to the No-action Alternative. Because one whale is a tiny fraction of the overall ENP gray whale stock (less than 0.01 percent), the increase in mortalities under Alternative 4 would be extremely unlikely to affect gray whale viability compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 4 has the potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales, the best available information indicates that the PCFG would still be viable with a hunt under Alternative 4, so there is no reason to believe that this alternative would have deleterious impacts on the ENP stock as a whole.

4.4.3.4.2 Change in Abundance and Viability of the WNP Gray Whale Stock

Available sighting data (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) indicate that WNP whales would not be encountered in the vicinity of the Makah U&A during the June through November hunt period considered under Alternative 4. Therefore, Alternative 4 would result in

less risk to WNP gray whales than Alternatives 2 and 3 and about the same risk as under the No-action Alternative. In the unlikely event that a WNP whale was encountered, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed. Procedures for photographing any whale that is landed would make it likely a WNP whale would be identified if it were landed. If a WNP whale were struck and lost, it is possible though not certain, it could be identified.

4.4.3.4.3 Change in Abundance and Viability of PCFG Whales

Compared to the No-action Alternative, Alternative 4 could reduce the abundance of PCFG gray whales, which could potentially affect the viability of the PCFG.

As described in Subsection 4.1.4, Alternative 4 and Table 4-1, the potential number of PCFG whales killed under Alternative 4 would be determined by the PCFG limit, which would be one whale every other year under current conditions.[13] The annual average harvest of one whale every other year under Alternative 4 is roughly one-third that expected under Alternative 3 and roughly one-quarter that expected under Alternative 2.

If one PCFG whale were killed every other year, it would represent a 0.2 percent reduction in the current abundance estimate of 212 PCFG whales (Harris et al. 2022). Compared to the No-action Alternative, this would represent a small decrease in abundance during the year in which PCFG whales were removed. Over time, it is uncertain whether or to what extent the death of one PCFG whale every other year might decrease the abundance of the PCFG whales. During the years 2008 to 2017, there were 12.3 new recruits on average, 7.9 (64 percent) of which were not identified as calves (Calambokidis et al. 2019). At the current rate of recruitment, the PCFG abundance trend appears to be stable. It is possible that external recruits could increase, compared to the No-action Alternative, as a result of the removal of one PCFG whale, in which case the abundance of the PCFG could remain at its current level.

In contrast to the No-action Alternative, Alternative 4 could reduce the numbers of PCFG whales and potentially affect the PCFG's viability. As described above, the reduction under Alternative 4 would be the same as under Alternative 3 and about one-third that expected under Alternative 2. The IWC Scientific Committee's analysis suggests the PCFG would remain viable with a hunt under Alternative 4. As described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) using models with a 100-year time horizon. That committee's conclusion indicates that the PCFG would be viable as long as the hunt

[13] Because Alternative 4, like Alternative 2, would allow seven strikes per year, the number of ENP whales potentially killed could be as high as seven, but this would require the PCFG abundance to more than triple, which is highly unlikely.

included a bycatch formula to limit the strikes on PCFG whales and annual monitoring was conducted to assess the availability of PCFG whales in the Makah hunt. The committee's modeling used a bycatch formula that, under population parameters at the time, yielded a bycatch limit of 3.0 PCFG whales per year. That value is much greater than the number of PCFG whales likely to be killed under Alternative 4 (i.e., one whale every two years), which includes a PCFG mortality limit that is more restrictive than the bycatch formula in Alternative 2 and the IWC analysis, indicating that the PCFG would still be viable with a hunt under Alternative 4. If the requisite monitoring indicated a higher availability of PCFG whales, then the IWC would likely reassess its conclusions via a new implementation review (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates; IWC Implementation Review of PCFG Gray Whales). Currently, it is thought that whales have two means of recruiting into the PCFG: either a whale learns to feed within the PCFG range from its mother or it immigrates to the PCFG from the larger ENP population later in its life. Alternative 4 is less likely to affect PCFG viability into the future as compared to Alternatives 2 and 3 because the hunt would target males and, thus, would not affect matrilineal recruitment. For the reasons described under Alternative 2 (Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Gray Whales), it is unclear how whale distribution would be affected by hunt-related approaches and unsuccessful harpoon attempts. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed scores of gray whales over several years with no major changes apparent in whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in other areas in the PCFG range, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the PCFG range every year, and there is significant interchange among survey areas within this range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

If hunting in the coastal portion of the Makah U&A did cause a change in distribution, it is likely that whales would shift to using adjacent areas—especially the Strait of Juan de Fuca portion of the Makah U&A and southern Vancouver Island—because those areas already have high rates of interchange with the proposed hunt area. Although hunting activities under Alternative 4 would occur during the June through November feeding period, it is possible that PCFG whales might only temporarily avoid the coastal portion of the Makah U&A because: (1) hunting would likely occur on just 7 days (i.e., less than 4 percent of the entire summer/fall feeding period), (2) this alternative has the lowest number of whales likely approached (29) of all the action alternatives, and (3) only a single male whale could be struck. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-

52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area. Thus, available information indicates that, like Alternatives 2 and 3, gray whale distribution and habitat use under Alternative 4 would not change appreciably compared to the No-action Alternative.

4.4.3.4.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

Compared to the No-action Alternative, Alternative 4 would result in gray whales being hunted in the coastal portion of the Makah U&A, which is a subset of the OR-SVI survey region and situated within the migration corridor of the entire ENP herd of gray whales. Such hunting could reduce the numbers of gray whales in these areas during the summer feeding period either as a result of whales being killed or as a result of feeding whales changing their distribution during the summer feeding period.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.4, Alternative 4 and Table 4-1, both the current maximum and likely number of OR-SVI or Makah U&A whales killed would be approximately one every two years (three whales from either area over 6 years). Under Alternative 4, all killed whales would be Makah U&A and OR-SVI whales by definition as the hunt would take place during the summer feeding period for PCFG whales. The likely number of these whales killed is about one-third that expected under Alternative 3 and roughly one-quarter that expected under Alternative 2.

For the reasons described above under Alternative 2, sighting data since 1996 demonstrate that many new whales are seen each year in the OR-SVI and Makah U&A areas, and of these whales, variable but large numbers are seen (or never seen) again. Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is possible that if up to one Makah U&A or OR-SVI whale were removed under Alternative 4 every two years, it would be replaced with another Makah U&A or OR-SVI whale. In that case, Alternative 4 would not result in a decrease in the total number of gray whales using the Makah U&A and OR-SVI survey areas during the summer feeding period, compared to the No-action Alternative. There is nevertheless a possibility that hunting under Alternative 4 might reduce the total number of whales using the OR-SVI area, and that reduction would be less than under both Alternatives 2 and 3. If that reduction occurred, the minimum abundance estimate for PCFG whales would decline, causing a decrease in the calculated PCFG mortality limit under Alternative 4. Also, while an ongoing hunt could reduce the number of whales returning to the Makah U&A and OR-SVI areas, it seems likely that such whales would be replaced in subsequent years given that an average of 7 newly-seen Makah U&A whales and 13 newly-seen OR-SVI whales are seen again in a subsequent year. If for some reason new whales (that become

returning whales) did not take the place of killed returning whales in subsequent years, the calculated PCFG mortality limit would decrease over time as well. As an additional comparison, using the most recent minimum abundance estimate of 190 OR-SVI whales, an Rmax of 6.2 percent, and a recovery factor of 0.5 (based on the 2022 SAR value for PCFG whales; Carretta et al. (2023)), a PBR of 2.9 OR-SVI whales was calculated. This value is more than double the number of Makah U&A or OR-SVI whales likely removed under this alternative.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

Under Alternative 4, about 29 whales would be approached annually during hunt activities (Subsection 4.1.4, Alternative 4) (Table 4-8) ,and all would be expected to be Makah U&A and OR-SVI whales because of the hunt taking place during the summer feeding period for PCFG whales. For the same reason, all of the three whales potentially subjected to harpoon attempts would be Makah U&A and OR-SVI whales. This number of whales is roughly half that expected under Alternatives 2 and 3.

For the reasons described under Alternative 2, it is unclear what effect approaches and unsuccessful harpoon attempts would have on whale distribution. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed hundreds of gray whales over several years with no major changes apparent in gray whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Also, many new whales are seen in the Makah U&A and OR-SVI every year, and there is significant interchange with whales from other adjacent areas in the PCFG range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

Change in Numbers - Summary

Compared to the No-action Alternative, in which no Makah U&A or OR-SVI whales are likely to be killed by hunting, Alternative 4 represents a potential decrease in the number of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). Alternative 4 would result in roughly one-third the number of whales approached as under Alternatives 2 and 3, with the number of harpoon attempts being roughly one-third to one-quarter the number of attempts under Alternatives 2 and 3 (but note that Alternative 4 is less likely to be in offshore waters compared to Alternative 3). As with Alternatives 2 and 3, it is likely that the number of whales would decrease, although any decrease would be less than under Alternatives 2 or 3 because fewer PCFG whales would likely be killed under Alternative 4 than under Alternatives 2 or 3. As with Alternatives 2

and 3, it is most likely that gray whales would continue using these survey areas during the summer months because: (1) under Alternative 4, the PCFG mortality limit is more restrictive than the bycatch formula used in Alternative 2 (and the IWC analysis) by using a lower recovery factor and subtracting other human-caused mortality (Table 4-1), and the IWC analysis shows that PCFG whales would remain viable with a Makah hunt; (2) PCFG whales are dense and abundant in the OR-SVI area; PCFG whales are highly mobile within the PCFG range; (3) there are many new and returning whales available to replace killed whales; and (4) gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area. Furthermore, hunting only males ensures that internal recruitment of PCFG whales would not be affected by the hunt.

4.4.3.4.5 Welfare of Individual Whales

As discussed in Subsection 4.1.1.3, Potential Number of ENP and PCFG Whales Killed, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 4 and the No-action Alternative, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period, and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 4 the Makah Tribe could take up to 24 whales from the 980 catch limit.

A major difference between Alternative 4 and the No-action Alternative is in the number of gray whales that might be disturbed by vessel approaches and unsuccessful harpoon attempts. Assuming that Makah hunters could embark on hunting trips during 7 days every other year, it is possible that an average of 29 gray whales might be approached every year and three of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.4, Alternative 4) (Table 4-8). The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters. These impacts would be substantially lower overall than those expected under Alternatives 2 and 3. However, because the hunt under Alternative 4 is restricted to the summer and fall months and hunters may strike only known males, it is much more likely that impacts would be focused on PCFG whales.

Some of the whales subjected to approaches or unsuccessful harpoon attempts could be encountered during a hunt by Chukotkan Natives. Such encounters would most likely occur in a different year because the Makah Tribe's hunt would occur during the months when whales are likely to remain within the PCFG range before migrating south. Some whales may return to feeding grounds further north in subsequent years. So while there is a greater potential for increased disturbance to individual whales under Alternative 4 compared to the No-action Alternative, such disturbance would likely be

minimal and attenuated given that it would be many months between the time a whale was pursued in the Makah U&A and then in the Chukotkan hunt area (or vice versa). Additionally, the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. An unsuccessful harpoon attempt—the most severe form of disturbance aside from struck-and-lost whales —would still be limited to three whales, which is a very small fraction (0.02 percent) of the entire ENP stock and roughly one-tenth the impact expected under Alternatives 2 and 3.

Like Alternatives 2 and 3, the proportion of whales struck and lost could be greater in a Makah hunt under Alternative 4 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one percent of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 4, but given that only one whale could be struck every other year (under current conditions), the proportion would be either zero or 100 percent. Alternative 4 would also have a lower likelihood of hunters striking and losing a whale compared to Alternatives 2 and 3 because ocean conditions during the summer and fall hunting months proposed under Alternative 4 would make it easier to land a struck whale than the less favorable ocean conditions during the spring hunting months of Alternatives 2 and 3.

Whales killed with a rifle in a Makah hunt under Alternative 4 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, a whale's time to death under Alternative 4 would be the same as under Alternatives 2 and 3, and the same or less compared to the No-action Alternative.

4.4.3.5 Alternative 5, Split-season Hunt

Alternative 5 would have the same conditions as Alternative 2 regarding the hunt area, hunting methods, and regulatory framework. In contrast, Alternative 5 would have a split hunting season (December 1 through 21 and May 10 through 31) intended to avoid killing a WNP whale and to minimize the chance of killing a PCFG whale. Like Alternatives 3 and 4, Alternative 5 would differ from Alternative 2 in that it would include a limit (0.35 whales/year, using current estimates) on the total mortality—including struck and lost—of PCFG whales. If the limit represents less than one whale, it would be allowed to accumulate across years for the purposes of calculating how frequently a PCFG whale could be killed or struck and lost. Although this PCFG mortality limit would always be less than one whale, the Tribe could hunt in any year—including the first year—until they either kill a PCFG whale or strike and lose any whale. If either of those two outcomes occur, then the PCFG mortality limit would be applied to determine the number of

years the Tribe would need to take a hiatus from hunting (i.e., until the accumulated mortality limits add up to at least one whale). During any 6-year period, up to 24 whales might be harvested, with 24 struck and 3 struck and lost (given the limit of one struck-and-lost whale per year coupled with the calculated mortality limit on PCFG whales). As many as 122 whales may be approached by whale hunting vessels in any one year and up to 30 whales may be exposed to unsuccessful harpoon attempts. With just one whale likely being harvested each year, there could be up to 16 rifle shots fired or 3 grenade explosions per year.

4.4.3.5.1 Change in Abundance and Viability of the ENP Gray Whale Stock

Like Alternatives 2, 3, and 4, the potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 5 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1, Introduction, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the other alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 5 as under the No-action Alternative. If a Makah hunt for the maximum of 24 whales allowed under Alternative 5 over 6 years resulted in a higher level of stress-related impacts than would occur if those 24 whales were harvested in a Chukotkan hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting 24 whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 5 would represent an increase in mortality of at most 10 gray whales over the 2 remaining years of the catch limit (2024 to 2025) (five struck whales per year times 2 years) compared to the No-action Alternative. Because 10 whales are a tiny fraction of the overall ENP gray whale stock (0.069 percent), the increase in mortalities under Alternative 5 would be extremely unlikely to affect gray whale viability compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 5 has the potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales, the best available information indicates that the PCFG would still be viable with a hunt under Alternative 5, so there is no reason to believe that this alternative would have deleterious impacts on the ENP stock as a whole.

4.4.3.5.2 Change in Abundance and Viability of the WNP Gray Whale Stock

There are very limited data for WNP whales in the action area, but the available sighting data indicate that WNP whales are unlikely to be encountered in the vicinity of the Makah U&A during the hunt periods in May and December considered under Alternative 5, based on the short hunt timeframe and the lack of WNP sightings during this time (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements). However, the data available for the hunt period is too sparse to verify that the risk of taking a WNP whale would be different from other time periods of the migratory season, and thus we have analyzed the risk of taking a WNP whale using the same model by Moore et al. (2023) used for Alternatives 2 and 3. Based on modeling by Moore et al. (2023) we estimate that between 0.98 and 1.5 WNP gray whales may be approached per year under Alternative 5. This assumes that all 353 training and hunting approaches are utilized annually, that each approach is made on a unique individual, and that all approaches are made during the winter and spring months when WNP gray whales may be present in the hunt area. It is unlikely that all of these assumptions will be met, therefore this is a precautionary estimate of the potential impacts to WNP gray whales under Alternative 5. Assuming that all harpoon attempts are made each year, between 0.24 and 0.36 WNP gray whales may be subjected to unsuccessful harpoon attempts annually (Table 4-10). Therefore, assuming that the availability of WNP whales is the same during the proposed hunt period as during the rest of the migratory season, Alternative 5 would result in increased risk to WNP gray whales compared to the No-action Alternative and Alternative 4, and slightly less risk than under Alternatives 2 and 3.

There is limited data on how whales would react to unsuccessful harpoon attempts, but the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., ranging from a subtle to overt response resulting in a potential temporary change in behavior). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels.

While the chances of killing a WNP whale are low, even over a 6-year period, the loss of WNP whales, particularly reproductive females, from this small stock could be a conservation concern depending on the number lost and the time period over which such losses occurred. To mitigate for the possibility of a Makah hunt killing a WNP whale, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed. Procedures for photographing any whale that is landed would make it likely a WNP whale would be identified if it were landed. If a WNP whale were struck and lost, it is possible, though not certain, it could be identified.

4.4.3.5.3 Change in Abundance and Viability of PCFG Whales

Compared to the No-action Alternative, Alternative 5 could reduce the abundance of PCFG gray whales, which could potentially affect the viability of the PCFG. As described in Subsection 4.1.5, Alternative 5 and Table 4-1, the current maximum number of PCFG whales that could be killed under Alternative 5 would be one whale per three years. However, it is more likely that an average of one PCFG whale per four years might actually be killed given the high proportion of non-PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt. The annual average number is approximately 46 percent lower than that expected under Alternative 3, and 86 percent lower than that expected under Alternative 2, and about half of that expected under Alternative 4.

If one PCFG whale were killed every four years (i.e., 0.25 whales per year) it would represent a 0.12 percent reduction in the current abundance estimate of 212 PCFG whales (Harris et al. 2022). Compared to the No-action Alternative, this would represent an extremely small decrease in abundance during the year in which PCFG whales were removed. This decrease would be at least an order of magnitude smaller than the decreases expected under Alternatives 2, 3, and 4. Over time, it is uncertain whether or to what extent the death of one PCFG whale per four years might decrease the abundance of the PCFG. During the years 2008 to 2017, there were 12.3 new recruits on average, 7.9 (64 percent) of which were not identified as calves (Calambokidis et al. 2019). At the current rate of recruitment, the PCFG abundance trend appears to be stable. It is possible that external recruits could increase, compared to the No-action Alternative, as a result of the removal of one PCFG whale every four years, in which case the abundance of the PCFG could remain at its current level.

In contrast to the No-action Alternative, Alternative 5 could reduce the numbers of PCFG whales and potentially affect the PCFG's viability. As described above, the reduction under Alternative 5 would be at least an order of magnitude smaller than the reduction expected under Alternatives 2, 3, and 4. The IWC Scientific Committee's analysis suggests the PCFG would remain viable with a hunt under Alternative 5. As described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) using models with a 100-year time horizon. The committee's conclusion indicates that the PCFG would be viable as long as the hunt included a bycatch formula to limit the strikes on PCFG whales and annual monitoring was conducted to assess availability of PCFG whales in the Makah hunt. The committee's modeling used a bycatch formula that, under population parameters at the time, yielded a bycatch limit of 3.0 PCFG whales per year. That value is much greater than the number of PCFG whales likely to be killed under Alternative 5 (i.e., 0.25 whales per year), which includes a PCFG mortality limit that is

more restrictive than the bycatch formula in Alternative 2 and the IWC analysis, indicating that the PCFG would still be viable with a hunt under Alternative 5. If the requisite monitoring indicated a higher availability of PCFG whales, then the IWC would likely reassess its conclusions via a new implementation review (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates; IWC Implementation Review of PCFG Gray Whales).

For the reasons described under Alternative 2, it is unclear how whale distribution would be affected by hunt-related approaches and unsuccessful harpoon attempts. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed scores of gray whales over several years with no major changes apparent in whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in other areas in the PCFG range, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the PCFG range every year and there is significant interchange among survey areas within this range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

If hunting in the coastal portion of the Makah U&A did cause a change in distribution, it is likely that whales would shift to using adjacent areas—especially the Strait of Juan de Fuca portion of the Makah U&A and southern Vancouver Island—because those areas already have high rates of interchange with the proposed hunt area. Also, because hunting activities under Alternative 5 would end prior to the June through November feeding period, it is possible that PCFG whales might only temporarily avoid the coastal portion of the Makah U&A given that there would be 6 consecutive months with no hunting-related activities. It is also possible that PCFG whales would be less affected by hunting activities that are limited to 11 days per year outside the time when PCFG whales typically feed in the hunt area. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area. Thus, available information indicates that, like Alternatives 2, 3, and 4, gray whale distribution and habitat use under Alternative 5 would not change appreciably compared to the No-action Alternative.

4.4.3.5.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

Compared to the No-action Alternative, Alternative 5 would result in gray whales being hunted in the coastal portion of the Makah U&A, which is a subset of the OR-SVI survey region and situated within

the migration corridor of the entire ENP herd of gray whales. Such hunting could reduce the numbers of gray whales in these areas during the summer feeding period either as a result of whales being killed or as a result of feeding whales changing their distribution during the summer feeding period.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.5, Alternative 5 and Table 4-1, the current maximum number of OR-SVI or Makah U&A whales killed would be one per year. However, it is more likely that an average of one OR-SVI whale or one Makah U&A whale might actually be killed every four years given the presumed proportional presence of these whales in the proposed hunt area during the May time period when the Tribe is most likely to hunt. The likely number of these whales killed (approximately 0.24 and 0.21 whales per year, respectively) is much lower than the one to two whales likely killed each year under Alternatives 2 and 3, and the average of 0.5 whales likely killed per year under Alternative 4.

For the reasons described above under Alternative 2, sighting data since 1996 demonstrate that many new whales are seen each year in the OR-SVI and Makah U&A areas, and of these whales, variable but large numbers are seen (or never seen) again. Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is very likely that if one Makah U&A or OR-SVI whale were removed every four years under Alternative 5, it would be replaced with another Makah U&A or OR-SVI whale. In that case, Alternative 5 would not result in a decrease in the total number of gray whales using the Makah U&A and OR-SVI survey areas during the summer feeding period, compared to the No-action Alternative. There is nevertheless a possibility that hunting under Alternative 5 might reduce the total number of whales using the OR-SVI area, and that reduction would be much less than under Alternatives 2, 3, and 4. If that reduction occurred, the minimum abundance estimate for PCFG whales could decline, causing a decrease in the calculated PCFG mortality limit under Alternative 5. Also, while an ongoing hunt could reduce the number of whales returning to the Makah U&A and OR-SVI areas, it seems likely that such whales would be replaced in subsequent years given that an average of 7 newly-seen Makah U&A whales and 13 newly-seen OR-SVI whales are seen again in a subsequent year. If for some reason new whales (that become returning whales) did not take the place of killed returning whales in subsequent years, the calculated PCFG mortality limit would decrease over time as well. As an additional comparison, using the most recent minimum abundance estimate of 190 OR-SVI whales, an Rmax of 6.2 percent, and a recovery factor of 0.5 (based on the 2022 SAR value for PCFG whales; Carretta et al. (2023)), a PBR of 2.9 OR-SVI whales was calculated. This value is more than 12 times greater than the number of Makah U&A or OR-SVI whales likely removed under this alternative.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

During the split hunting season (3 weeks each in May and December) under Alternative 5, annually about 29 whales approached during hunt activities would be expected to be Makah U&A whales, while 32 would be expected to be OR-SVI whales (Subsection 4.1.5, Alternative 5) (Table 4-10). Thus, of the 122 whales potentially approached, approximately 23 percent (on average) would be Makah U&A whales and 26 percent would be OR-SVI whales. Of the 30 whales potentially subjected to harpoon attempts, 1.2 would be expected to be a Makah U&A whale and 1.4 would be expected to be OR-SVI whales. These numbers are roughly one-third to one-half of those expected under Alternative 4, and are substantially lower than the 8 to 11 whales expected under Alternatives 2 and 3.

For the reasons described under Alternative 2, it is unclear what effect approaches and unsuccessful harpoon attempts would have on whale distribution. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed hundreds of gray whales over several years with no major changes apparent in gray whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Also, many new whales are seen in the Makah U&A and OR-SVI every year and there is significant interchange with whales from other adjacent areas in the PCFG range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

Change in Numbers - Summary

Compared to the No-action Alternative, in which no Makah U&A or OR-SVI whales are likely to be killed by hunting, Alternative 5 represents a potential decrease in the number of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). The 32 to 33 whales approached under Alternative 5 would be roughly 65 percent lower than the number approached under Alternatives 2 and 3, while the number of harpoon attempts under Alternative 5 would be 81 to 97 percent lower, a substantial decrease. Under current conditions, the number of whales approached under Alternatives 4 and 5 would be similar, however almost twice as many OR-SVI and Makah U&A whales would be subjected to unsuccessful strike attempts under Alternative 4 as Alternative 5, on average. As with Alternatives 2, 3, and 4, it is likely that the number of PCFG whales would decrease, although any decrease would be less than under Alternatives 2, 3, and 4 because fewer PCFG whales would likely be killed under Alternative 5 than under Alternatives 2, 3, and 4. Under Alternative 5, the number of PCFG whales killed would be so small (0.25 per year) that

the removal of whales would be unlikely to have an effect on the number of whales in the Makah U&A and OR-SVI survey areas over time.

As with Alternatives 2, 3, and 4, it is most likely that gray whales would continue using these survey areas during the summer months because: (1) under Alternative 5, the PCFG mortality limit is more restrictive than the bycatch formula used in Alternative 2 (and the IWC analysis) by its treatment of struck and lost whales (Table 4-1), and the IWC analysis shows that PCFG whales would remain viable with a Makah hunt; (2) PCFG whales are dense and abundant in the OR-SVI area; (3) PCFG whales are highly mobile within the PCFG range; (4) there are many new and returning whales available to replace killed whales; and (5) gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area.

4.4.3.5.5 Welfare of Individual Whales

As discussed in Subsection 4.1, Introduction, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 5 and the No-action Alternative, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 5 the Makah Tribe could take up to 24 whales from the 980 catch limit.

A major difference between Alternative 5 and the No-action Alternative is in the number of gray whales that might be disturbed by vessel approaches and unsuccessful harpoon attempts. Assuming that Makah hunters could embark on hunting trips during 22 days per year, it is possible that 122 gray whales might be approached per year and 30 of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.5, Alternative 5) (Table 4-10). The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters. Some of the whales approached could be subsequently encountered during a hunt by Chukotkan Natives (which typically occur during the summer and fall months), so there is a greater potential for increased disturbance under Alternative 5 compared to the No-action Alternative. However, this increased risk is extremely low; the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. In addition, an unsuccessful harpoon attempt—the most severe form of disturbance aside from struck-and-lost whales—would still be limited to 30 whales, which is a very small fraction (0.2 percent) of the entire ENP stock. This would result in roughly the same level of impact as Alternatives 2 and 3, but approximately 10 times the impact expected under Alternative 4.

Like Alternatives 2, 3, and 4, the proportion of whales struck and lost could be greater in a Makah hunt under Alternative 5 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one percent of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 5, but this alternative includes a potential of one whale struck and lost for four whales harvested. The proportion of whales struck and lost under Alternative 5 could also be greater than the proportion in a Chukotka Native hunt because seasonal restrictions on the Makah hunt under Alternative 5 could result in hunts occurring in rough weather and sea conditions. Hunting under unfavorable conditions could reduce the accuracy of the hunters and make it more difficult to successfully land a killed whale (thus increasing the proportion of whales struck and lost).

Whales killed with a rifle in a Makah hunt under Alternative 5 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, a whale's time to death under Alternative 5 would be the same as under Alternatives 2, 3, and 4, and the same or less compared to the No-action Alternative.

4.4.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area (coastal portion of the Tribe's U&A), hunting season (December 1 through May 31) and hunting methods. In contrast to Alternative 2, Alternative 6 would have different limits on strikes. Under Alternative 2, there would be a limit of seven strikes per year, while under Alternative 6 there would be a limit of 7 strikes over a 2-year period, or 3.5 strikes per year on average. Also, under Alternative 6, a harvested whale would only count against the PCFG limit if it met the definition of a PCFG whale (i.e., it was sighted in at least 2 years in the PCFG seasonal range). Like Alternatives 3, 4, and 5, Alternative 6 would differ from Alternative 2 in that it would include a limit on the total mortality—including struck and lost—of PCFG whales (1.8 whales/year, using current estimates). The maximum number of whales that could be killed would be four in a single year, seven over 2 years, and 3.5 per year on average. During any 6-year period, up to 21 whales might be harvested, struck, or struck and lost. For this analysis, we assume that whales that are struck will die. As many as 353 whales may be approached by whale hunting vessels in any one year and up to 21 whales may be exposed to unsuccessful harpoon attempts. With an annual average of up to 3.5 whales likely being harvested, there could be up to 56 rifle shots fired or 11 grenade explosions per year. Given the limited number of likely hunting days available under Alternative 6, the Tribe might

not be able to harvest the full number of whales allowed. Finally, Alternative 6 would differ from Alternative 2 in the regulatory regime adopted, in particular the waiver of the take moratorium and implementing regulations would last only 10 years and permits would be issued for a shorter term (3 years instead of 5). It is not possible to predict whether they would be replaced with a new waiver, regulations, and permits or what, if any, the new terms would be. Therefore, the analysis for Alternative 6 considers hunt activities lasting only over a 10-year period.

4.4.3.6.1 Change in Abundance and Viability of the ENP Gray Whale Stock

Like Alternatives 2 through 5, the potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 6 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1, Introduction, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the other alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 6 as under the No-action Alternative. If a Makah hunt for 21 whales over 6 years resulted in a higher level of stress-related impacts than would occur if those 21 whales were harvested in a Chukotkan hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting 21 whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 6 would represent an increase in mortality of at most 7 gray whales over the 2 remaining years of the catch limit (2024 to 2025) (3.5 struck whales per year times 2 years) compared to the No-action Alternative. Because 7 whales are a tiny fraction of the overall ENP gray whale stock (less than 0.1 percent), the increase in mortalities under Alternative 6 would be extremely unlikely to affect gray whale viability compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 6 has the potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales, the best available information indicates that the PCFG would still be viable with a hunt under Alternative 6, so there is no reason to believe that this alternative would have deleterious impacts on the ENP stock as a whole.

4.4.3.6.2 Change in Abundance and Viability of the WNP Gray Whale Stock

There are very limited data for WNP whales in the action area, but the available sighting data (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) suggest that WNP

whales could be encountered in the vicinity of the Makah U&A during much of the hunting season under Alternative 6, perhaps with the exception of early May to late December. Based on modeling inn Moore et al. (2023), the estimated risk of approaching WNP gray whales annually and over 6 years is the same as under Alternatives 2 and 3. Assuming that all harpoon attempts are made each year, between 0.17 and 0.25 WNP gray whales may be subjected to unsuccessful harpoon attempts annually (Table 4-12). Therefore, Alternative 6 would result in increased risk to WNP gray whales compared to the No-action Alternative and Alternative 4, and less risk (especially in terms of strikes and attempted strikes) compared to Alternatives 2, 3, and 5.

There is limited data on how whales would react to unsuccessful harpoon attempts, but the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., ranging from a subtle to overt response resulting in a potential temporary change in behavior). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels.

While the chances of killing a WNP whale are low, even over a 6-year period, the loss of WNP whales, particularly reproductive females, from this small stock could be a conservation concern depending on the number lost and the time period over which such losses occurred. To mitigate for the possibility of a Makah hunt killing a WNP whale, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed. Procedures for photographing any whale that is landed would make it likely a WNP whale would be identified if it were landed. If a WNP whale were struck and lost, it is possible, though not certain, it could be identified.

4.4.3.6.3 Change in Abundance and Viability of PCFG Whales

Compared to the No-action Alternative, Alternative 6 could reduce the abundance of PCFG gray whales, which could potentially affect the viability of the PCFG. As described in Subsection 4.1.6, Alternative 6 and Table 4-1, the current maximum number of PCFG whales that could be killed under Alternative 6 would be 3.5 whales per year. However, it is more likely that an average of 0.96 PCFG whale per year might actually be killed (and 5.7 whales over 6 years) given the high proportion of non-PCFG whales present in the Makah U&A during the spring portion of the hunting season when the Tribe is most likely to hunt. The annual average number is roughly one-half that expected under Alternatives 2 and 3, almost twice as Alternative 4, and almost 4 times higher than that expected under Alternative 5.

If one PCFG whale were killed in a year, it would represent a 0.5 percent reduction in the current abundance estimate of 212 PCFG whales (Harris et al. 2022). Compared to the No-action Alternative,

this would represent a small decrease in abundance during the year in which PCFG whales were removed. Over time, it is uncertain whether or to what extent the death of one PCFG whale per year might decrease the abundance of the PCFG. During the years 2008 to 2017, there were 12.3 new recruits on average, 7.9 (64 percent) of which were not identified as calves (Calambokidis et al. 2019). At the current rate of recruitment, the PCFG abundance trend appears to be stable. It is possible that external recruits could increase, compared to the No-action Alternative, as a result of the removal of one PCFG whale, in which case the abundance of the PCFG could remain at its current level.

In contrast to the No-action Alternative, Alternative 6 could reduce the numbers of PCFG whales and potentially affect the PCFG's viability. As described above, the reduction under Alternative 6 would be about half that expected under Alternative 2, the same as under Alternatives 3 and 4, and 7 times greater than under Alternative 5. The IWC Scientific Committee's analysis suggests the PCFG would remain viable with a hunt under Alternative 6. As described in Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales, the IWC's Scientific Committee evaluated the Makah hunt proposal (Alternative 2) using models with a 100-year time horizon. The committee's conclusion indicates that the PCFG would be viable as long as the hunt included the Tribe's bycatch formula to limit the strikes on PCFG whales and annual monitoring was conducted to assess availability of PCFG whales in the Makah hunt. The committee's modeling used the Tribe's bycatch formula which, under population parameters at the time, yielded a bycatch limit of 3.0 PCFG whales per year. That value is much greater than the number of PCFG whales likely to be killed under Alternative 6 (i.e., one whale per year), which includes a PCFG mortality limit that is more restrictive than the bycatch formula in Alternative 2 and the IWC analysis, indicating that the PCFG would still be viable with a hunt under Alternative 6. If the requisite monitoring indicated a higher availability of PCFG whales, then the IWC would likely reassess its conclusions via a new implementation review (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates; IWC Implementation Review of PCFG Gray Whales).

For the reasons described under Alternative 2, it is unclear how whale distribution would be affected by hunt-related approaches and unsuccessful harpoon attempts. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed scores of gray whales over several years with no major changes apparent in whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in other areas in the PCFG range, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the PCFG range every year and there is

significant interchange among survey areas within this range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

If hunting in the coastal portion of the Makah U&A did cause a change in distribution, it is likely that whales would shift to using adjacent areas—especially the Strait of Juan de Fuca portion of the Makah U&A and southern Vancouver Island—because those areas already have high rates of interchange with the proposed hunt area. Also, because hunting activities under Alternative 6 would end prior to the June through November feeding period, it is possible that PCFG whales might only temporarily avoid the coastal portion of the Makah U&A given that there would be 6 consecutive months with no hunting-related activities. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area. Thus, available information indicates that, like Alternatives 2 through 5, gray whale distribution and habitat use under Alternative 6 would not change appreciably compared to the No-action Alternative.

4.4.3.6.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

Compared to the No-action Alternative, Alternative 6 would result in gray whales being hunted in the coastal portion of the Makah U&A, which is a subset of the OR-SVI survey region and situated within the migration corridor of the entire ENP herd of gray whales. Such hunting could reduce the numbers of gray whales in these areas during the summer feeding period either as a result of whales being killed or as a result of feeding whales changing their distribution during the summer feeding period.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.6, Alternative 6 and Table 4-12, the current maximum number of OR-SVI or Makah U&A whales killed would be 3.5 per year. However, it is more likely that an average of 0.92 OR-SVI whale or 0.82 Makah U&A whale might actually be killed each year given the presumed proportional presence of these whales in the proposed hunt area during the March through May time period when the Tribe is most likely to hunt. The likely number of these whales killed is approximately three to four times higher than those expected under Alternative 5, roughly twice those expected under Alternative 4, and about half the expected number under Alternatives 2 and 3.

For the reasons described above under Alternative 2, sighting data since 1996 demonstrate that many new whales are seen each year in the OR-SVI and Makah U&A areas, and of these whales, variable but large numbers are seen (or never seen) again. Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is very likely

that if up to one Makah U&A or OR-SVI whale were removed every year under Alternative 6, it would be replaced with another Makah U&A or OR-SVI whale. In that case, Alternative 6 would not result in a decrease in the total number of gray whales using the Makah U&A and OR-SVI survey areas during the summer feeding period, compared to the No-action Alternative. There is nevertheless a possibility that hunting under Alternative 6 might reduce the total number of whales using the OR-SVI area. If that reduction occurred, the minimum abundance estimate for PCFG whales would decline, causing a decrease in the calculated PCFG mortality limit under Alternative 6. Also, while an ongoing hunt could reduce the number of whales returning to the Makah U&A and OR-SVI areas, it seems likely that such whales would be replaced in subsequent years given that an average of 7 newly-seen Makah U&A whales and 13 newly-seen OR-SVI whales are seen again in a subsequent year. If for some reason new whales (that become returning whales) did not take the place of killed returning whales in subsequent years, the calculated PCFG mortality limit would decrease over time as well. As an additional comparison, using the most recent minimum abundance estimate of 190 OR-SVI whales, an Rmax of 6.2 percent, and a recovery factor of 0.5 (based on the 2022 SAR value for PCFG whales; Carretta et al. (2023)), yielded a PBR of 2.9 OR-SVI whales. This value is more than triple the number of Makah U&A or OR-SVI whales likely removed under this alternative.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

During the likely hunting season (March through May) under Alternative 6, annually about 83 whales approached during hunt activities would be expected to be Makah U&A whales, while 93 would be expected to be OR-SVI whales (Subsection 4.1.6, Alternative 6) (Table 4-12). Thus, of the 353 whales potentially approached, approximately 23 percent (on average) would be Makah U&A whales and 26 percent would be OR-SVI whales. Of the 21 whales potentially subjected to harpoon attempts, 4.9 would be expected to be Makah U&A whales and 5.5 would be expected to be OR-SVI whales. These numbers are approximately three to four times higher than those expected under Alternative 5, roughly the same as those expected under Alternative 4, and about half the expected number of harpoon attempts but the same number of approaches as under Alternatives 2 and 3.

For the reasons described under Alternative 2, it is unclear what effect approaches and unsuccessful harpoon attempts would have on whale distribution. Whale response to approaches is likely to be temporary (minutes or hours), and Chukotkan hunters have approached, struck, and killed hundreds of gray whales over several years with no major changes apparent in gray whale numbers, distribution, or habitat use in that area. The availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas within the PCFG range. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from

summer-feeding whales. Also, many new whales are seen in the Makah U&A and OR-SVI every year and there is significant interchange with whales from other adjacent areas in the PCFG range. Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.

Change in Numbers - Summary

Compared to the No-action Alternative in which no Makah U&A or OR-SVI whales are likely to be killed by hunting, Alternative 6 represents a potential decrease in the number of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). The number of whales approached (83 to 93) under Alternative 6 would be the same as under Alternatives 2 and 3, and much higher than the 29 to 32 whales expected under Alternatives 4 and 5. The number of OR-SVI and MUA whales subjected to harpoon attempts (5 to 6) under Alternative 6 would be twice as under Alternative 4, about half the number expected under Alternatives 2 and 3, and much higher than the number expected under Alternative 5. As with Alternatives 2 through 5, it is likely that the number of whales would decrease. As with Alternatives 2 through 5, it is most likely that gray whales would continue using these survey areas during the summer months because: under Alternative 6, the PCFG mortality limit is more restrictive than the bycatch formula used in Alternative 2 (and the IWC analysis) by its treatment of struck and lost whales and subtraction of human-caused mortality (Table 4-1), and the IWC analysis shows that PCFG whales would remain viable with a Makah hunt; PCFG whales are dense and abundant in the OR-SVI area; PCFG whales are highly mobile within the PCFG range; there are many new and returning whales available to replace killed whales; and gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area.

4.4.3.6.5 Welfare of Individual Whales

As discussed in Subsection 4.1, Introduction, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 6 and the No-action Alternative, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 2 the Makah Tribe could take up to 21 whales from the 980 catch limit.

A major difference between Alternative 6 and the No-action Alternative is in the number of gray whales that might be disturbed by vessel approaches and unsuccessful harpoon attempts. Assuming that Makah hunters could embark on hunting trips during 60 days per year, it is possible that 353 gray

whales might be approached per year and 21 of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.6, Alternative 6) (Table 4-12). The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters. Some of the whales approached could be subsequently encountered during a hunt by Chukotkan Natives (which typically occur during the summer and fall months), so there is a greater potential for increased disturbance under Alternative 6 compared to the No-action Alternative. However, this increased risk is extremely low; the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. In addition, an unsuccessful harpoon attempt—the most severe form of disturbance aside from struck-and-lost whale—would still be limited to 21 whales, which is a very small fraction (0.1 percent) of the entire ENP stock. This would result in a smaller level of impact than Alternatives 2, 3, and 5 but approximately seven times the impact expected under Alternative 4.

Like Alternatives 2 through 5, the proportion of whales struck and lost could be greater in a Makah hunt under Alternative 6 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 6, but this alternative includes a potential of up to four whales harvested or struck and lost before the four-strike limit would be reached. The proportion of whales struck and lost under Alternative 6 could also be greater than the proportion in a Chukotka Native hunt because seasonal restrictions on the Makah hunt under Alternative 6 could result in hunts occurring in rough weather and sea conditions. Hunting under unfavorable conditions could reduce the accuracy of the hunters and make it more difficult to successfully land a killed whale (thus increasing the proportion of whales struck and lost).

Whales killed with a rifle in a Makah hunt under Alternative 6 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, a whale's time to death under Alternative 6 would be the same as under Alternatives 2 through 5, and the same or less compared to the No-action Alternative.

4.4.3.7 Alternative 7, Composite Alternative – Preferred

Alternative 7 contains many of the same provisions regarding hunt location and methods as the other action alternatives but differs in two key ways:

(1) It relies on an alternating-year hunt schedule whereby winter/spring hunts would begin in December of the same calendar year that summer/fall hunts occur, and summer/fall hunts would begin in the next

calendar year following the end of a winter/spring hunt. The result is that there is a 1-month gap (November) between the end of a summer/fall hunt and the start of a winter/spring hunt, and then a 13-month gap between the end of a winter/spring hunt and the start of the next summer/fall hunt, and so on. Therefore, there would be up to five winter/spring hunts and five summer/fall hunts over the 10-year waiver period.

(2) It is evaluated (a) with and without low abundance thresholds for ENP gray whales, and (b) with a static low abundance threshold for the PCFG, below which hunting would cease. For our analysis, we have considered four potential scenarios: no low abundance threshold for the ENP stock, a threshold of 11,000 whales, a threshold of 16,000 whales, and a threshold of 18,000 whales. The thresholds are analyzed as Alternatives 7(a), 7(b), and 7(c), respectively. If an ENP abundance threshold is implemented and a cease-hunt were triggered by that threshold, hunting could resume once the ENP population abundance estimate increased above the selected threshold. All of the sub-alternatives include two low-abundance thresholds for the PCFG: hunting would cease if either (1) the most recent or forecasted abundance estimate for the PCFG fell below 192 whales, or (2) the most recent or forecasted minimum abundance estimate for the PCFG fell below 171 whales. If either of these thresholds are triggered, hunting would cease until the abundance and minimum abundance estimates for the PCFG increased above their respective thresholds.

Under Alternative 7, in order to conduct hunting and training activities in the winter/spring months, the Tribe would need to obtain requisite authorization for the potential incidental take of WNP gray whales (due to the chance of taking such a whale in winter/spring hunts). If they do not obtain an ITA for WNP gray whales, they would only be authorized to hunt and train in the summer/fall months. Also, if the Tribe were to obtain such authorization and subsequently struck a WNP gray whale during a winter/spring hunt (a highly unlikely event), then all hunting would cease unless and until additional hunt restrictions were imposed to prevent any additional WNP gray whale strikes. Such a restriction could include allowing only summer/fall hunts. For our analysis, we assume that the Tribe will either receive permits to hunt in all five winter/spring hunt seasons during the waiver period or that they will not receive permits for winter/spring hunts for the entirety of the 10-year waiver period, in which case only five summer/fall hunts would take place. It is, however, possible that the Tribe could receive permits for some of the winter/spring hunt years but not others. In this case, the impacts would be between those occurring if there were no winter/spring hunts and if there were five winter/spring hunts.

Under Alternative 7, the Tribe would utilize the same hunt area and overlap with the same winter/spring hunting seasons (i.e., all or portions of the December 1 through May 31 period) in alternating years. Like Alternatives 3 through 6, Alternative 7 also includes provisions to limit the number of struck and lost whales and measures to count struck and lost whales against the PCFG mortality limits. Alternative 7 also

incorporates a similar, but shorter, summer/fall hunting season in alternating years to that described under Alternative 4. This split-season hunt design was first proposed under Alternative 5 to limit the likelihood that tribal hunters would strike or otherwise harm a WNP gray whale during the winter/spring migration period. However, it has been modified under Alternative 7 to further limit potential impacts on WNP whales by restricting hunts to the summer/fall season every other year to avoid the WNP gray whale migration period. Finally, Alternative 7 incorporates the 10-year waiver period and shorter-duration permits that were proposed as additional precautionary measures under Alternative 6.

Table 4-1 summarizes the key hunting components associated with this alternative. Although these components have already been analyzed under Alternatives 2 through 6, to aid comparison we analyze them here in aggregate with the strike limits and other provisions described in Subsection 2.3.7, Alternative 7.

4.4.3.7.1 Change in Abundance and Viability of the ENP Gray Whale Stock

Like Alternatives 2 through 6, the potential direct and indirect mortality resulting from a whale hunt and hunt-related activities under Alternative 7 would be unlikely to change ENP gray whale stock abundance or viability compared to the No-action Alternative. As noted in Subsection 4.1.1.3, Potential Number of ENP and PCFG Whales Killed, the catch limit for the ENP gray whale stock set by the IWC would not change under this or any of the other alternatives; thus, the same number of ENP gray whales would likely be harvested over 6 years under Alternative 7 as under the No-action Alternative. If a Makah hunt for 12 whales over 6 years (2 harvested whales, on average, per year times 6 years) resulted in higher stress-related impacts than if those whales were harvested in a Chukotkan hunt under the No-action Alternative, the difference is unlikely to have an appreciable effect on the abundance and viability of the ENP gray whale stock as a whole. This is because the stress-related impacts associated with harvesting 12 whales over 6 years is likely to be minor in the context of the existing Chukotkan harvest level of 840 whales over 6 years.

If under the No-action Alternative the United States did not transfer unused portions of the catch limit to Russia, Alternative 7 would represent an increase in mortality of at most 5 gray whales over the 2 remaining years of the catch limit (2024 to 2025) (2.5 struck whales per year times 2 years) compared to the No-action Alternative. Because 5 whales are a tiny fraction of the overall ENP gray whale stock (0.03 percent), the increase in mortalities under Alternative 7 would be extremely unlikely to affect gray whale viability compared to the No-action Alternative.

If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 7 has the potential to affect the long-term viability of the ENP stock as a whole. However, as described in Subsection 4.4.3.7.3, Change in Abundance and Viability of PCFG Whales, the best available

information indicates that the PCFG would still be viable with a hunt under Alternative 7, so there is no reason to believe that this alternative would have deleterious impacts on the ENP stock as a whole.

In order to determine the impacts of allowing hunting to continue until the ENP stock reaches a particular low abundance threshold on the viability of the ENP gray whale stock, we analyze the hunt in terms of the proportion of the population that would be impacted by strikes, unsuccessful strike attempts, and approaches at each threshold. The maximum number of whales that could be killed over the 10-year waiver period (25 whales) represents 0.2% of the low abundance threshold under Sub-Alternatives 7(a) and 7(b) and 0.1% of the threshold under Sub-alternative 7(c). The maximum number of whales that might be subjected to unsuccessful harpoon attempts and training throws (150 whales, assuming that each strike attempt is made on a different individual) represents 1.4% of the threshold under Sub-alternative 7(a), 0.9% of the threshold under Sub-alternative 7(b), and 0.8% of the threshold under Sub-alternative 7(c). Finally, the maximum number of whales that may be approached over the waiver period (3,530 whales, assuming that every approach is made on a different individual) represents 32.1% of the threshold under Sub-alternative 7(a), 22.1% of the threshold under Sub-alternative 7(b), and 19.6% of the threshold under Sub-alternative 7(c) (Table 4-15).

Table 4-15. Percent of the ENP gray whale stock that may be killed, subjected to unsuccessful harpoon attempts, or approached over the 10-year waiver period at each of three low abundance thresholds analyzed as Sub-alternatives.[14]

Abundance Estimate (N)	Percent of the Population Killed[a]	Percent of the Population Subjected to Unsuccessful Harpoon Attempts[b]	Percent of the Population Approached[c]
11,000	0.23	1.36	32.09
16,000	0.16	0.94	22.06
18,000	0.14	0.83	19.61

a. These percentages represent precautionary estimates as they assume that the Tribe would utilize all 25 strikes over the course of the 10-year waiver period and that all strikes would result in the death of the whale struck.
b. These percentages represent precautionary estimates as they assume that the Tribe would utilize all 150 allowable unsuccessful strike attempts and training harpoon throws over the course of the 10-year waiver period and that each attempt would be made on a different individual.
c. These percentages represent precautionary estimates as they assume that the Tribe would utilize all 3,530 allowable approaches over the course of the waiver period and that each approach would be made on a different individual.

[14] Based on the most recent abundance estimate of 14,526 (Eguchi et al. 2023a), Alternative 7 with no abundance threshold falls within the range considered in this table.

It is difficult to estimate the probability of any of these three thresholds being triggered. In the 55 years since systemic research monitoring of the ENP gray whale population began in 1967, the abundance estimate has fallen below these threshold levels 0, 9, and 14 times, respectively. Because the threshold for Sub-alternative 7(a) represents the lowest known abundance (approximately 11,000 whales in 1971-1972) from which the population has recovered, there are no empirical data to determine when or if the population dropped below that threshold prior to 1967. Prior to the current abundance estimate of 14,526, the last time the abundance estimate dropped below 16,000 whales was during the 1992/1993 survey season, after the stock experienced a severe decline from the 1987/1988 estimate of 26,916 whales. The ENP stock increased the following year to 20,944 whales. Prior to the abundance estimates in recent years (2022 and 2023), the last time the abundance estimate for the ENP gray whale stock dropped below 18,000 whales was in the 2007/2008 survey season when the abundance of the stock was estimated at 17,820. Once again, the stock rebounded the next year to 21,210 whales.

While we cannot assign a probability of being triggered to any of the three thresholds analyzed here, we can qualitatively determine that the threshold of Sub-alternative 7(a) is the least likely of the three to be triggered, while the threshold of Sub-alternative 7(c) is the most likely to be triggered. Once the threshold has been triggered, hunting would cease until the abundance estimate increased above the threshold once again. This could result in several years during the waiver period in which no hunting would be allowed. Therefore, it is possible that fewer whales may be killed under Sub-alternative 7(c) than under Sub-alternative 7(b), and that fewer whales may be killed under Sub-alternative 7(b) than under Sub-alternative 7(a). However, as highlighted in Table 4-15, the impacts to the population under all three of the thresholds are expected to be minimal.

Therefore, as with Alternatives 2 through 6, it is reasonable to conclude that Alternative 7 and each of its sub-alternatives are unlikely to have a measurable effect on the abundance and viability of the ENP gray whale stock as a whole. This conclusion is consistent with a recent analysis by the IWC Scientific Committee, which concluded that the hunt management plan met the conservation objectives of the IWC, including ensuring that ENP gray whales (including the PCFG component) would remain at or above the level resulting in the highest net recruitment (IWC 2018a).

4.4.3.7.2 Change in Abundance and Viability of the WNP Gray Whale Stock

Like Alternative 4, the timing of summer/fall hunts (July through October) under Alternative 7 is intended to completely avoid times when a WNP gray whale might be present in the hunt area. Available sighting data suggest that WNP whales could be encountered in the vicinity of the Makah U&A (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) during much of the winter/spring hunting season under Alternative 7, perhaps with the exception of early May and late

December. During winter/spring hunts under Alternative 7, the probability of an individual encounter being a WNP gray whale is very remote (0.8% to 1.2%; Moore et al. 2023) and would be similar to other action alternatives allowing for springtime hunts (i.e., Alternatives 2, 3, 5, and 6).

There is limited data on how whales would react to unsuccessful harpoon attempts, but the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., ranging from a subtle to overt response resulting in a potential temporary change in behavior). Based on these observations, it is likely that any changes in gray whale behavior due to unsuccessful strike attempts or training harpoon throws would be short-term in nature and would not have lasting effects on the behavior of targeted or nearby whales such that they would begin to avoid vessels.

Additionally, in contrast to all other action alternatives, Alternative 7 would impose a precautionary measure requiring hunting to cease if NMFS determines that a WNP gray whale had been struck. Therefore, Alternative 7 and its sub-alternatives are not expected to have a detectable impact on the abundance or viability of WNP whales. This conclusion is consistent with a recent analysis by the IWC Scientific Committee, which concluded that WNP gray whales would remain viable under the hunt management plan (Alternative 7, Composite alternative – Preferred), which meets the IWC's conservation objectives for WNP gray whales (in addition to ENP and PCFG whales) (IWC 2018a). Implementing a low abundance threshold for the ENP stock may further reduce the likelihood of encountering a WNP gray whales. Due to the relative likelihood of triggering the respective thresholds in Alternatives 7(a), 7(b), and 7(c), Sub-alternative 7(c) could result in the lowest relative risk to WNP gray whales, with Sub-alternative 7(a) posing the highest relative risk. This reduced risk would result from a reduction in the number of hunting years when the low abundance threshold was triggered during the waiver period.

4.4.3.7.3 Change in Abundance and Viability of PCFG Whales

During winter/spring hunts under Alternative 7, encounter rates and impacts on PCFG whales would be similar to those experienced under other springtime hunt Alternatives (2, 3, 5, and 6). During summer/fall hunts, impacts on PCFG whales would be similar to the summer/fall hunt under Alternative 4, except that female PCFG whales would be subject to harvest under Alternative 7. The average number of PCFG whales killed under Alternative 7 would be 1.4 whales per year (based on halving, given the alternating hunt seasons, the estimated 0.8 killed in winter/spring hunts and the maximum of 2.0 killed in summer/fall hunts; see Table 4-13), which is less than half the estimated PBR level of 3.5 whales per year (Carretta et al. 2023) and slightly more than one-tenth the number of whales estimated to recruit to the PCFG each year (10.4 whales; Harris et al. 2022). Given these

numbers, it is unlikely that the death of one to two whales per year would result in a detectable decrease in the abundance of the PCFG.

The overall impact on the viability of the PCFG from removing 1.4 PCFG whales per year under Alternative 7 would be intermediate to the other alternatives, i.e., lower than the approximately 2 whales under Alternatives 2 and 3, and slightly higher than the 0 to 1 whales under the No-action Alternative and Alternatives 4, 5, and 6 (see Table 4-14). The annual number of PCFG whales estimated to be approached (up to 142) would be the same as under Alternatives 2, 3, and 6 but higher than under the No-action Alternative and Alternatives 4 and 5; however, the impacts of these approaches are likely to be minor and temporary. In addition, under Alternative 7, the number of PCFG whales subjected to unsuccessful harpoon attempts (5-12) under Alternative 7 is similar to or lower than the under Alternatives 2 through 6. In contrast to the other action alternatives that rely on annual PCFG harvest or mortality limits, Alternative 7 would impose: (1) a mortality limit set at 16 PCFG whales over 10 years, no more than eight of which may be females; and (2) a stop-hunt trigger if the most recent or forecasted abundance estimate of the PCFG falls below 192 whales or the most recent or forecasted minimum abundance estimate falls below 171 whales. These safeguards—in addition to the small number of whales potentially killed relative to the informational PBR and the recruitment levels noted above—are expected to ensure the viability of the PCFG over time. This conclusion is consistent with a recent analysis by the IWC Scientific Committee which concluded that the PCFG of gray whales would remain viable under the hunt management plan specified by Alternative 7 (IWC 2018a). For the reasons discussed under Alternatives 2 through 6, available information indicates that gray whale distribution and habitat use under Alternative 7 would not change appreciably compared to the No-action Alternative.

It is possible that the impacts to the PCFG could be further reduced if the Tribe does not receive the requisite authorization to conduct one or more winter/spring hunts or if a low abundance threshold for the ENP stock is implemented and triggered during the waiver period, reducing the number of years during which hunting and hunt-related activities would be allowed to take place. Similar to the risk to WNP whales, due to the relative likelihood of triggering the respective thresholds in Alternatives 7(a), 7(b), and 7(c), Sub-alternative 7(c) could result in the lowest relative impact to PCFG gray whales, with Sub-alternative 7(a) posing the highest relative impact.

In 2019 the ENP population began experiencing a higher than normal level of strandings, leading NMFS to declare a UME for the stock (see Subsection 3.4.3.1.7, Strandings). As of October 2023, only two known PCFG animals have died during the current UME; however, it is not clear whether they were part of the UME (J. Calambokidis pers. comm., Cascade Research Collective, October 23, 2023).

Although the abundance estimate for the ENP stock demonstrated a 46% decline from the 2015/2016 to 2022/2023 abundance surveys, the PCFG abundance estimate has not experienced a proportional decline from pre-UME levels to 2020 (Harris et al. 2022). The abundance of the PCFG is considered to be stable.

4.4.3.7.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Survey Areas

As noted in Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales, the most recent estimates of the number of whales that have been sighted in the Makah U&A and OR-SVI survey areas in two or more years are 119 and 199, respectively (Harris et al. 2022). During winter/spring hunts under Alternative 7, encounter rates and impacts on whales would be similar to those experienced under other spring-time hunt Alternatives (2, 3, 5 and 6). During summer/fall hunts, impacts on Makah U&A and OR-SVI whales would be similar to the summer/fall hunt under Alternative 4, except that female whales would be subject to harvest under Alternative 7. The average number of Makah U&A and OR-SVI whales killed under Alternative 7 would be 1.4 whales per year (based on the average of 0.8 whales in winter/spring hunts and 2 whales in summer/fall hunts for OR-SVI, and the average of 0.7 whales in winter/spring hunts and 2 whales in summer/fall hunts for the Makah U&A; see Table 4-13). For Makah U&A whales, this level of removal is 12-31% of the 6.5 new whales seen within the Makah U&A each year (Harris et al. 2022). For OR-SVI whales, this level of removal is 6-16% of the 12.7 new whales sighted in the OR-SVI each year (Harris et al. 2022). Given these percentages, and a likely level of annual recruitment into these areas (Subsection 3.4.3.4.1, PCFG Population Structure [PCFG Genetics and Recruitment]), it is uncertain whether the death of one to two whales per year would result in a detectable decrease in numbers of whale repeatedly sighted in the Makah U&A and OR-SVI survey areas.

The overall impact on the abundance from removing 1.4 Makah U&A or OR-SVI whales per year under Alternative 7 would be intermediate to the other alternatives (i.e., lower than the three to five whales under Alternatives 2, 3, 5 and 6, and slightly higher than the zero to one whales under the No-action Alternative and Alternative 4, respectively (see Table 4-14)). The annual number of Makah U&A and OR-SVI whales estimated to be approached (up to 142) would be higher than the other alternatives; however, the impacts of these approaches are likely to be minor and temporary. In addition, under Alternative 7, the annual number of Makah U&A and OR-SVI whales estimated to be subjected to unsuccessful harpoon attempts (4 to 12) are similar to or lower than the numbers analyzed for action Alternatives 2 through 6. Also, in contrast to the other action alternatives that rely on annual PCFG harvest or mortality limits, Alternative 7 would impose: (1) a mortality limit set at 16 PCFG whales over 10 years, no more than eight of which may be females; and (2) a stop-hunt trigger if the

most recent or forecasted abundance of the PCFG falls below 192 whales or the most recent or forecasted minimum abundance falls below 171 whales. A low abundance threshold for ENP gray whales could also reduce the number of years in which hunting and hunt-related activities could take place during the waiver period. These safeguards would also apply to Makah U&A and OR-SVI whales given that they belong to the PCFG.

In 2019, the ENP population began experiencing a UME (see Subsection 3.2.2, Strandings). As of October 2023, only two known PCFG animals have died during the current UME, and they had both been sighted previously in the Makah U&A and OR-SVI regions (Calambokidis et al. 2019; J. Calambokidis pers. comm., Cascade Research Collective, October 23, 2023). There is no evidence to suggest that the current UME is having a disproportionate impact on the PCFG (or whales in the Makah U&A and OR-SVI subareas) have occurred relative to the entire ENP stock.

Change in Numbers as a Result of Whales Being Killed

As described in Subsection 4.1.7, Alternative 7 and Table 4-13, the current maximum number of OR-SVI or Makah U&A whales killed would average 2.5 per year (3 in winter/spring hunt years and 2 in summer/fall hunt years). However, it is more likely that an average of 1.4 OR-SVI whales or 1.4 Makah U&A whales might actually be killed each year (and roughly 14 whales of each group over 10 years) given the presumed proportional presence of these whales in the proposed hunt area during the March through May time period when the Tribe is most likely to hunt during winter/spring hunt years and assuming the Tribe utilizes both strikes in summer/fall hunt years.

It is uncertain whether OR-SVI whales or Makah U&A whales killed under Alternative 7 would be replaced in the same year in which they were killed or in subsequent years because of the uncertainty regarding the recruitment mechanism and rate of recruitment into the PCFG and the uncertainty regarding the distribution of both PCFG and non-PCFG whales in these survey areas during the summer months. (As described above in Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas, whales in these survey areas during the summer months include both whales that have visited the PCFG area in more than 2 years [PCFG whales] and whales that visit only once and are never sighted again [transient, non-PCFG whales]). Harris et al. (2022) have analyzed the most recent sighting data for PCFG whales. From 1996 through 2020 there have been 645 uniquely identified whales sighted in the OR-SVI area from June through November. An average of 112 whales are sighted each year, and of these, an average of 24 whales are newly seen each year (ranging from 8 to 56 whales, and 11 whales for 2020). The annual average number of whales newly seen and then seen again in a subsequent year ("returning" whales) in the OR-SVI area for 1996 to 2019 is 13 whales (ranging from 3 to 37 whales, and 10 whales for 2019, the most recent year reported). In the Makah

U&A, 356 uniquely identified whales have been sighted from 1996 through 2020 in the June through November time period. An average of 33 whales are sighted each year, and of these, an average of 14 whales are newly seen each year (ranging from 1 to 29 whales, and 18 whales for 2020). The annual average number of whales newly seen and then seen again in a subsequent year for 1996 to 2019 is 7 whales (ranging from 2 to 18 whales, and 11 whales for 2019, the most recent year reported). These sighting data, while subject to the survey limitations described in Subsection 4.4.3.7.3, Change in Abundance and Viability of PCFG Whales, demonstrate that many new whales are seen each year in these OR-SVI and Makah U&A areas, and of these whales, variable but large numbers are seen (or never seen) again.

Based on the annual average number of newly seen whales in the Makah U&A and OR-SVI survey areas (14 and 24 whales, respectively), it is possible that if an average of 1.4 Makah U&A or OR-SVI whales were removed under Alternative 7, they would be replaced during that year with new Makah U&A or OR-SVI whales. In that case, Alternative 7 would not result in a decrease in the total number of gray whales using the Makah U&A and OR-SVI survey areas during a given summer feeding period, compared to the No-action Alternative.

Over time, an ongoing hunt could reduce the abundance of PCFG whales and thereby reduce the number of whales using the Makah U&A and OR-SVI areas. The extent to which a hunt would reduce abundance over time would depend on the rate at which external recruits would replace killed whales, similar to the discussion above for change in numbers of PCFG whales (Subsection 4.4.3.7.3, Change in Abundance and Viability of PCFG Whales). It seems likely that if the killed Makah U&A or OR-SVI whales were returning whales, they would be replaced in subsequent years with another returning whale, based on the average number of newly seen whales in the Makah U&A and OR-SVI survey areas that are then seen again in a subsequent year (7 and 13 whales, respectively). It is also possible that the removal of PCFG whales would result in the presence of more non-PCFG whales using the Makah U&A and OR-SVI during the summer months (i.e., whales that appear in the area in only one year and do not return again). This is uncertain, however, so the analysis does not assume it would occur.

Change in Numbers as a Result of Change in Distribution of Feeding Whales

Alternative 7 limits the number of approaches for PCFG whales to 142 per year. In estimating the maximum potential impact to feeding whales, we assume that the Tribe will utilize all allowable approaches and that each approach will be taken on a unique individual. Therefore, the estimated number of PCFG, OR-SVI and MUA whales that may be approached annually under Alternative 7 is up to 142 whales. This is a precautionary estimate as it is unlikely that these assumptions will be met. It

is unknown whether this level of disturbance would cause whales to change their distribution (i.e., avoid the hunt area), although evidence suggests that any changes would be temporary and minor (see Subsection 3.4.3.6.6, Vessel Interactions).

Some aspects of approaches by Makah whale-hunting canoes would cause a disturbance similar to that observed from approaches of motorized whale-watching vessels or vessels used for photo identification work. It is known that when approached by vessels some gray whales exhibit temporary behavioral responses, such as changing course, swimming speed, and respiratory patterns (Subsection 3.4.3.6.6, Vessel Interactions). However, there is no evidence that gray whales have altered their distribution or habitat use in lagoons in their winter range in response to the presence of whale-watching vessels. While some researchers have suggested that gray whales may have altered their migration distance from shore in response to vessels and other human activity, other researchers concluded there is no evidence suggesting such a relationship (see Subsection 3.4.3.6.6, Vessel Interactions). Thus, whale response to approaches is likely to be temporary (minutes or hours).

It is less certain whether the intensity of unsuccessful harpoon attempts would result in more than a temporary disturbance of Makah U&A or OR-SVI whales and cause them to avoid portions of the Makah U&A or OR-SVI either for a short period (days to weeks) or a longer period (for example, over a period of years). As described in Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements, the availability of prey may be the factor most strongly affecting gray whale numbers in particular feeding areas. If prey is available in the Makah U&A or OR-SVI, hunting by the Makah Tribe might not result in either a short- or long-term response from summer-feeding whales. Many new whales are seen in the Makah U&A and OR-SVI every year, and there is significant interchange with whales from other adjacent areas in the PCFG range (Subsection 3.4.3.4.3, PCFG Abundance and Trends). Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area. The example of gray whales hunted by Chukotka Natives may be instructive in trying to predict whether there would be a change in gray whale use of the Makah U&A and OR-SVI survey areas. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area.

Spatially, the OR-SVI area is a relatively small part (approximately 11 percent) of the entire PCFG range, but the area attracts a disproportionately high percentage (approximately 71 percent; Calambokidis et al. 2019) of PCFG whales sighted in a given year. Also, PCFG whales exhibit extensive movements during a given year or from year to year, presumably searching for prey

(Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem, and Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). For example, Calambokidis et al. (2014) and (2019) estimated that over 60 percent of PCFG whales that had been sighted on 6 or more days were seen somewhere in the OR-SVI area and across a latitudinal range of greater than 30 nautical miles (i.e., roughly equivalent to the coastal portion of the Makah U&A) (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements). Therefore, it is reasonable to expect that other PCFG whales could move in and take the place of whales that leave the Makah U&A or OR-SVI areas in response to hunting. For example, PCFG whales feeding outside the OR-SVI survey areas (e.g., whales from west Vancouver Island) could take the place of whales removed from the OR-SVI, and PCFG whales feeding outside the Makah U&A (e.g., from southern Vancouver Island) could take the place of whales removed from the Makah U&A. In addition, if there are other feeding areas that are not subject to hunting disturbance, the whales can and may easily move to those other areas. Over time and with ongoing hunt-related disturbance, fewer whales might use the hunt area (which is just one portion of the Makah U&A and OR-SVI areas), but such abandonment might be offset to some extent by new whales that recruit to the PCFG and have not been exposed to such disturbance.

Change in Numbers - Summary

Compared to the No-action Alternative in which no Makah U&A or OR-SVI whales are likely to be killed by hunting, Alternative 7 represents a potential decrease in the number of whales using these survey areas during the summer period (especially if external recruits do not replace killed whales). The number of whales approached (142) under Alternative 7 would be higher than any other action alternative. The number of OR-SVI and Makah U&A whales subjected to harpoon attempts (8.3 and 8.1, respectively, on average) under Alternative 7 would be higher than under Alternatives 4, 5, and 6 but lower than under Alternatives 2 and 3. As with Alternatives 2 through 6, it is most likely that gray whales would continue using these survey areas during the summer months because (1) under Alternative 7, PCFG mortality limits and low abundance thresholds have been set as a precautionary measure to protect the population, and the IWC analysis shows that PCFG whales would remain viable with a Makah hunt; (2) PCFG whales are dense and abundant in the OR-SVI area; (3) PCFG whales are highly mobile within the PCFG range; (4) there are many new and returning whales available to replace killed whales; and (5) gray whales continue to return in large numbers to feeding areas where scores are actively hunted and killed each year (i.e., waters around Chukotka), suggesting that hunting will not cause them to abandon the PCFG feeding area.

4.4.3.7.5 Welfare of Individual Whales

As discussed in Subsection 4.1.1.3, Potential Number of ENP and PCFG Whales Killed, the number of gray whales that might be harvested from the ENP stock under all alternatives, including Alternative 7 and the No-action Alternative, would not change. It would remain at the existing IWC catch limit of 980 whales in a 7-year period, and no more than 140 whales in any one year. The difference is that under the No-action Alternative, the entire catch could be taken by Chukotka Natives, while under Alternative 7 the Makah Tribe could kill up to 17 whales over the 7-year period from the 980 whale catch limit.

A major difference between Alternative 7 and the No-action Alternative is in the number of gray whales that might be disturbed via vessel approaches and unsuccessful harpoon attempts. Under Alternative 7, it is possible that 353 gray whales might be approached per year, and an average of 15 of those whales subjected to unsuccessful harpoon attempts (Subsection 4.1.7, Alternative 7) (Table 4-13). (The number of whales approached does not include the number that might be approached by vessels other than those used by Makah hunters). Some of the whales approached could be subsequently encountered during a hunt by Chukotkan Natives (which would typically occur during the summer and fall months), so there is a greater potential for increased disturbance under Alternative 7 compared to the No-action Alternative. However, this increased risk is extremely low; the high ENP abundance reduces the likelihood that an individual whale will encounter both Makah and Chukotkan hunters. In addition, an unsuccessful harpoon attempt— the most severe form of disturbance aside from struck and lost whales—would still be limited to an average of 15 whales per year over 10 years, which is a very small fraction (0.1 percent) of the entire ENP stock.

The proportion of whales struck and lost could be greater in a Makah hunt under Alternative 7 than a Chukotka Native hunt under the No-action Alternative because the Chukotka Natives have more recent hunting experience. In recent years, the Chukotka Natives report that one percent of the whales struck in their hunt are lost. It is not possible to predict the proportion of whales that would be struck and lost in a Makah hunt under Alternative 7. The proportion of whales struck and lost under Alternative 7 in winter/spring hunts could also be greater than the proportion in a Chukotka Native hunt because seasonal restrictions on the Makah hunt in those years could result in hunts occurring in rough weather and sea conditions. Hunting under unfavorable conditions could reduce the accuracy of the hunters and make it more difficult to successfully land a killed whale (thus increasing the proportion of whales struck and lost).

Whales killed with a rifle in a Makah hunt under Alternative 7 could experience a shorter time to death than whales killed with a rifle in a Chukotka Native hunt because of the requirements proposed by the

Makah (such as minimum visibility) and because the Makah would use a higher caliber killing weapon than the Chukotka Natives use. Whales killed with an explosive grenade(s) in either hunt would likely experience a similar time to death. Thus, compared to the No-action Alternative, Alternative 7 could result in the same or shorter time to death, depending on the weapon used.

4.5 Other Wildlife

4.5.1 Introduction

This subsection addresses the potential for the six alternatives to affect wildlife species in the action area. Species analyzed in this subsection include marine mammals (other than gray whales) (refer to Subsection 4.4, Gray Whale), birds, and reptiles (i.e., sea turtles). Analyses in this subsection address all species identified in Subsection 3.5, Other Wildlife Species, that occur in the action area, including those listed as threatened or endangered under the ESA. These analyses focus on wildlife species that may occur in the action area and that have potential to be affected by hunt-related activities. For species that are not likely to occur near proposed hunt activities, no effects would be expected.

There are three primary sources of potential effects of whale-hunt-related activities on wildlife. First are the potential direct effects related to visual and noise disturbance from anticipated concentrations of aircraft and boat traffic, and the use of guns and explosives associated with any hunt. Such disturbance may disrupt the behavior of individuals or groups of animals in the action area. Second are the potential indirect effects from visual and noise disturbance that may disrupt prey distribution or abundance, resulting in decreased foraging efficiency. Third is the potential for direct harm to marine mammals (other than gray whales) from increased vessel traffic and hunt-related activities that could cause injury or death if a marine mammal were struck by a vessel or a projectile associated with a hunt. The following subsections discuss these issues in greater detail.

4.5.2 Evaluation Criteria

We used three evaluation criteria to assess the potential direct and indirect effects of the alternatives on other wildlife species in the action area: (1) potential changes in behavior because of disturbance (visual and noise), (2) potential changes in prey availability, and (3) potential for physical injury (e.g., from ship strikes or weapons).

The following subsections describe the potential for the alternatives to affect wildlife in the action area. For each alternative, the discussion addresses potential disturbance and injury and, where relevant, potential changes in prey availability. For each criterion, potential effects on marine mammals (excluding gray whales) are described first, followed by birds and reptiles (turtles). For each species group, ESA-listed endangered and threatened species are addressed first, followed by those species that

are not listed. Non-listed seabirds and other birds that use coastal habitats are analyzed by habitat association, described under Subsection 3.5.3.2.2, Non-listed Birds and Their Associated Habitats. That subsection reviews the habitat types and discusses which species of birds are included in each zone. To reduce repetition, species that would probably be affected similarly under a particular evaluation criterion are addressed together.

4.5.2.1 Disturbance

Subsection 4.11, Noise, describes the sources and level of noise-related disturbance that may occur during a hunt. Subsection 3.5.3.3, Sensitivity of Wildlife to Noise and Other Disturbance, describes how wildlife species typically respond to these types and sources of noise. Many activities associated with a whale hunt would have the potential to generate noise levels that would exceed ambient levels in parts of the action area (Subsection 4.11.2.1, Noise Generated by Hunt-related Activities). Under current conditions (the No-action Alternative), noise from vehicles, marine vessels, and aircraft is commonly heard throughout the Makah U&A. Other sources of noise include commercial areas, sports fields, logging operations, and the foghorn at Tatoosh Island. Natural sounds, such as those of wind and surf, contribute to high ambient noise levels in portions of the action area, particularly in areas close to the shoreline of the Pacific coast and the Strait of Juan de Fuca. A whale hunt and associated monitoring, protests, and law enforcement would be expected to result in increased noise and human activity levels relative to levels under the No-action Alternative. In addition, firearms and other explosive devices used to strike and kill a whale would produce high-intensity, short-duration noise.

Sources of noise and visual disturbance associated with whale hunt activities may include aircraft overflights (both fixed wing and helicopter), boat traffic (including both motorized and non-motorized craft), gunfire, and explosives. Anthropogenic noise can be either transient or continuous and can result in a variety of effects on wildlife with consequences ranging from none to severe (Würsig and Richardson 2002; Kunc and Schmidt 2019). Examples of transient noise associated with whale-hunting under the action alternatives could include helicopters, planes, and explosions; examples of continuous noise include vessels underway. The amount of noise generated by vessels and aircraft under each alternative would depend on the number of days of scouting or hunting that are likely to occur and whether media or other observation vessels or aircraft are present. The amount of noise produced by weapons would depend on the number of whales that may be struck and killed under a given alternative.

Among the proposed alternatives, the No-action Alternative would pose the lowest risk of disturbance to other species of wildlife. Under all of the action alternatives, the greatest potential for direct effects on other wildlife species would be from noise and visual disturbance related to increased human

activity directly and indirectly associated with a whale hunt. This analysis considers the likelihood of effects on wildlife as a result of such increased disturbance.

Analyses in this subsection consider the nature and magnitude of hunt-related activities in relation to wildlife occurrence and behavior (e.g., nesting, migration, foraging, nursing, and other critical survival activities). For each species, species group, or habitat type, the analyses examine the proximity of hunt-related activities to sensitive areas (e.g., rookeries, nest sites, haulout sites). Alterations in wildlife behavior may occur if vessels or aircraft associated with hunt-related activities travel close enough to sensitive areas to disturb animals (Subsection 3.5.3.3.2, Boat Traffic, and Subsection 3.4.3.6.6, Vessel Interactions).

It is possible that the number and types of vessels and aircraft that would participate in each hunting expedition (including observation, protests, law enforcement, and media coverage) would vary among the action alternatives. For example, hunting during summer (i.e., under Alternative 4) could result in a greater number of observers overall because of an increased likelihood of more hunting occurring during periods of good weather. Conversely, alternatives that allow more hunts might attract less public interest and less media coverage over time. Because of the difficulty of predicting such variations and how they might affect the precise numbers of vessels and aircraft participating in each hunt, this analysis assumes that each hunting expedition would be accompanied by the same amount of vessel and aircraft activity and associated disturbance, and that vessels and aircraft associated with each hunt would be similar to those associated with the previous hunts, as described in Subsection 3.11.3.2.1, Atmospheric Noise. It is not possible to predict the specific location of hunt-related activity on a given day under any action alternative. The area in which hunting would be allowed would be the same among all of the action alternatives except Alternative 3, under which Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore.

4.5.2.1.1 Marine Mammals (Excluding Gray Whales)

As described in detail in Subsection 3.5.3.3, Sensitivity of Wildlife to Noise and Other Disturbance, marine mammals in the coastal environment (e.g., seals, sea lions, and sea otters) may react to changes in noise and human presence by altering behaviors such as breeding, nursing, grooming, foraging, or resting. The effects of such disturbance on marine mammals would be related primarily to the type, level, timing, and location of disturbance relative to species locations and activity. Animals might be disturbed at haulout sites and spend more time in the water, thereby reducing rest periods, altering nursing frequency, and modifying thermoregulation. Species that breed in the action area (i.e., harbor seals and sea otters) could be disturbed during the summer when hunt activities might disrupt pupping or breeding activities or interrupt the female/pup bond during nursing.

Whales, dolphins, and porpoises might react to increased disturbance related to a hunt by changing their swim speed and/or direction or increasing dive duration. The sight and sound of vessels might also disturb the foraging behavior of seals and sea lions in the water and may affect foraging and grooming behaviors of sea otters. Noise from vessels, aircraft, and weapons associated with whale hunting might disrupt the ability of predatory species (e.g., killer whales) to communicate and to locate or obtain prey. For all of these species of marine mammals, any resultant effects would likely be temporary (lasting a few minutes to a few hours) and localized (occurring near the hunt), therefore impacting a small proportion of the population. For more information on the current abundance and associated population parameters (including PBR) for each of these species, refer to Section 3.5, Other Wildlife.

Subsection 4.11.2.1, Noise Generated by Hunt-related Activities, discusses the level and duration of noise anticipated from weapon use and vessel and aircraft activity associated with hunting. It is not possible to predict in advance the exact level of atmospheric or underwater noise that vessels and aircraft would produce on a typical day of hunting. Depending on the method used to kill a struck whale, the loudest noise levels associated with hunting would be from gunshots (atmospheric noise) or grenade explosions (underwater noise) (Subsection 4.11.2.1, Noise Generated by Hunt-related Activities). Noise from a gunshot would probably decay to ambient levels within 1 or 2 miles of the source (although this distance cannot be determined with certainty), while a grenade explosion underwater might not decay to ambient levels for several miles. Noise from these sources would last only a few seconds.

Overall, the number of marine mammals that would potentially occur close enough to hunting activities to be affected by the associated noise would probably be low. As presented in Table 3-16, frequency of occurrence of about half of the federal- and state-listed[15] species of marine mammals in the action area is uncommon or rare. Nearly all of the species of marine mammals that may occur in the action area, including ESA-listed species, are wide-ranging and may travel long distances as part of their normal daily movements. Sea otters do not typically travel long distances on a daily basis but are known to travel extensively in the vicinity of the Makah U&A (Lance et al. 2004; Hale et al. 2022). Thus, any changes in behavior of these species because of disturbance from whale-hunt-related activities would likely be temporary and would probably not have lasting effects on individuals or populations. Noise effects specific to particular species and species groups of wildlife are discussed below.

[15] Species listed as endangered under Washington State law can be found at WAC 220-610-010.

ESA-listed Marine Mammals

Several ESA-listed species of wildlife are known to occur in the action area but are not likely to be affected by the proposed whale-hunt-related activities because of their rare to uncommon occurrence along the Washington coast and/or their use of habitats too far from shore to encounter any hunt-related activities in the action area (Table 3-16). These species include five ESA-listed species of whales (sperm, blue, sei, fin, and right). When present in Washington waters, all of these whale species typically occur in pelagic deep waters offshore in the Makah U&A beyond the bounds of where proposed hunting would likely occur under any action alternative. There may be brief periods during hunt-related activities, particularly as a result of aircraft activities or grenade explosions, when ESA-listed marine mammals would be exposed to increased noise levels and might modify their behavior (e.g., dive duration, swim direction, etc.) in response. Although ESA-listed species of marine mammals have a low likelihood of encountering hunt-related activities, the species that would have the highest likelihood of encountering these activities include the Southern Resident killer whale and Mexico and Central America DPS humpback whale. These species are discussed in further detail below.

As mentioned above, all species of marine mammals, with the exception of sea otters, that may occur in the action area, including ESA-listed species, are wide-ranging and may travel long distances as part of their normal daily movements. Any changes in behavior of these species because of whale-hunt-related disturbance would likely be temporary and are not anticipated to have lasting effects (NMFS 2023a).

Killer Whale

Offshore, transient, Northern Resident, and Southern Resident killer whales might occur in or near the action area year-round. Of these, Southern Resident killer whales are the only DPS listed under the ESA. The majority of Southern Resident sightings have occurred in the summer months in inland waters of Washington and Southern British Columbia, however both Northern and Southern Residents have been recorded in the Strait of Juan de Fuca and off the coast of Washington in the vicinity of the Makah U&A (Hanson et al. 2013; Emmons et al. 2021). Therefore, the potential exists for killer whales to be in the vicinity of a whale hunt and thus be disturbed by the associated activities under any of the action alternatives.

As with other species of marine mammals, noise and human activity related to the use of vessels associated with whale hunting might cause killer whales to modify their behavior. As discussed in Subsection 3.5.3.1.1, ESA-listed Marine Mammal Species, listing factors for the killer whale included, among other things, noise and disturbance from vessel traffic. Killer whales may temporarily change dive duration or swim direction, for example, in response to hunt-related disturbance. Disturbance from vessels, aircraft, and weapons associated with whale hunting also has the potential to disrupt the ability

of killer whales to communicate or find prey. Any resultant changes in behavior would be temporary, likely lasting only as long as a hunt was underway. As with other species of marine mammals that may occur in the action area, killer whales are wide-ranging and may travel long distances as part of their normal daily movements. While hunting activities were underway under any of the action alternatives, killer whales would likely be able to move to areas where no disturbance would occur.

As discussed in Subsection 3.5.3.1.1, ESA-listed Marine Mammal Species, the primary constituent elements for the Southern Resident killer whale critical habitat include (1) water quality to support growth and development; (2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and (3) passage conditions to allow for migration, resting, and foraging. None of the proposed alternatives would appreciably affect these elements of critical habitat for this species.

Humpback Whale

Humpback whales occur occasionally in or near the action area and might occur in the vicinity of a gray whale hunt. Although non-listed Hawaii DPS humpback whales are the most common DPS present in the action area, individuals from two ESA-listed DPSs—Central America and Mexico—may be present when hunt activities occur. Humpback whales are also visually distinguishable from gray whales and are therefore not likely to be inadvertently pursued by Makah hunters. Noise and visual disturbance from vessels, aircraft, or weapons could affect humpback whales above or below the water. Potential effects would include changed swim speed or direction or increased dive duration to avoid the noise.

As mentioned above, all species of marine mammals that may occur in the action area, including humpback whales, are wide-ranging and may travel long distances as part of their normal daily movements. Thus, any changes in behavior (e.g., migration, movements, and habitat use) of these species because of whale-hunt-related activities would likely be temporary and would probably not have lasting effects.

Non-ESA-listed Cetaceans

Of the 14 non-listed species of cetaceans discussed in Subsection 3.5.3.1, Marine Mammals, nine are rare or uncommon off the Washington coast and/or use habitats in the pelagic environment, far from the vicinity of whale-hunting activities in the action area (Table 3-16). Thus, these nine species are highly unlikely to be affected by whale-hunt-related activities and are not considered further in this analysis. These nine species include the common dolphin, striped dolphin, false killer whale, pilot whale, pygmy sperm whale, minke whale, Baird's beaked whale, Curvier beaked whale, and

Stejneger's beaked whale. More frequent visitors to the coastal environment where a hunt is likely to occur include the non-listed DPSs of killer whales and humpback whales discussed above, as well as harbor porpoises, Dall's porpoises, northern right-whale dolphins, Risso's dolphins, and Pacific white-sided dolphins. When any of these species are present in coastal areas during a hunt, they would probably be affected by disturbance from vessels, aircraft, or weapons associated with a whale hunt. Whales, dolphins, and porpoises might react to hunt-related disturbance by changing their swim speed or direction or increasing dive duration. Noise from vessels, aircraft, and weapons associated with whale hunting might disrupt the ability of predatory species (e.g., killer whales) to communicate and to locate or obtain prey.

As mentioned above, all species of marine mammals that may occur in the action area, including the non-ESA-listed species of cetaceans, are wide-ranging and may travel long distances as part of their normal daily movements. Any changes in behavior of these species because of whale-hunt-related activities would likely be temporary and is not anticipated to have lasting effects.

Non-ESA-listed Pinnipeds

As discussed in Subsection 3.5.3.1, Marine Mammals, six non-ESA-listed species of pinnipeds are known to occur in the action area: harbor seal, Steller sea lion, California sea lion, northern elephant seal, and northern fur seal. Of these species, only the Steller and California sea lions and harbor seals have a reasonable potential to occur in the vicinity of a hunt in the action area (Subsection 3.5.3.1.2, Common Species off the Washington Coast). Northern fur seals and northern elephant seals occur infrequently and in relatively low abundance in the action area, or they occur in the pelagic environment where they would probably not encounter whale-hunt-related activities.

Steller sea lions, California sea lions, and harbor seals are, however, common in the action area. All three species use offshore islands and rocks as haulout sites for resting (Steller and California sea lions) or to nurse pups (harbor seals). Most offshore islands and rocks in the action area are less than 1 mile (1.6 km) from the shoreline, where hunt activities are expected to occur under all action alternatives except for Alternative 3, Offshore Hunt. Impacts to pinnipeds can be minimized or avoided altogether by maintaining buffer zones around haulout sites, as recommended by the MMPA marine viewing guidelines (available at https://www.fisheries.noaa.gov/insight/viewing-marine-life) and Olympic Coast National Marine Sanctuary. These locations can be identified by sanctuary staff during the National Marine Sanctuary Act consultation process in the permitting phase of the hunt. . Thus, these species' haulout sites would have a very low likelihood of being affected by hunt-related activities, although the noise associated with helicopters and gunshots in particular, would carry much farther than the immediate hunt area. Disturbance associated with the use of hunt-related vessels might

occasionally disrupt pinniped foraging behavior in the action area. As with other species of marine mammals that may occur in the action area, these pinnipeds are wide-ranging and may travel long distances as part of their normal daily movements. Because pinnipeds rarely forage in large groups and only a minute proportion of the action area would be affected by whale hunting activities at any given time, the number of these animals that could be affected by hunt-related disturbance during a whale hunt would likely be extremely small. In addition, any associated changes in behavior would be temporary, likely lasting only as long as a hunt was underway. Most portions of the action area do not receive high levels of vessel traffic. Under any of the action alternatives, while hunting activities were underway, seals and sea lions would likely be able to find foraging opportunities in areas where no disturbance would occur. Any changes in behavior because of whale-hunt-related disturbance would likely be localized and temporary and would probably not have lasting effects. Overall, the effects of the alternatives on hauled out or foraging Steller sea lions, California sea lions, and harbor seals would likely be negligible.

Northern Sea Otter

Northern sea otters are common in the area throughout the year and can travel extensively or shift their distribution seasonally to forage or seek more sheltered waters (Lance et al. 2004). They generally inhabit shallow coastal waters less than 1 mile (1.6 km) from shore, but they may occasionally be seen as far as 3 miles (4.8 km) off shore. Disturbance from the use of vessels, aircraft, or weapons associated with whale hunting might affect sea otters that are swimming, foraging, or grooming by causing them to spend time avoiding the activity and thereby reducing rest and grooming periods. Hunt-related activity and noise could also disrupt activities related to breeding, such as nursing or caring for young. Based on the low density of northern sea otters in the action area, the number of animals that could be affected by hunt-related disturbance during a whale hunt would likely be small. In addition, any associated changes in behavior would be temporary, likely lasting only as long as a hunt was underway. For these reasons, the effects of whale hunting on northern sea otters would likely be minor.

4.5.2.1.2 Other Marine Wildlife

ESA-Listed Species

Several ESA-listed species of wildlife are known to occur in the action area, including two ESA-listed species of birds (short-tailed albatross and marbled murrelet) and four species of sea turtles (leatherback, green, loggerhead, and olive ridley). Although the bald eagle was recently delisted, the species is still protected under the Bald and Golden Eagle Protection Act and is thus addressed with the ESA-listed species below.

Short-tailed Albatross

When present in Washington waters, short-tailed albatrosses occur in pelagic, deep waters off shore in the Makah U&A beyond the area where proposed hunting would likely occur under any action alternative. However, their presence in Washington is very rare. There may be brief periods during hunt-related activities, particularly as a result of aircraft activities or grenade explosions (if grenades are used), when a short-tailed albatross could be exposed to increased noise levels (compared to the No-action Alternative) and might modify its behavior in response, but the likelihood of such an encounter would be extremely low due to the rarity of their occurrence in the project area. As is the case for most marine wildlife in the action area, short-tailed albatrosses are wide-ranging and may travel long distances as part of their normal daily movements. In the extremely unlikely event that exposure were to occur, any changes in behavior of these species because of whale-hunt-related disturbance would likely be temporary and localized.

Marbled Murrelet

Murrelets either dive or paddle away when approached by a boat, depending on the speed of the boat. If disturbance occurs in a foraging area where murrelets congregate, the birds potentially could lose an opportunity to find a fish. It is unknown how murrelets react to gunfire, helicopters, and other loud disturbances to which these birds are unaccustomed, although helicopters and gunfire would probably cause them to either dive or fly away from the area completely (Nelson 1997). Flushing birds might stress their energy reserves, given that they have to fly long distances to bring fish to their young during the breeding season (April 1 through September 15). The time of day that the disturbance occurred might also make a difference in the degree of impacts on this species. During the breeding season, most foraging takes place during the early morning hours (Nelson 1997).

Whale hunts and associated activities under the action alternatives could disturb adult murrelets foraging at sea, potentially reducing the amount of prey brought to chicks. The likelihood of any disturbance is low, however, because hunt-related activities would occupy a small proportion of the action area at any given time. Marbled murrelets would likely be able to find foraging opportunities in areas where no disturbance would occur, although this could be more difficult for birds undergoing a 2-month molt (which occurs during the latter half of the year).

Bald Eagle

As mentioned above, although bald eagles have been removed from the ESA list of threatened species, they are given particular consideration in this analysis based on the regulatory protection afforded by the Bald and Golden Eagle Protection Act. Bald eagles are present in the action area throughout the year, and they nest, roost, and forage along the coastline. Bald eagles are known to flush off nests and

roost sites when people or vessels get too close, and they may be deterred from foraging in an area where many vessels congregate on the water (Stinson et al. 2001). Bald eagles are more sensitive to disturbance during the spring months when they nest. Flushing off their nests, particularly at the beginning of the breeding season, might affect the physical condition of birds or cause them to abandon a nest, which could in turn affect the ability to feed chicks. Once chicks hatch in May, there would be less likelihood of nest abandonment.

Helicopters, fixed-wing aircraft, and increased human activity associated with hunt-related activities would probably alter the behavior of bald eagles that may be present in the area during a hunt. Bald eagles flush away from nesting or foraging sites when approached by helicopters as close as 0.4 mile (0.64 km). Flushing distances are greater in the breeding season than in winter. While eagles would flush when helicopters come within 1,000 feet (304.8 m) in the winter, they would flush if helicopters would approach to within 1,500 feet (457.2 m) when on a nest (Stalmaster and Kaiser 1997). It is likely that some eagles that cannot tolerate human presence and its associated noise within a particular distance of their feeding or nesting activities may flush away from nesting and foraging sites.

Sea Turtles

Four species of ESA-listed sea turtles occasionally occur along the Washington coast: leatherback, green, loggerhead, and olive ridley. Leatherback sea turtles are seldom seen in the action area, but they may migrate along the Washington coast during non-breeding years; thus, they could be found in the action area at any time. This species occasionally forages in the deep pelagic waters off the Washington coast. Rarely, leatherbacks appear in bays and estuaries, although such locations are not their preferred habitat. Green, loggerhead, and olive ridley sea turtles are found in warmer waters and only approach the Washington coast in El Niño years. All four of these species of turtles would most likely continue to forage along the Washington coast under the action alternatives, especially during warm winter years. These species of turtles are not easily disturbed during foraging activities; if approached by boats, they would most likely move slowly away from any sources of disturbance. Some short-term effects related to temporary disturbance from hunt-related activities could cause some turtles to move away from a preferred feeding area, but this would probably be temporary. As discussed in Subsection 4.3.3.2.1, Pelagic Environment, any disturbance of animals in pelagic waters would be minor (vessels are small and the area is large and highly energetic), local (limited to waters near the activity), and of short duration (minutes to hours). Based on the low likelihood of sea turtles occurring in the vicinity of hunt-related activities, as well as the minor consequences of any disturbance, none of the alternatives would be expected to result in appreciable disturbance-related effects on sea turtles. Because none of

these species of turtles nests in Washington State, there would be no expected impacts from whale-hunt-related activities on the nests or nesting habitat of sea turtles.

Non-Listed Marine Birds and Their Associated Habitat

The action area includes some of the largest seabird colonies in the continental United States, with more than 100 species of birds using this area for nesting, wintering, or foraging. Analyses in this subsection focus on the six types of habitat these species use and the effects that the alternatives would have on these habitat types (i.e., beaches, bays, and estuaries; coastal headlands and islands; nearshore marine habitat; inland marine habitat; marine shelf habitat; and oceanic habitat). All six habitat types are present in the action area and are discussed individually as appropriate.

Beaches, Bays, and Estuaries

The beaches, bays, and estuaries along the Olympic coast support large numbers of marine and shorebirds for both breeding and foraging, particularly during migration. These habitat types support the highest numbers of species compared with other habitat types. Disturbance from vessels and aircraft that pass near beaches, bays, and estuaries may have short-term effects on breeding colonies and migrating birds that use these habitat types. Gunfire and helicopter noise is particularly likely to flush birds off nests if it occurs close to shore where these birds are nesting or if they are foraging just off shore. Additionally, noise from powerboats that approach the shore could cause birds that are unaccustomed to this activity to temporarily flush off nests.

Any harvested whale would probably be brought to a beach on the Makah Reservation, so nesting colonies (and migrating aggregations) on the reservation would face the greatest risk of disturbance and displacement under the action alternatives. That risk would be associated primarily with the number of whales harvested.

As mentioned in Subsection 3.5.3.2.2, Non-listed Birds and Their Associated Habitats, human-made structures, such as jetties, pilings, and buoys, provide important roosting habitat for cormorants, gulls, and other birds. None of the proposed alternatives would alter any existing human-made structures, or result in the construction of new ones, that may be used by these species for roosting.

Coastal Headlands and Islands

Large numbers of ledge-nesting birds inhabit offshore rocks and islands in the action area. Coastal headlands and islands provide critical nesting, foraging, and overwinter migratory habitat for these species. Species of ledge-nesting birds in the action area may be easily flushed off nest sites, leading to abandonment, predation on eggs or chicks, and subsequent nest failure. In addition, raptors, passerines, and other marine birds also use these habitat types. Noise associated with hunt activities, should

hunting occur close to the headlands and islands, could potentially flush birds off nest sites, similar to the short- and long-term impacts discussed above under Beaches, Bays, and Estuaries. The potential for ledge-nesting species of birds to be affected by whale-hunt-related activities, and the degree of effect, would depend largely on the timing and proximity of any potential hunt-related disturbance. The potential for such disturbance and impacts to these species would depend on the number of days with hunt-related activities, the season in which those activities occur (with activities during the summer breeding season posing a greater risk of disturbance than activities during winter) and the location of the activities (with activities farther off shore posing a smaller risk of disturbance than activities closer to shore).

Nearshore and Inland Marine Habitats

Birds in the action area use the nearshore marine habitat primarily for foraging. A variety of common marine birds also use this area as a migration corridor. Species richness and bird abundance are greatest in winter, although some seabirds may concentrate in large numbers during the summer. Species richness is relatively low in inland marine waters, with richness and bird densities higher in winter than summer. Most species found in this area forage in the winter or during migration.

Nearshore marine habitat is one of the zones where whale hunting could occur under the action alternatives. The nearshore zone occurs mostly within 1 mile (1.6 km) of the shoreline. Vessel noise and human activity associated with hunt activities would displace foraging birds. When a whale is harpooned, all birds foraging within a few hundred feet of the whale hunt would probably flush in response to the sounds of gunfire, helicopters, or other loud devices. Interrupted foraging might lead to increased stress on birds' metabolism, but the short-term impacts would be temporary and localized and not expected to result in long-term effects on the populations as a whole (relative to the No-action Alternative).

Marine Shelf Habitat

Much of this zone is 1 mile (1.6 km) or more off shore, which is further offshore than all previous hunts. This zone provides foraging habitat and a migration corridor for a variety of marine birds, primarily during winter and during late summer/early fall when both residents and migrants are numerous. Because bird densities are lower in this habitat type and no breeding or roosting occurs in this zone, any risks to foraging and migrating birds is also lower, compared to other zones closer to shore.

Oceanic Habitat

The continental shelf hosts the lowest species richness among the habitat types considered in this analysis and is limited to foraging birds as they migrate or residents that forage in deep waters. Species associated with this zone are primarily gulls and terns. This area is approximately 9 miles (14.5 km) off shore (Buchanan et al. 2001), and fewer bird species use this zone than other habitat types closer to shore. It is likely that hunt-related activities under any of the action alternatives would occur closer to shore (i.e., approximately 5 miles (8 km) from shore under Alternative 3 and within 1 (1.6 km) from shore under the other action alternatives). For these reasons, it is likely that any effects of whale hunting on foraging and migrating birds that use these deep ocean waters would be negligible.

4.5.2.2 Prey Availability

Transient killer whales consume gray whales. The analysis considers the likelihood and significance of reduced abundance or availability of prey (i.e., gray whales) for foraging killer whales. Under the action alternatives, the abundance of gray whales in the action area could, but is not likely to, temporarily decrease because of hunting or movement out of the area in response to noise and human presence. Such decreases might reduce the abundance or availability of prey for killer whales, causing them to spend more time foraging and thereby increasing the risk of compromised health. The potential for hunt-related activities under each alternative to result in reduced abundance or availability of prey for foraging killer whales would depend on the number whales likely killed under each alternative and the amount of disturbance likely to occur under each alternative, which in turn would depend on the number of days that scouting, hunting, or training are likely to occur.

Regardless of the number of whales killed or the amount of disturbance that would likely occur under any of the action alternatives, the loss of potential prey to killer whales because of removal of gray whales is unlikely to have individual or population-level effects on killer whales. The endangered Southern Resident killer whales eat fish and do not consume gray whales (or other marine mammals). Gray whales account for only 8 percent of observed predation by transient killer whales on marine mammals on the west coast of North America, and calves (which may not be pursued or killed in a hunt) and juveniles make up the bulk of the gray whales taken (Wade et al. 2006; Steiger et al. 2008). Gray whales are also abundant in the action area. Thus, removal of a maximum of seven adult gray whales per year by whale hunters under the action alternatives is unlikely to affect the prey base of killer whales in the action area. As noted in Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas, it is likely that gray whales would not abandon the Makah U&A or other areas in the PCFG range as a result of limited hunt-related activity.

It is unlikely that any of the action alternatives would affect prey availability for other marine mammals, birds, or sea turtles through disturbance to the food chain (Subsection 4.3, Marine Habitat

and Species). Because of the low likelihood of prey-related effects, potential effects on species other than killer whales are not discussed further.

4.5.2.3 Potential Injury

The analysis considers the likelihood of injury to cetaceans, pinnipeds, sea otters, and sea turtles as a result of being struck by a vessel or impacts associated with a projectile (harpoon, bullet, or grenade) used during the hunt (as measured by the amount of whale hunting activity). It is extremely unlikely that birds would sustain injury from vessels or weapons used in a whale hunt. Any birds that might be near an area where a hunt was underway would almost certainly flush from the area. This analysis, therefore, addresses potential effects on marine mammals or turtles. The risk of injury would depend primarily on the amount of hunt-related vessel traffic in the action area (including Makah vessels and associated protest, media, and law enforcement vessels), which would depend on the number of days with hunt-related trips. Increased levels of vessel activity associated with whale hunting under the action alternatives (compared to the No-action Alternative) would result in an increased risk of animals being struck and injured. For the reasons discussed below, the risk of weapons-related injuries would be extremely small.

4.5.2.3.1 Marine Mammals

Under all of the action alternatives, the potential for any marine mammals to be struck by projectiles would be remote and would be possible only if another animal were mistaken for a gray whale or were immediately adjacent to a gray whale during a strike attempt. Some larger whale species could be mistaken for a gray whale during offshore hunt activities because of similar size. Makah whalers would, however, likely be able to distinguish other species from gray whales because of the characteristic blow of each species, skin color, position of the dorsal fin, behavior, and other characteristics that the whalers are trained to identify. There is a slight possibility that a marine mammal other than a gray whale could be injured by a vessel or an errant projectile associated with the hunt. Other marine mammals do not swim close to gray whales, except transient killer whales that may be preying on gray whales, as mentioned above. For this reason, along with the safety measures the Tribe has proposed including establishing a minimum visibility for hinting and implementing a signal from a lookout (Subsection 2.3.2.2.12, Other Environmental Protection Measures; Public Safety Measures and Enforcement), the chances that a harpoon or errant projectile might strike other marine mammals are considered negligible. Implementation of these measures would ensure a greater likelihood of positively identifying a gray whale before attempting a strike. Therefore, there is a very low likelihood that marine mammals other than ENP gray whales would be struck by projectiles used during a whale hunt under the action alternatives. Real-time differentiation between WNP and ENP

gray whales can be very difficult and may only be possible if very distinctive identifying marks are present on the animal. Photographs and genetic data may be used to identify struck whales as members of the ENP or WNP DPS. In the unlikely event that a WNP gray whale were struck, all hunting would be suspended unless and until NMFS determined that measures had been taken to ensure no additional WNP gray whales are struck during the duration of the permit.

Any killer whales that occur near gray whales would most likely be transients surveying the gray whales as possible prey. The killer whales would most likely associate only with female gray whales with calves, focusing on the calves as prey. Under all of the action alternatives, no strikes would be allowed on calves or adults accompanied by calves. Killer whales would probably not be near gray whales targeted by whale-hunt activities because of the age and size of the targeted whales. Makah whalers are unlikely to mistake a killer whale for a gray whale, and killer whales would most likely not remain close enough to whale hunting activities to be hit by an errant harpoon or projectile. For these reasons, the chances of a killer whale being struck by a harpoon or projectile during a hunt would be negligible.

It is unlikely that hunt-related activities could result in injury to marine mammals as a result of a ship (vessel) strike or propeller injury. As discussed in Subsection 3.4.3.6.8, Ship Strikes, ships at least 263 feet (80.2 m) long that travel at least 14 knots cause most of the lethal or severe injuries to whales. Vessels engaged in a hunt and associated activities would be much smaller. The largest vessel involved in the previous hunts was the 95-foot (29-m) protest vessel M/V *Sirenian*, which remained in Neah Bay during most hunt activities. Vessels engaged in and monitoring the hunt would travel mostly at the rate of the human-powered canoe for all action alternatives except Alternative 3, which would involve a motorized hunt vessel, although law enforcement vessels might have to move more rapidly to intercept protest vessels violating the MEZ.

Because of their keen acoustic capabilities, killer whales would be aware of vessels in the area and would likely move away before the vessels were close enough to cause injury. Killer whales are adept, proficient swimmers, and they would most likely avoid vessels associated with the hunt. Other marine mammals, including seals, sea lions, and cetaceans (with the possible exception of baleen whales, including gray whales), are also adept, fast swimmers that tend to avoid moving vessels. If they were in the path of a moving vessel, they would likely dive below and away from the vessel and out of harm's way. Sea otters are relatively slow swimmers (compared to pinnipeds) and might approach vessels when near shore. However, any sea otters near hunt activities would probably swim rapidly away or dive below and away from oncoming vessels.

4.5.2.3.2 Sea Turtles

Sea turtles are slow swimmers and are susceptible to collision with vessels. Under the action alternatives, whale hunts and associated activities would result in temporary and localized increases in the number of vessels near a whale hunt. Chase boats engaged in a whale hunt, as well as protest vessels and law enforcement vessels, could inadvertently strike a turtle as it surfaced for air, causing injury or death. The potential for injury to sea turtles as a result of vessel strikes associated with a hunt would be extremely low, however, because of the low abundance of these species throughout their range, including the action area. Leatherback turtles would have a higher likelihood of encountering vessels than the other species (green, loggerhead, and olive ridley), which are strictly warmer water species found only infrequently off the Washington coast. However, given that leatherback turtles only rarely occur off the coast of Washington, the likelihood of such incidents would be negligible.

4.5.3 Evaluation of Alternatives

The effects of the seven alternatives would differ among individual species and species groups (including those identified by habitat association) depending on their use of and occurrence in the action area. For example, hunt-related activities under the action alternatives would more likely affect certain pinnipeds than most cetaceans (except gray whales), given characteristics of their foraging behavior and distribution in the action area. Pelagic species (e.g., sperm whales, leatherback turtles) would less likely be affected by the action alternatives than those that commonly occur in the coastal environment (e.g., harbor seals, bald eagles). Among pinnipeds, harbor seals and California sea lions use haulout sites in the action area (Subsection 4.5.2.1.1, Marine Mammals (Excluding Gray Whales)). Those species would, therefore, more likely experience effects of hunt-related activities than elephant seals or fur seals, which do not breed or haul out in the area.

The potential for hunt activity to result in disturbance, reduced prey availability, or injury to wildlife would depend on the timing of the hunt, the location of the hunt, and the number of days with hunt-related trips. Hunting that takes place at a time when a species is present (particularly breeding) in the action area would have a higher likelihood of affecting that species than hunting that takes place when the species is not present in the action area. In addition, hunting that takes place farther off shore (as under Alternative 3) would have a lower likelihood of affecting species that are present on the rocks and islands closer to shore. The more days of hunting that occur, the more potential there is for effects on wildlife. As mentioned above, this analysis assumes that the amount of hunt-related activity would be the same on any given day of a hunt. Thus, each day of hunting during a given season would present the same potential for effects on wildlife.

4.5.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted, and no whale hunting or associated activities (e.g., monitoring, protests, and law enforcement) would be authorized. Levels of noise and human presence in the action area would continue to vary with time and location but not be altered by this alternative. Similarly, under the No-action Alternative, neither prey availability nor the risk of injury or death from collision or projectiles would be affected.

Current trends in the status of health, abundance, and habitat conditions for wildlife species would likely continue, including state and federal conservation efforts pursuant to the ESA, MMPA, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act. Prohibitions on take under these statutes would continue and could require permits from NMFS and USFWS for some activities. For all species (listed and non-listed), direct mortality from anthropogenic sources would be expected to remain at current levels, as well as natural mortality from predation, disease, and other sources.

Some marine mammals, specifically those in the coastal environment (e.g., harbor seals, California sea lions, Steller sea lions, and sea otters), and most birds and turtles would continue to encounter noise and vessel traffic from sport and commercial fisheries vessels, sight-seeing boats, and other sources such as military vessels. Effects of such activities on these species at current levels are reflected in the species' current status and trends.

Availability of gray whales as prey to transient killer whales would continue to be variable as the gray whale population naturally fluctuates. The timing and magnitude of killer whale foraging efforts on gray whales would be unaffected by this alternative. The prey base for other species (e.g., other cetaceans, pinnipeds, sea otters, and birds) would continue to vary as a result of natural events and human perturbations such as fishing. Ongoing variations in prey abundance would have varying effects on individual species.

A small number of marine mammals in the coastal environment would continue to be exposed to vessel traffic. This might result in vessel strikes from commercial and recreational vessels. Turtles, which are slower swimmers, may be more susceptible than other species to vessel strikes. Implementation of the No-action Alternative would not result in any increase in current low levels of injury as a result of ship strikes.

4.5.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, hunt-related trips would likely occur on approximately 60 days from December through May each year, primarily during April and May. An average of four whales could be harvested per year, with no more than five harvested in a single year. No more than seven whales could be struck

per year. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 2 would be likely result in as many as 64 rifle shots or 12 grenade explosions annually (Subsection 4.1.2.5, Potential Number of Shots Fired or Grenade Explosions).

As part of this alternative, the Tribe would not approach within 200 yards (183 km) of Tatoosh Island or White Rock during May to minimize disturbance to feeding and nesting seabirds. No hunting would occur from June 1 through November 30, additionally protecting nesting seabirds during the fledging and post-fledging period. Subsection 4.5.2.1, Disturbance, describes the amount of vessel and aircraft activity expected to occur on any given day of hunting.

4.5.3.2.1 Marine Mammals

Under Alternative 2, changes in disturbance levels, prey availability, and the potential for physical injury on approximately 60 days per year with hunt-related trips could lead to an increased risk to marine mammals other than gray whales, compared to the No-action Alternative (effects on gray whales are addressed in Subsection 4.4, ENP Gray Whale). The greatest potential for effects would be from vessel and noise disturbance. For all marine mammals addressed in this analysis, these effects would be as described in Subsection 4.5.2.1.1, Marine Mammals (Excluding Gray Whales). The intensity of the effects would depend on the number of occasions on which such disturbance occurred (related to the number of days of hunting) and the portion of the animals' life history during which they occurred (hunt timing). Any effects would probably be temporary (lasting for a few minutes to a few hours) and localized (occurring close to the hunt), and would probably not have lasting deleterious effects on individuals or populations. For all species, the number of animals close enough to hunting activities to be disturbed would likely be low.

As discussed in Subsection 4.5.2.2, Prey Availability, the potential for whale hunting activities under Alternative 2 to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area, and hunting regulations would prohibit the killing of calves, one of the primary targets of killer whales. Any marine mammals in the immediate vicinity of a gray whale during a strike attempt could be exposed to an elevated risk of injury associated with as many as 64 rifle shots or 12 grenade explosions annually. As discussed in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals might sustain an injury from a vessel or errant projectile would be extremely remote.

4.5.3.2.2 Other Marine Wildlife

Under Alternative 2, effects associated with whale-hunt activities could lead to an increased risk to birds and turtles compared to the No-action Alternative. The greatest potential for effects on most species would be from vessel and noise disturbance, as described in Subsection 4.5.2.1.2, Other Marine

Wildlife. Such effects would probably be temporary (lasting for a few minutes to a few hours) and localized (occurring near the hunt). For all species, the number of animals close enough to hunting activities to be affected by disturbance would most likely be low. Any disturbance would be localized and of short duration and would probably not cause lasting deleterious effects for individuals or populations. As discussed in Subsection 4.5.2.3, Potential Injury, the likelihood that any sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote. The following discussions provide additional information about the potential effects of Alternative 2 on bald eagles and marbled murrelets, followed by an analysis of the potential effects on other species and their associated habitats. Bald eagles and marbled murrelets are addressed individually because they have a regulatory status indicating heightened management concern (i.e., listing status under the ESA or the Bald and Golden Eagle Protection Act) and more than a minimal likelihood of being affected by whale hunting activities.

Bald Eagle

Most whale hunting under Alternative 2 would likely occur during April and May, coinciding with the early portion of the breeding season for bald eagles and leading to increased risks over the No-action Alternative. If any eagles were disturbed and flushed from their nests, they might abandon their nests, particularly if the disturbance occurs before chicks hatch in May, resulting in loss of that year's chicks. However, most hunt-related activities would occur 1 to 2 miles (1.6 to 3.2 km) off shore and would thus be unlikely to disturb eagles at active nests.

Marbled Murrelet

Under Alternative 2, there could be an increased risk to marbled murrelets compared to the No-action Alternative. Hunting during April and May would have the potential to disturb adult murrelets foraging at sea, potentially reducing the amount of prey brought to chicks. Pre-breeding behaviors such as courtship and pair-bonding may also be affected during this period. The likelihood of any disturbance would be low, however, because hunt-related activities would occupy a small proportion of the action area at any given time and hunt-related activities occur on a limited number of days each year. Marbled murrelets would likely be able to find foraging opportunities in areas where no disturbance would occur. In addition, there would be no potential for hunt-related disturbance during most of the breeding season, which extends from April 1 through September 15.

Non-Listed Marine Birds and Their Associated Habitats

Under Alternative 2, changes in noise and activity levels on approximately 60 days with hunt-related trips could result in the disturbance of birds in the action area. Some hunts could occur during winter and during the spring migratory period, when large numbers of marine birds use beaches, bays, and

entrances to estuaries. Hunts during the spring months could also result in disturbance of birds that are nesting on most coastal headlands and islands. The exceptions would be Tatoosh Island and White Rock; tribal hunters would be prohibited from approaching within 200 yards (183 km) of those locations during May to minimize disturbance of feeding and nesting seabirds during the breeding season.

Compared to the No-action Alternative, Alternative 2 would result in a greater potential for disturbance to breeding, roosting, and migrating birds. Depending on the severity of the effects, some birds' nesting attempts could fail. It is unlikely, however, that such occurrences would result in long-term effects on local populations of species that breed in the action area. Many individuals may already be acclimated to a high level of human disturbance, especially in the northern portion of the Makah U&A (e.g., approximately 25,000 to 47,000 annual angler trips out of Neah Bay (Table 3-28), along with other commercial and recreational vessel and aircraft traffic). Furthermore, the noise and human activity associated with harpooning, securing, and dispatching a whale would be temporary, short-term, and intermittent.

4.5.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same hunting season and the same limits on the number of whales harvested as Alternative 2 but would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore. Alternative 3 would not include a prohibition on approaching within 200 yards (183 m) of Tatoosh Island or White Rock, because both of these islands are far less than 5 miles (8 km) off shore and are outside the area where most hunt-related activities would occur. As under Alternative 2, vessel and aircraft noise associated with hunt-related trips under Alternative 3 would likely occur on approximately 60 days from December through May each year, mostly during April and May, and there would be as many as 64 rifle shots or 12 grenade explosions annually.

Based on the similarities between the two alternatives, Alternative 3 would be expected to have a similar potential as Alternative 2 for increased risks to birds, turtles, and marine mammals other than gray whales, compared to the No-action Alternative. The increased risks would primarily be associated with changes in disturbance levels on approximately 60 days with hunt-related trips.

Compared to Alternative 2, the restrictions under Alternative 3 on hunting activities within 5 miles (8 km) of shore would be expected to reduce the potential for disturbance or injury of wildlife species during a whale hunt. Possible adverse effects on marine mammals, seabirds, and sea turtles foraging in sanctuary and refuge waters or using refuge lands for resting or breeding would be reduced because of the prohibition on making an initial strike on a gray whale within 5 miles (8 km) of shore. All of the locations in the action area that are used by wildlife at periods of elevated sensitivity to disturbance

(e.g., nesting areas, haulouts) are associated with landscape features (e.g., coastal headlands, islands) that are less than 5 miles (8 km) from shore (Subsection 3.5.3, Existing Conditions). Because less hunt-related activity would occur within 5 miles (8 km) of shore, the increased potential for adverse effects on wildlife under Alternative 3, compared to the No-action Alternative, would therefore be slightly less than, the increased potential under Alternative 2.

Hunting in areas more than 5 miles (8 km) off shore would not be expected to increase the risk of disturbance to any wildlife species that would not otherwise be exposed to hunting activities closer to shore. Nearly all of the cetacean species identified in Subsection 3.5.3.1, Marine Mammals, typically occur in continental slope waters and further off shore, beyond where proposed hunting would likely occur. Safety considerations and logistical constraints would likely keep hunting vessels as close as possible to the 5-mile (8-km) limit, whereas continental slope and deeper offshore waters occur beyond the continental shelf, which is generally 15 to 40 miles (24.1 to 64.4 km) wide in the action area (Subsection 3.3.3.2.1, Physical Features and Processes). Of the species that are more likely to occur closer to shore (including porpoises, seals, sea lions, sea otters, birds, and sea turtles, as well as some whales), none would be expected to occur in greater densities 5 miles (8 km) off shore than in waters 1 to 2 miles (1.6 to 3.2 km) off shore (i.e., the area where most hunt-related activities would be expected to occur under the other action alternatives)(OBIS-SEAMAP 2023).

4.5.3.3.1 Marine Mammals

Under Alternative 3, hunting activities would occur off shore and beyond the range of pinniped haulouts. Therefore, it is expected that Alternative 3 would have less risk of disturbing pinnipeds than Alternative 2 but increased disturbance risks compared to the No-action Alternative. The increased risks would be associated with changes in disturbance levels on approximately 60 days with hunt-related trips. As under Alternative 2, the potential for whale hunting activities to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area and hunting regulations would prohibit the killing of calves, one of the primary targets of killer whales. Similarly, for the reasons identified in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals might sustain an injury from a vessel or errant projectile would be extremely remote. As discussed previously in the overall analysis of the effects of Alternative 3 on wildlife, restrictions on hunting activities within 5 miles (8 km) of shore would be expected to reduce the potential for disturbance or injury of marine mammals other than gray whales during a whale hunt, compared to Alternative 2.

4.5.3.3.2 Other Marine Wildlife

Under Alternative 3, hunting activities would occur off shore and beyond the range of seabird roosting sites and rookeries. Therefore, is expected that Alternative 3 would have less risk of disturbing seabirds than Alternative 2 but increased disturbance risks compared to the No-action Alternative. The increased risks would be associated with changes in disturbance levels on approximately 60 days with hunt-related trips. As discussed in Subsection 4.5.2.3, Potential Injury, the likelihood that any sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote.

As discussed previously in the overall analysis of the effects of Alternative 3 on wildlife, restrictions on hunting activities within 5 miles (8 km) of shore would be expected to reduce the potential for disturbance or injury of birds and sea turtles during a whale hunt, compared to Alternative 2. Nesting areas, where birds (including bald eagles) would be most sensitive to disturbance, are located along the coastline and on offshore rocks and islands and are less than 5 miles (8 km) from shore. As discussed in Subsection 3.5.3.2.1, ESA-Listed Species and Designated Critical Habitat, only a small proportion of the marbled murrelets observed in the action area have been found more than 2 miles (3.2 km) from shore.

4.5.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. As under Alternative 2, the Tribe would not approach within 200 yards (183 km) of Tatoosh Island or White Rock; this restriction would remain in effect during the entire hunting season (June through November). The maximum number of whales harvested under current conditions would be limited to one ENP male whale every other year. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), vessel and aircraft noise associated with hunt-related trips would be likely to occur on approximately 7 days every other year, or 3.5 days per year on average. Alternative 4 may result in as many as 16 rifle shots or 3 grenade explosions every other year, although those values could be even lower if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for the year).

Alternative 4 would result in increased risks to birds, turtles, and marine mammals other than gray whales, compared to the No-action Alternative. The increased risks would primarily be associated with changes in disturbance levels on an average of 3.5 days per year with hunt-related trips. As under Alternatives 2 and 3, the potential for whale hunting activities to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area and hunting regulations would prohibit the killing of calves, the primary target of killer whales. Similarly, for the

reasons identified in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals or sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote.

In contrast to the other action alternatives, whale hunting under Alternative 4 could take place during the summer and fall months when many species in the action area are engaged in activities associated with breeding, such as nesting, incubating, or feeding young. In addition, whale hunting that is directed at PCFG whales would likely target whales that are feeding and may therefore take place closer to shore than hunting under the other action alternatives, which would more likely target migrating whales further off shore. Compared to the other action alternatives, therefore, Alternative 4 would result in a smaller increase, relative to the No-action Alternative, in the number of occasions on which hunt-related activities could result in increased risks to wildlife but a greater potential for each occasion to disrupt key activities such as breeding.

4.5.3.4.1 Marine Mammals

Similar to the other action alternatives, Alternative 4 would be expected to have the potential for increased risks to marine mammals, compared to the No-action Alternative. The increased risks would primarily be associated with changes in disturbance levels on an average of 3.5 days with hunt-related trips each year.

As under the other action alternatives, the potential for whale hunting activities to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area and hunting regulations would prohibit the killing of calves, one of the primary targets of killer whales. Similarly, for the reasons identified in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals might sustain an injury from a vessel or errant projectile would be extremely remote.

To a large extent, the effects associated with each hunt-related trip would be as described in Subsection 4.5.2.1.1, Marine Mammals (Excluding Gray Whales). The potential for hunt-related activities to disturb Steller sea lions or California sea lions would be greater than under Alternatives 2 and 3, because gray whale distributions during the summer and fall are nearshore and more often in proximity to sea lion haulouts. The hunt-related activities may also have a greater potential to adversely affect harbor seals because harbor seals use coastal islands and rocks in the action area for breeding-related activities such as pupping and nursing. Noise and human activity associated with a hunt would have the potential to disrupt these activities. As noted previously, however, the number of animals close enough to be affected by hunting activities would probably be low. For these reasons, as under Alternatives 2 and 3, any effects would probably be temporary (lasting for a few minutes to a few hours) and localized

(occurring close to the hunt), and would probably not have lasting deleterious effects on individuals or populations.

4.5.3.4.2 Other Marine Wildlife

Similar to the other action alternatives, Alternative 4 would be expected to have the potential for increased risks to birds and sea turtles, compared to the No-action Alternative. The increased risks would primarily be associated with changes in disturbance levels on an average of 3.5 days with hunt-related trips each year. Disturbance-related effects would be as described in Subsection 4.5.2.1.2, Other Marine Wildlife, and would probably be temporary (lasting for a few minutes to a few hours) and localized (occurring only near the hunt). As discussed in Subsection 4.5.2.3, Potential Injury, the likelihood that any sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote. The following discussions provide additional information about the potential effects of Alternative 4 on bald eagles and marbled murrelets, followed by an analysis of the potential effects on other species and their associated habitats.

Bald Eagle

Whale hunting under Alternative 4 would occur after May, meaning some hunt-related activities would coincide with the fledging period for bald eagles (after chicks hatch in May), leading to an increased risk of disturbance to pre-fledging chicks, compared to the No-action Alternative. The risk of nest abandonment would be lower than under the other action alternatives, however, because bald eagles are less likely to abandon nests during the latter portion of the nesting season (Subsection 4.5.2.1.2, Other Marine Wildlife).

Whale hunting under Alternative 4 would likely target whales that are feeding in the action area and may, therefore, take place closer to shore than hunting under the other action alternatives. As a result, hunt-related activities may have a greater potential to disturb bald eagles at active nests on shore, compared to the other action alternatives. Because bald eagle nesting territories are generally widely spaced, the number of eagle nests that could be subjected to disturbance from any given hunt-related trip would likely be low.

Whale hunting under Alternative 4 would occur after May, meaning some hunt-related activities would coincide with the fledging period for bald eagles (after chicks hatch in May), leading to an increased risk of disturbance to pre-fledging chicks, compared to the No-action Alternative. The risk of nest abandonment would be lower than under the other action alternatives, however, because bald eagles are less likely to abandon nests during the latter portion of the nesting season (Subsection 4.5.2.1.2, Other Marine Wildlife). For these reasons, as under Alternatives 2 and 3, any effects of Alternative 4 on bald

eagles would probably be temporary (lasting for a few minutes to a few hours) and localized (occurring close to the hunt) and would probably not have lasting deleterious effects on individuals or populations.

Marbled Murrelet

Whale hunting under Alternative 4 would overlap with a substantial portion of the breeding season for marbled murrelets. The breeding season extends from April through mid-September; most hunting under Alternative 4 would be expected to take place during the months of June through September, when the risk of encountering adverse weather and sea conditions would be lowest. Therefore, compared to the other action alternatives and relative to the No-action Alternative, hunt-related activities may have a greater increase in the likelihood of disturbing foraging murrelets, potentially reducing the amount of prey brought to chicks. The likelihood of disturbance would be low, however, because hunt-related activities would occupy a small proportion of the action area at any given time and occur on an average of 3.5 days per year at most. Marbled murrelets would likely be able to find foraging opportunities in areas where no disturbance would occur, although this could be more difficult for birds undergoing a 2-month molt (which occurs during the latter half of the year).

Non-listed Marine Birds and Their Associated Habitat

Under Alternative 4, changes in noise and activity levels on an average of 3.5 days with hunt-related trips could result in the disturbance of birds in the action area. Most hunt-related activities would likely occur during the months of June, July, and August when many birds nest, roost, and forage on and around coastal headlands and islands. Compared to the No-action Alternative, Alternative 4 would result in a greater potential for disturbance to breeding, roosting, and foraging birds. Depending on the severity of the effects, some birds' nesting attempts could fail. As under Alternatives 2 and 3, it is unlikely, that such occurrences would result in long-term effects on local populations of species that breed in the action area. Compared to the other action alternatives, Alternative 4 would result in a smaller increase, relative to the No-action Alternative, in the number of occasions on which hunt-related activities would result in increased risks to marine birds, but a greater potential for each occasion to disrupt key activities.

4.5.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to longer hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year (Subsection 4.1.5, Alternative 5). As under Alternative 2, the Tribe

would not approach within 200 yards (183 m) of Tatoosh Island or White Rock during May to minimize disturbance to feeding and nesting seabirds.

Based on the length of the hunting season, hunt-related trips would likely occur on approximately 22 days in May and December each year, mostly during May. This would decrease to 0 days in years when the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 5 would likely result in as many as 16 rifle shots or 3 grenade explosions annually, or as few as 0 rifle shots and grenade explosions during years in which the hunt is on hiatus.

Alternative 5 would be expected to result in an increase, relative to the No-action Alternative, in risks to marine mammals, birds, and sea turtles. The increased risks would primarily be associated with changes in disturbance levels on approximately 22 days with hunt-related trips. As under Alternatives 2 and 3, the potential for whale hunting activities to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area and hunting regulations would prohibit the killing of calves, one of the primary targets of killer whales. Similarly, for the reasons identified in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals or sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote.

Alternative 5 would include the same restrictions on hunt location as Alternative 2. The potential for any given hunt-related trip to result in adverse effects on birds, turtles, or marine mammals other than gray whales would, therefore, be the same as under Alternative 2. For this reason, this analysis considers the effects on marine mammals and on all other marine wildlife species together. Based on the anticipated number of hunt-related trips (22 under Alternative 5 compared to 60 under Alternatives 2 and 3), Alternative 5 would have an overall lower potential for adverse effects on wildlife than Alternatives 2 and 3. The potential for each trip to disturb wildlife species would likely be higher than under Alternative 3 because most hunt-related activity would occur within 5 miles (8 km) of shore, where the activity would have a greater likelihood of being audible or visible at sensitive locations such as nesting areas or haulouts. Compared to Alternative 4 (under which hunting would be allowed during the summer breeding season for many species), hunt-related activities under Alternative 5 would have a lower potential to disrupt key activities such as breeding because hunting would occur only during the months of December and May.

4.5.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 6 considers effects over a 10-year period.

Alternative 6 would include the same provisions as Alternative 2 regarding the hunt area (including the restriction on approaching within 200 yards (183 m) of Tatoosh Island or White Rock during May), season, and methods and would, therefore, result in the same number of hunt-related trips with the same potential for each trip to result in adverse effects on wildlife. Alternative 6 would include greater restrictions than Alternative 2 on the maximum number of whales that could be killed per year and per 2 years. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 6 would likely result in as many as 56 rifle shots or 11 grenade explosions annually over the 10-year waiver period.

Alternative 6 would be expected to result in an increase, relative to the No-action Alternative, in risks to marine mammals, birds, and sea turtles. The increased risks would primarily be associated with changes in disturbance levels on approximately 60 days with hunt-related trips each year over 10 years. As under the other action alternatives, the potential for whale hunting activities to affect prey availability for killer whales would be minimal, as gray whales are generally abundant in the action area and hunting regulations would prohibit the killing of calves, one of the primary targets of killer whales. Similarly, for the reasons identified in Subsection 4.5.2.3, Potential Injury, the likelihood that any marine mammals or sea turtles might sustain an injury from a vessel or errant projectile would be extremely remote.

Alternative 6 would include the same restrictions on hunt timing and hunt location as Alternative 2. The potential for any given hunt-related trip to result in adverse effects on birds, turtles, or marine mammals other than gray whales would, therefore, be the same as under Alternative 2. For this reason, this analysis considers the effects on marine mammals and on all other marine wildlife species together. Based on the anticipated number of hunt-related trips (60), Alternative 6 would have the same overall potential for adverse effects on wildlife as Alternatives 2 and 3. The potential for each trip to disturb wildlife species would likely be higher than under Alternative 3 because most hunt-related activity would occur within 5 miles (8 km) of shore where the activity would have a greater likelihood of being audible or visible at sensitive locations such as nesting areas or haulouts. Compared to Alternative 4 (under which hunting would be allowed during the summer breeding season for many species), hunt-related activities under Alternative 6 would have a lower potential to disrupt key activities such as breeding because hunting would occur during the months of December through May and would not overlap most of the breeding season for most species.

4.5.3.7 Alternative 7, Composite Alternative – Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 7 considers effects over a 10-year period.

As with the other action alternatives, Alternative 7 would result in an increased risk of impacts to wildlife (other than gray whales) in the action area compared to the No-action Alternative. Under Alternative 7, the hunt would take place within the same geographic area as Alternatives 2, 4, 5, and 6 (the Makah U&A west of the Bonilla-Tatoosh line), without the prohibition on striking whales within 200 yards of Tatoosh Island or White Rock but with other site and time restrictions possible to protect the Olympic Coast National Marine Sanctuary resources.

The hunt timing differs from other alternatives. It would follow a split-season schedule in which hunting would take place December 1 through May 31 during winter/spring hunts and July 1 through October 31 during summer/fall hunts (See Subsection 2.3.7, Alternative 7). Much like Alternative 4, the summer/fall hunting seasons under Alternative 7 would take place when many species in the action area are engaged in activities that are associated with breeding, such as nesting, incubating, or feeding young. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 7 would likely result in as many as 40 shots fired and 7.5 grenade explosions per year, on average, over ten years (Table 4-1).

The potential for any given hunt-related trip to result in adverse effects on birds, turtles, or marine mammals other than gray whales would be the same as under Alternative 2 in winter/spring hunts and similar but to a lesser degree than Alternative 4 in summer/fall hunts. For this reason, this analysis considers the effects on marine mammals and all other wildlife species together. To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number of 37 days with hunt-related trips as well as the annual average number of rifle shots or grenade explosions. Alternative 7 would therefore result in a smaller risk of disturbance to other wildlife than Alternatives 2, 3, and 6 (each with 60 days of hunt-related trips and higher numbers of shots/explosions). As with Alternative 4, however, Alternative 7 would result in a greater potential to disrupt key activities, such as breeding in the summer/fall hunting season. Alternative 7 would result in a greater risk than the No-action Alternative (0 days and 0 shots/explosions), as well as Alternatives 4 and 5, each with less than 22 days of hunt-related trips and fewer than 32 shots and six explosions. If the Tribe does not receive authorization to hunt during some or all of the winter/spring hunting seasons, the overall impacts of Alternative 7 on other wildlife could be lower than estimated here; however, it is not possible to determine the likelihood and magnitude of such a scenario in such a way as to compare it against the other six alternatives.

Implementing a low abundance threshold for the ENP stock may reduce the impacts on other wildlife below those already analyzed under Alternative 7 without a threshold. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on other wildlife, we consider the relative likelihood of

triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of hunt-related trips, rifle shots, and explosive projectiles used over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to other wildlife while 7(a) could result in the greatest potential impact.

4.6 Economics

4.6.1 Introduction

This subsection addresses the potential for the alternatives to affect economic conditions in the action area. Whale-hunt-related activities have the potential to affect tourism, the household use of whale products, the whale-watching industry, shipping, sport and commercial fishing, and hunt-related management and law enforcement. As discussed in Subsection 3.6, Economics, the labor force residing on the Makah Reservation in 2021 was about 691 persons, or approximately 2 percent of the total wage and salary workforce in Clallam County. Total personal income for the Makah Reservation is probably an even smaller proportion of countywide total personal income because per capita income of reservation residents is substantially lower than countywide per capita income (Subsection 3.6.3.2.3, Personal Income). Because the economic contribution of the Makah Reservation to the countywide economy is so small, the potential for any changes on the reservation under the alternatives to have a noticeable effect on economic conditions in Clallam County as a whole is negligible. Moreover, economic effects outside the reservation are expected to be negligible in the context of the countywide economy. For these reasons, potential effects on Clallam County as a whole will not be addressed in this analysis.

One potential economic effect of the action alternatives that is not included in the analysis in the following subsections is the economic burden on individuals or households engaged in hunting if the cost of hunting is borne by individuals rather than by the tribal government. In 2002, the Makah Tribal Council decided not to provide financial support for a hunt, leaving it up to whale-hunting families to support any hunts, consistent with tribal tradition. However, the Council did not indicate whether it would financially support future hunts should they be authorized. If individual families were to finance hunts under the action alternatives, the economic impacts on some Makah households could be substantial, given the high costs of supplies and services necessary to participate in the numerous activities related to whale hunting. Aside from the expenses of actually engaging in the hunt, there would be the costs of acquiring seagoing canoes and other whale-hunting equipment, training time, and hosting ceremonial feasts. These costs must be viewed in the light of both the depressed economic

situation of many Makah households (Subsection 3.6.3.2.3, Personal Income) and the Makah Tribe's restriction that prohibits tribal members who participate in a whale hunt from receiving monetary compensation. It is likely that a family would launch its own whale hunting enterprise only if that family were economically successful during the several months between whale hunting seasons.

These economic constraints would likely affect the number of hunts that could take place in any given year. However, the magnitude of the household costs arising from the whale hunt, and the distribution of these costs across the Makah community, are not reasonably foreseeable because of uncertainty about what costs families would bear rather than the community as a whole, and about the number of families that would organize a whale-hunting crew.

Also, under Alternatives 6 and 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Assuming the Tribe wished to continue hunting after a waiver expired, Alternatives 6 and 7 could result in added costs to the U.S. government, the Makah Tribe, and interested parties if a new waiver were pursued.

4.6.2 Evaluation Criteria

The criteria used to determine the potential for effects on economic conditions under the alternatives include the potential change in revenue, employment, and/or economic value associated with (1) tourist-related business activity; (2) household consumption of whale products, and manufacture and sale of traditional handicrafts; (3) the whale-watching industry; (4) commercial shipping and sport and commercial fishing; and (5) hunt-related management and law enforcement. The following subsections discuss these matters in greater detail and identify how the effects of the alternatives may be assessed and differentiated.

4.6.2.1 Tourism

Tourism is a relatively large industry in Clallam County; visitors spent $300.7 million in the County in 2018 (Table 3-21). Spending in the food and beverage services sector accounted for about 36 percent of total visitor spending and in the accommodations sector accounted for about 21 percent of total visitor spending. Figures are not available for the amount of revenue generated by reservation tourism and recreation or the number of jobs and amount of personal income that depend on visitor spending, but about 7 percent of jobs (including arts, entertainment, recreation, accommodation, food services, and information) held by Makah Reservation residents in 2021 were in sectors that depend directly on tourism (Table 3-27).

Activities associated with a whale hunt, including the hunt itself and harvest-related ceremonies and celebrations, have the potential to affect the tourism industry in Clallam County by changing the number of visitors to the area and their travel expenditures. Persons seeking opportunities to view a whale hunt may visit trails and beaches in the Olympic National Park, OCNMS, and the Makah Reservation. It is possible that visitation to these areas would increase under the action alternatives compared to the No-action Alternative, as interested observers seek vantage points to view the hunt. Also, there is the potential for persons attracted to the area by hunt-related activities (such as protesters, law enforcement officers, media representatives, or other observers) to engage in other activities, such as camping, sightseeing, or wildlife viewing. Spending associated with these activities could increase under the action alternatives (relative to the No-action Alternative).

As described in Subsection 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts, no quantitative information is available concerning the economic effects of the Makah Tribe's practice whale hunt exercises in late 1998 or their whale hunting in the spring of 1999 and of 2000. Protests and media coverage of these events may have temporarily generated an increase in the number of people in the area who might have sought accommodations and services in the communities of Neah Bay, Clallam Bay, and Sekiu. Some anecdotal information suggests this was the case, while other anecdotal information suggests it was not. No economic data demonstrate that the influx of visitors during previous hunt-related events resulted in an increase in the number of rooms rented or in other economic activity. Given the likely influx of visitors coming to Neah Bay to observe, protest, or report on the hunt, or to participate in tribal ceremonies and celebrations, it is reasonable to expect there would be a short-term increase in tourist-related business activity associated with these visitors. Any short-term effect is likely to be minor and may diminish as more hunts occur. Subsection 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts, indicates that there were fewer protesters at the 2000 hunt than the 1999 hunt. Over the long term, there is no information suggesting that the hunts in 1999 and 2000 had any lasting effect on tourism in Clallam County or Neah Bay. Thus, while a whale hunt might attract visitors to the Neah Bay area, it is likely that any positive effect would be short-term and minor.

In addition to attracting visitors to Clallam County when hunt-related activities occurred, Makah whale hunting might have a broader and longer-term positive effect on the Tribe's efforts to bolster the tribal tourism sector of the reservation economy. As Jollie and Green (2001) report:

> Visitors mostly learned about the Makah Tribe through whaling notoriety and Olympic National Park and hiking trail advertisements. . . . The controversy over whaling has had a direct impact on tourism as people are drawn to the area by media reporting of the whaling events.

Controversy surrounding resumption of whale hunting has rekindled international interest in the Makah people at the same time as tribal tourism and other types of cultural tourism are rapidly gaining popularity throughout the world (Washington State Parks 2004). The Makah Tribe has been an active participant in programs by Washington State and the Affiliated Tribes of Northwest Indians to market tribal tourism (Affiliated Tribes of Northwest Indians undated; Jollie and Green 2001; May 2001). Although the government sector is the dominant employer on the Makah Reservation (Subsection 3.6.3.2.2, Employment), tourism is also considered a key element of the local economy (Subsection 3.6.3.2.4, Contribution of Tourism to the Local Economy).

Any positive effects of a whale hunt on tourism (both locally and county-wide) could be offset to some extent if opposition to the hunt resulted in boycotts of Olympic Peninsula tourism activities, including boycotts of Neah Bay specifically. Subsection 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts, describes efforts to organize a boycott of the Makah nation, but no available information indicates the boycott had any effect on tribal enterprises. Similarly, there is no evidence that calls for boycotts of Olympic Peninsula tourism had any negative economic impact on tourist-related businesses in the area. It is possible that some persons who might participate in a boycott would not do so if the whale hunting was conducted with restrictions on hunt timing, area, or the number or identity of whales that may be struck. However, protest activities and vocal opposition to the hunt have come from groups that have expressed opposition to whale hunting under any conditions (Subsection 4.8.3, Evaluation of Alternatives [Social Environment]). Persons opposed to whale hunting under any conditions would be likely to participate in a boycott under any of the action alternatives.

The effects on tourism would depend primarily on (1) the number of days with hunt-related trips, (2) the anticipated number of persons who might be attracted to the area by hunt-related activities (such as reporters, protesters, or observers), and (3) the anticipated amount, intensity, duration, scope, and content of media coverage. The second two factors are also discussed in Subsection 4.12, Aesthetics.

4.6.2.2 Household Use of Whale Products

Under the No-action Alternative (current conditions), Makah tribal members do not have the opportunity to consume freshly harvested whale products. Drift whales or whales incidentally caught in fishing operations may provide an opportunity to consume whale products or to produce hand-crafted articles made from whale products (Subsection 2.4.2, Subsistence Use of Drift Whales). If a whale hunt were authorized under any of the action alternatives, Makah tribal members could consume the meat, blubber, and other edible products obtained from harvested whales (Subsection 2.3.2.2.11, Whale Product Use and Distribution). Moreover, within the borders of the United States, tribal members could share edible whale products from any hunt with relatives of participants in the harvest, with others in

the local community (both non-relatives and relatives), or with persons in locations other than the local community with whom local residents share familial, social, cultural, or economic ties.

Subsistence food products from a whale would not generate revenue through market sales but would meet nutritional needs of Makah families. Thus, attaching a dollar value to food products from harvested whales is difficult. Nevertheless, the harvest of whales for food has economic value to households as they potentially replace foods that families would otherwise have to purchase. The distribution of subsistence products through sharing networks makes it likely that many households and individuals would enjoy the economic benefits of a whale harvest.

In household surveys conducted in 2001, 2006, 2011, and 2017, 80 to 90 percent of survey respondents expressed an interest in increased access to whale products (Subsection 3.10.3.5.1, Makah Whaling). Considering the numbers of whales that could be harvested under the action alternatives and the customary sharing of subsistence resources among tribal members (Subsection 3.10.3.5.2, Makah Subsistence Consumption), the per capita economic value of whale products as a food resource would probably be small. The Tribe's most recent needs statement to the IWC (Renker 2018) estimates that harvesting an average of four gray whales per year would yield 8 to 20 pounds (4 to 9 kg) of meat per capita and 16 to 20 pounds (7 to 9 kg) of oil or blubber per capita (and a somewhat smaller amount of whale oil after rendering). Nevertheless, the reintroduction of whale food products into the Makah community could help offset potential food shortages if other subsistence resources diminish, and could prevent people from having to spend cash to replace subsistence foods (Renker 1996; 2007; 2012; 2018).

In addition, the Makah Tribe could create and sell or offer for sale authentic articles and native handicrafts and clothing, including artwork, made from non-edible whale products, within the United States under any of the action alternatives (Subsection 2.3.2.2.11, Whale Product Use and Distribution). A whale hunt would likely increase the availability of non-edible whale products, compared to the No-action Alternative, for the manufacture and sale of traditional handicrafts. The Makah have a long tradition of manufacturing carvings, baskets, and other items for sale to collectors and tourists (Erikson 2003), and "[t]ribal artisans also produce carvings, jewelry, and silk screen designs for sale in local shops and regional galleries" (Subsection 3.6.3.2.1, General Description of the Local Economy). Seventy-six percent of Makah households expressed a desire for whale bones, possibly to revitalize certain crafts (Subsection 3.10.3.5.1, Makah Whaling). Handcrafted articles made from whale products could become sources of income for some Makah households and a means of perpetuating indigenous art forms and crafts. Renker (1996) notes that the bones of a gray whale incidentally caught in 1995 were distributed to Makah artists through the Makah Cultural and Research

Center, which is one of the largest retail outlets of Makah artwork on the reservation (Erikson 2003). According to Renker (2007), some Makah tribal members indicated they were disappointed that the bones of the whale harvested in the 1999 hunt were not made available to the community for private use. They were used by the local school for a bone preservation project instead (Subsection 3.10.3.5.1, Makah Whaling) and currently are on display in the Makah Cultural and Research Center.

The amount of whale products for household consumption and the manufacture and sale of traditional handicrafts would depend on the number of whales that could be harvested.

4.6.2.3 Whale-watching Industry

Whale-watching is not economically important in Clallam County with few whale-watching opportunities available, but there are larger whale-watching operations outside and adjacent to the county in Westport, Washington and Vancouver Island, British Columbia (Subsection 3.6.3.3.2, Commercial Value of Whales). Information on the current numbers of whale-watching expeditions, whale-watching passengers, whale-watching revenues in these areas, or people employed in the whale-watching sector is not available. A Makah gray whale hunt could affect whale-watching revenues or employment if a hunt caused prospective passengers to avoid whale-watching tours; if a hunt occurred in the vicinity of whale-watching operations and disturbed whales, causing them to move away from the area; or if whales altered their behavior as a result of hunting and avoided whale-watching vessels. For the reasons discussed below, it is unlikely that whale-hunting under any of the action alternatives would have more than a negligible effect on whale-watching revenues or employment within or outside the action area through any of these scenarios.

First, while negative publicity about Makah whale hunting could reduce public participation in whale watching in general, there is no information demonstrating such an effect. In addition, it is unlikely that whale-hunting activities under the action alternatives would interfere with whale-watching tours in the action area. There is no evidence that whale-watching operators conduct tours targeting gray whales in the action area. Much of the gray whale watching in Clallam County is from land-based locations along its seashore, although whale-watching charters may be available through some sport fishing boat operators (Subsection 3.6.3.3.2, Commercial Value of Whales). While gray whale watching is an important tourist activity off Westport, located on Washington's Pacific coastline at Grays Harbor (Subsection 3.6.3.3.2, Commercial Value of Whales), that area is approximately 80 miles (129 km) south of the Makah U&A. Several of Westport's charter boat businesses offer whale-watching trips from March through May, when gray whales can be viewed just off the coast during their annual migration. It is unlikely that these tour operators would expend the time and fuel to travel to the Makah U&A when gray whales are present immediately off shore. Whale-watching tours from Westport,

therefore, would be unlikely to encounter hunt-related activities under any of the action alternatives. The gray whales are northbound at that time and pass Westport before reaching the Makah U&A farther north. Whale-hunting activities under any of the action alternatives, therefore, would be extremely unlikely to scare whales away from areas where they may be encountered by whale-watching tours out of Westport, even during the peak tour period of March through May.

Whale-watching is also an important tourist activity off Vancouver Island (Subsection 3.6.3.3.2, Commercial Value of Whales). Although most Vancouver Island-based whale-watching operators focus largely on opportunities for viewing killer whales, they also advertise opportunities for viewing other wildlife, including gray whales. Further, none of these operators describes tours that include the Makah U&A.

It is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels (Subsection 3.4.3.6.6, Vessel Interactions). ENP gray whales have been exposed to hunting for decades by Chukotka Natives, yet that ongoing hunt has not translated into a general avoidance of boats by gray whales (NMFS 2001a; Hoyt and Hvenegaard 2002). There is no evidence to suggest that hunting by the Makah Tribe would cause a change in behavior that has not yet been demonstrated to result from a far more extensive hunt. ENP gray whale behavior also does not appear to have been affected by other types of human and vessel activity. As described in Subsection 3.4.3.6.6, Vessel Interactions, these whales migrate through waters occupied by large numbers of commercial and private vessels. Off the coast of Los Angeles, California, during the whale-watching season, Rugh et al. (1999) reported that 8 to 12 boats may follow a single whale. The number of approaches incidental to Makah whale hunting would be minor compared to the whales' existing level of exposure to vessels. Similarly, as described in Subsection 4.5, Other Wildlife, any effects of a hunt on other marine mammals that might be a target of whale-watching operators would likely be localized and temporary.

Finally, over time an ongoing hunt could reduce the abundance of whales in the PCFG range by a current maximum of one to five whales per year (or a more likely range of 0 to 2 whales per year depending on the alternative), which could in turn reduce the number of gray whale encounters/sightings experienced during whale-watching tours if more whales do not recruit to replace the harvested whales. However, whale-watching operators are adept at finding whales (especially killer whales) and many advertise their high success rate and guarantee sightings (e.g., Island Adventures 2014; Vancouver Whale Watch 2014), although not necessarily of gray whales. Also, active whale sighting networks typically include reports from whale-watching charters that can make it easier for operators to locate even lone animals or small concentrations of animals, including gray whales (Orca Network 2014; Gless and Krieger 2023). Moreover, because gray whales are not typically the sole or

primary species targeted by most whale-watching operators it is unlikely that a decrease in the numbers of gray whales would appreciably impact the public's incentive to pursue whale watching in the PCFG range.

If a Makah gray whale hunt were to alter gray whale behavior or result in a reduction in gray whale numbers, it is not possible to estimate the amount of decrease that might occur in revenues of whale-watching operators. Current revenues of whale-watching operators are unknown, and there is no information available or that could reasonably be obtained that would allow an estimation of how much whale-watching revenues might decrease if gray whale behavior or numbers were altered by a Makah hunt. The extent to which a Makah hunt had an effect on gray whale behavior or numbers, and a subsequent indirect effect on whale-watching revenues, would depend primarily on factors that could reduce the abundance of whales or cause whales to avoid boats, including the number of whales that could be struck and the estimated number of whales killed or subjected to harpoon attempts and approaches.

4.6.2.4 Shipping and Ocean Sport/Commercial Fishing

Under the No-action Alternative, the value of commercial shipping in Washington State is $90 billion, a substantial proportion of which is the result of shipping that passes through the action area (Subsection 3.6.3.1.4, Commercial Shipping). Between 2017 and 2019, expenditures associated with recreational salmon fishing generated between $601,000 and $721,00 of personal income (in 2021 dollars) in Neah Bay each year, with the recreational groundfish fishery likely accounting for comparable spending levels (Subsection 3.6.3.2.5, Contribution of Ocean Sport Fishing to the Local Economy). Most fishing derbies in Clallam County take place during late spring through early autumn. The value of commercial fish landings at the Port of Neah Bay between 2016 and 2020 ranged from $42.5 to $68.4 million annually (Subsection 3.6.3.2.6, Contribution of Ocean Commercial Fishing to the Local Economy).

If whale hunting restricted the operations of commercial shipping traffic or sport and commercial fishing vessels, it could affect revenues or employment associated with these sectors. Vessels not involved in whale hunting would have to maintain prudent distances from whale hunts as a safety precaution. As discussed in Subsection 2.3.2.2.12, Other Environmental Protection Measures; Public Safety Measures and Enforcement, there would be a moving exclusionary zone (MEZ) with a 500-yard (457-m) radius centered on tribal vessels actively engaged in a whale hunt under any of the action alternatives. No person or vessel would be able to enter the MEZ when it was activated, except for the authorized Makah whale hunt vessel, a media pool vessel preauthorized by the Coast Guard, or another vessel or person preauthorized by the Coast Guard. The requirement to remain outside the MEZ could

increase operating costs if it caused vessels to take longer routes to reach their destinations or could decrease revenues if it prevented fishing vessels from accessing fishing grounds. It is possible that revenues associated with shipping, sport fishing, or commercial fishing could decrease in response to these restrictions.

The small size and limited duration of the MEZ would likely result in negligible disruption of commercial shipping or sport and commercial fishing. The activation of the MEZ may simply displace these activities rather than halt them altogether. Further, as described in Subsection 4.13.2.2, Marine Traffic, hunt-related activities would probably not interfere with commercial shipping traffic because most, if not all, hunting would likely occur within the Coast Guard RNA, which lies almost entirely within the OCNMS area to be avoided.

The potential for any of the alternatives to affect shipping or sport and commercial fishing would depend primarily on the number of times the MEZ would be activated. It is not possible to predict how many times the MEZ would be activated on a given day of hunting, but it is reasonable to expect that MEZ activation would be no more or less likely to occur on one day of hunting compared to another. For this reason, the number of days of hunting is used to indicate the number of times the MEZ would be activated under any of the alternatives. (Note that this analysis differs from many of the other resource area analyses in this EIS because it focuses on days of actual hunting rather than days with hunt-related trips [i.e., hunting or scouting]). For sport fishing operations, the potential for an effect could also depend on the season that hunting is allowed. Sport fishing for salmon occurs during the summer and early fall, while sport fishing for other species occurs year-round (Subsection 3.6.3.2.5, Contribution of Ocean Sport Fishing to the Local Economy). Hunting that occurs on summer days would have a greater potential to affect sport fishing than hunting that occurs on winter days.

4.6.2.5 Management and Law Enforcement

Under the No-action Alternative, NMFS' annual budget for marine mammal management in the West Coast Region during 2012 and 2013 has ranged from $766,000 to $903,000 per year (NMFS 2014a). The overall budget for monitoring the ENP gray whale population is approximately $75,000. Within the ENP gray whale budget, funding has been provided for photo-identification studies of gray whales in local survey areas with one purpose, among others, being management of a potential Makah gray whale hunt. It is uncertain whether NMFS would continue to fund the photo-identification program if a hunt was not authorized. Because no gray whale hunting currently occurs, there are no NMFS observers associated with a hunt.

If a whale hunt were authorized under any of the action alternatives, it is likely that hunting would be monitored and evaluated for its impact on the ENP gray whale population in general and on PCFG

whales in particular. Funding would likely continue for the photo-identification studies aimed at identifying PCFG whales. Estimated annual costs for NMFS for the photo-identification study are $75,000 (NMFS 2014a). Funding would also likely be provided for NMFS and Makah observers during and immediately following a hunt (Subsection 2.3.2.2.12, Other Environmental Protection Measures). The cost of a NMFS observer could be as high as $8,000 per month (i.e., averaging $263 per day) (NMFS 2014a).

If whale hunting by the Tribe engendered protests by whaling opponents, as it has in the past, there would likely be law enforcement operations to maintain order. Past law enforcement activities have involved the United States Coast Guard, NMFS Office of Law Enforcement, the State of Washington, Clallam County Sheriff's Office, and Makah tribal police. Estimated costs for all non-tribal agencies could approach $91,670 per day, with the bulk of costs associated with United States Coast Guard aircraft and vessels (NMFS 2014a) (Table 4-16).

Under any of the action alternatives, costs associated with hunt observers or with law enforcement would depend primarily on the number of days of hunt-related trips (Table 4-1). The costs for hunt observers would increase (relative to the No-action Alternative) by at least the number of days of hunting per year. Given the remoteness of the action area, it is likely that observers would need to be paid for additional days because of travel times to and from Neah Bay.[16] Therefore, we assume that the number of days with hunt-related trips is a better cost estimator. It is not possible to predict the number of days of preparation or protests that would occur for each day of hunting. Estimated enforcement costs for any of the alternatives may therefore be conservative. Costs for photo-identification studies would likely be the same regardless of the action alternative implemented.

4.6.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect economic conditions both within and outside the action area. Potential effects outside the action area include such things as changes in revenue or employment associated with whale watching and tourism. For each alternative, the discussion addresses the potential effects on tourism, household use of edible and non-edible whale products, the whale-watching industry, commercial shipping, sport and commercial fishing, and management and law enforcement.

Under any of the action alternatives, tourist-related enterprises in and around the action area could experience a minor increase in business activities over the short term compared to the No-action

[16] During the 1999 hunt, the NMFS observer needed a day to travel to Neah Bay after being contacted by the whaling captain, as well as the following day to coordinate with the whaling crew (Gosho 1999).

Alternative. Interested tourists and other visitors would most likely visit the action area to observe the whale hunt and might participate in harvest-related celebrations as media stories raised public awareness of the Makah whale hunt and the Tribe's whale hunting tradition. Some individuals might decide not to visit the action area based on negative publicity about the whale hunt. Overall, it is reasonable to expect more visitors would be drawn to the area than avoid the area as a result of a whale hunt, potentially resulting in a minor short-term increase in tourism-related business activity. The amount of any such potential short-term increase would likely depend on the number of days with hunt-related trips under a particular alternative. Thus, alternatives with more days with hunt-related trips would likely result in a greater increase.

The potential also exists for increased long-term business activity (relative to the No-action Alternative) as a result of expansion of the tribal tourism sector of the reservation economy. Such a potential is likely linked to whether hunting occurs at all and is therefore likely to be similar across all of the action alternatives.

Under any of the action alternatives, the potential for whale products to become available for household consumption and the making and selling of handicraft articles would increase (relative to the No-action Alternative) as a result of the opportunity for tribal members to harvest whales. The amount of any increase would depend on the number of whales likely to be harvested under a particular alternative. Thus, alternatives with higher harvest levels would likely result in a greater increase.

The lowest risk of adverse effects on whale-watching operators, commercial shipping traffic, and sport and commercial fisheries would occur under the No-action Alternative because no whale hunts would be permitted under this alternative. Under any of the action alternatives, it is unlikely that Makah whale hunting would have more than a negligible effect on whale watching, for the reasons described above (Subsection 4.6.2.3, Whale-watching Industry). To the extent such an impact did occur, the amount of risk would probably depend on the number of whales that could be killed, struck, or exposed to harpoon attempts and approaches. Thus, alternatives that result in greater numbers of harvested whales, strikes, harpoon attempts, or approaches would have a greater potential to adversely affect whale-watching operators.

The potential for disruption of commercial shipping traffic and sport and commercial fisheries would likely be negligible because of the small size and duration of the MEZ. To the extent such an impact did occur, the amount of disruption would probably depend on the number of times the MEZ was activated, which would depend on the number of days of hunting. Thus, alternatives that result in more days of hunting would have a greater potential to adversely affect commercial shipping traffic and sport and commercial fisheries.

The potential for economic effects associated with the costs of law enforcement and management would be lowest under the No-action Alternative, while alternatives that involve more days with hunt-related trips and longer hunting seasons could potentially have higher associated costs.

4.6.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted and no whale hunting or associated activities (e.g., ceremonies, celebrations, protests, monitoring, and law enforcement) would be anticipated. There would be no potential for visitors to view hunt-related activities in the action area or to participate in harvest-related celebrations. There would also be no potential for media coverage of the whale hunt that might, in turn, generate interest in the Makah Reservation as a cultural tourism destination. Consequently, the level of business activity for tourist-related enterprises in and around the action area would not be expected to differ from the current level.

With the possible exception of products from drift whales, there would be no potential for households to consume whale meat and blubber or use non-edible whale products for the manufacture and sale of traditional handicrafts. There would be no potential for a whale hunt to disrupt the whale-watching industry, commercial shipping, or sport or commercial fishing. Consequently, the economic conditions of the whale-watching industry, commercial shipping, and sport and commercial fishing would probably not differ from current conditions. The lack of whale hunting would make monitoring and enforcement unnecessary, so there would be no additional costs associated with these activities. The current costs for photo-identification studies may or may not continue.

4.6.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, hunt-related trips would likely occur on approximately 60 days from December through May, but primarily during April and May (Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 2]). The limit on the number of whales struck would be seven, and the limit on the number of harvested whales would be an average of four per year with a maximum of five in any one year. Approximately 42 whales would be exposed to harpoon attempts and 353 would be approached annually (Table 4-1). Compared to the No-action Alternative, under which there would be no hunting, Alternative 2 would likely result in (1) minor short-term increases in tourism on or near the approximately 60 days per year when hunt-related trips would be expected to occur, (2) an increase of four whales annually available for household use by Makah tribal members, (3) negligible changes in whale-watching revenues, (4) minor increases in the potential for interference with shipping and sport/commercial fishing vessels, and (5) an increase in expenditures for management and law enforcement.

4.6.3.2.1 Tourism

Under Alternative 2, visitors would likely be drawn to the action area on or near the approximately 60 days per year on which hunt-related trips would be expected to occur, potentially creating a minor increase in the level of business activity for nearby tourist-related businesses, compared to the No-action Alternative (under which no visitors would come to the action area to observe whale hunts). The number of whale hunts portrayed in the media would also likely increase compared to the No-action Alternative, possibly increasing public interest in the Makah Reservation as a cultural tourism destination (or, conversely, causing some individuals to avoid the action area because of negative publicity). The increased business activity would likely be short-term (lasting only during the days immediately surrounding hunt-related activities), as visitors would come to observe the hunt and to participate in harvest-related celebrations. Hunting would be allowed from December 1 through May 31 but would most likely occur during April and May. Potential inclement weather during April and May could deter visitors from coming to observe a whale hunt or participate in harvest-related ceremonies.

It is uncertain whether a hunt would result in a long-term increase in tourism. Publicity about the whale hunt could generate interest in the Makah Reservation as a cultural tourism destination, while some individuals might not visit the area because of negative publicity about the whale hunt. Subsection 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts, describes efforts to organize a boycott of the Makah Nation, but no available information indicates the boycott had any effect on tribal enterprises. Similarly, there is no evidence that calls for boycotts of Olympic Peninsula tourism had any negative economic impact on tourist-related businesses in the area.

4.6.3.2.2 Household Use of Whale Products

Compared to the No-action Alternative (under which no whales could be harvested and the Tribe would have access only to drift whales or whales incidentally caught in fishing gear), up to five whales annually could be harvested under Alternative 2, with an average annual harvest of four whales allowed. The limit on the number of PCFG whales killed per year would be three, based on current population estimates (Table 4-3). In addition, only PCFG whales harvested, not whales struck and lost, would be counted toward that limit. It is, therefore, unlikely that limits on PCFG whale mortality would restrict the total number of whales harvested per year under Alternative 2. The hunting season would be restricted to the period from December 1 through May 31, with most hunts likely occurring during April and May. Potential inclement weather during these months would likely affect the number of days the Tribe could hunt, which could affect the Tribe's ability to harvest the full number of whales allowed.

Under Alternative 2, the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts would increase relative to the No-action Alternative. The increased availability of whale products would have the potential to replace foods that Makah families would otherwise have to purchase and result in increased income for households that participate in the making and selling of traditional handicrafts. The increase would come from whales the Tribe was actually able to harvest, which would likely be up to four whales annually. The actual number of whales harvested each year could be lower because of the constraints on PCFG whales and the hunting season.

4.6.3.2.3 Whale-watching Industry

Compared to the No-action Alternative (under which no whales would be struck, exposed to harpoon attempts, or approached by hunters), under Alternative 2, up to 7 whales may be struck or killed annually, 42 exposed to unsuccessful harpoon attempts, and 353 approached. As noted above, limits on the harvest of PCFG whales would not be likely to restrict the Tribe's ability to harvest the full number of whales allowed, nor the number of whales struck, exposed to unsuccessful harpoon attempts, and approached. The hunting season would be restricted to the period from December 1 through May 31, with most hunts likely occurring during April and May. Potential inclement weather during these months would likely affect the number of days the Tribe could hunt, which could also affect the number of whales harvested, struck, exposed to unsuccessful harpoon attempts, and approached.

As described in Subsection 4.6.2.3, Whale-watching Industry, there is no information to suggest that individuals would avoid whale-watching tours if a Makah hunt is authorized, and it is unlikely that Makah hunting activities would overlap geographically with whale-watching tours. It is also unlikely that a reduction in the number of gray whales (which are not typically targeted by whale-watching operators) would change public interest in whale-watching tours, nor is it likely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels. As described in Subsection 4.5, Other Wildlife, it is likely that any effects of a hunt on other marine mammals, which might be a target of whale-watching operators, would be localized and temporary. To the extent such an effect might occur under Alternative 2, it is not possible to estimate the amount of decrease that might occur in revenues associated with whale watching. Current revenues of whale-watching operators are unknown, and there is no information available or that could be obtained that would allow an estimation of how much revenues might decrease if ENP gray whale behavior were altered by a Makah hunt.

4.6.3.2.4 Shipping and Ocean Sport/Commercial Fishing

Compared to the No-action Alternative (under which there would be no whale hunts and no activation of the MEZ), activation of the MEZ during hunting on approximately 33 days (Table 4-1) under

Alternative 2 would lead to an increased potential for restricting operations of commercial shipping vessels and sport and commercial fishing. Hunting would likely occur primarily in April and May when there are more suitable hunting days.

The small size of the MEZ and limited duration of activation would likely result in negligible potential for disruption of commercial shipping or sport and commercial fishing. Further, as described in Subsection 4.13.2.2, Marine Traffic, hunt-related activities would probably not interfere with commercial shipping traffic because most, if not all, hunting would likely occur within the Coast Guard RNA, which lies almost entirely within the OCNMS area to be avoided. Also, most sport fishing for salmon occurs outside the time that whale hunting would take place under Alternative 2. Consequently, only minor economic impacts to commercial shipping or sport and commercial fisheries would be expected as a result of implementing Alternative 2.

4.6.3.2.5 Management and Law Enforcement

Compared to the No-action Alternative (under which no whale-hunting or associated protests would occur), Alternative 2 could result in up to 60 days of hunt-related trips and associated commitments of observers and enforcement personnel, vehicles, and equipment. The costs for hunt observers would increase (relative to the No-action Alternative) by at least the number of days of hunting per year (33 days) (Table 4-1). Given the remoteness of the action area, it is likely that observers would need to be paid for additional days because of travel times to and from Neah Bay. Therefore, we assume that the number of days with hunt-related trips (60 days) is a better estimator; costs for a NMFS observer for 60 days could be as high as $15,780 (NMFS 2014a) (Table 4-16) under Alternative 2. It is uncertain whether the existing photo-identification study would continue to be funded under the No-action Alternative. If not, then its continuation under Alternative 2 could represent an increased cost beyond the No-action Alternative.

If whale hunting by the Tribe engenders protests by whaling opponents, as it has in the past, there could also be costs associated with law enforcement activities. These costs would be an increase over the No-action Alternative by the number of days when hunt-related activities (e.g., hunting, protests, and ceremonies) occurred that required a law enforcement presence. Although likely days of hunting (33 days) would represent the minimum number of days on which a law enforcement presence might be required, the number of days with hunt-related trips (60 days) may represent a more reasonable, upper estimate given the past history of interest and protest activity associated with this whale hunt. Estimated costs for all non-tribal agencies could be as high as $5.5 million over the course of 60 days, with the bulk of costs associated with United States Coast Guard aircraft and vessels (NMFS 2014a) (Table 4-16).

4.6.3.3 Alternative 3, Offshore Hunt

Under Alternative 3, as under Alternative 2, hunt-related trips would be likely to occur on approximately 60 days from December 1 through May 31, but primarily during April and May. Based on the expectation that scouting expeditions would also be prepared to hunt if whales were found, it is assumed for this analysis that hunting could also occur on approximately 60 days each year (Subsection 4.1.3.1, Potential Timing of a Hunt and Number of Hunting Days[Alternative 3]). Although Alternative 3 would include the same limit on the number of whales harvested as Alternative 2, the limit on the number of whales struck would be six instead of seven. It is assumed for this analysis that approximately 36 whales would be exposed to harpoon attempts and 353 would be approached annually (Table 4-1). Compared to the No-action Alternative, under which there would be no hunting, Alternative 3 would likely result in (1) minor short-term increases in tourism on or near the approximately 60 days per year when hunt-related trips would be expected to occur, (2) an increase of four whales annually available for household use by Makah tribal members, (3) negligible changes in whale-watching revenues because of changes in whale behavior as a result of interactions between hunters and whales, (4) minor increases in the potential for interference with commercial shipping and sport and commercial fishing vessels, and (5) an increase in expenditures for management and law enforcement during the likely 60 days with hunt-related trips.

Because both Alternative 2 and Alternative 3 would be expected to result in the same number of days with hunt-related trips, the potential effects on tourist-related business activity under Alternative 3 would likely be the same as those under Alternative 2.

4.6.3.3.1 Tourism

Under Alternative 3, visitors would likely be drawn to the action area on or near the approximately 60 days per year on which hunt-related trips would be expected to occur, potentially creating a minor increase in the level of business activity for nearby tourist-related businesses, compared to the No-action Alternative (under which no visitors would come to the area to observe whale hunts). The number of whale hunts portrayed in the media would also likely increase compared to the No-action Alternative, possibly increasing public interest in the Makah Reservation as a cultural tourism destination (or, conversely, causing some individuals to avoid the action area because of negative publicity). The increased business activity would likely be short-term (lasting only during the days immediately surrounding hunt-related activities), as visitors would come to observe the hunt and to participate in harvest-related celebrations. Hunting would be allowed from December 1 through May 31, but would most likely occur during April and May. Potential inclement weather during April and

May could deter visitors from coming to observe a whale hunt or participate in harvest-related ceremonies.

It is uncertain whether a hunt would result in a long-term increase in tourism. Publicity about the whale hunt could generate interest in the Makah Reservation as a cultural tourism destination, while some individuals might not visit the area because of negative publicity about the whale hunt.

4.6.3.3.2 Household Use of Whale Products

Compared to the No-action Alternative (under which no whales could be harvested and the Tribe would have access only to drift whales or whales incidentally caught in fishing gear), up to five whales annually could be harvested under Alternative 3, with an average annual harvest of four whales allowed. In contrast to Alternative 2, however, whales struck and lost would be counted toward the annual mortality limit for PCFG whales, potentially reducing the total number of whales that could be harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested (Subsection 4.1.3, Alternative 3). Compared to Alternative 2, therefore, it is less likely that the Tribe would be able to harvest an average of four whales per year under Alternative 3. Alternative 3 could thus have a smaller increase (relative to the No-action Alternative) in the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts than would Alternative 2. The potential for replacement of foods that Makah families would otherwise have to purchase and increased income for households that participate in the making and selling of traditional handicrafts would likewise be smaller than under Alternative 2, although greater than under the No-action Alternative.

4.6.3.3.3 Whale-watching Industry

Compared to the No-action Alternative (under which no whales would be struck, exposed to harpoon attempts, or approached by hunters), under Alternative 3, up to 6 whales may be struck or killed annually, 36 exposed to unsuccessful harpoon attempts, and 353 approached. Although these estimates are similar to those for Alternative 2 (under which up to 7 whales may be struck annually, 42 exposed to unsuccessful harpoon attempts, and 353 approached), the actual numbers of whales killed, struck, exposed to harpoon attempts, or approached by hunters each year under Alternative 3 could be substantially smaller. As explained above in the analysis of household use of whale products, the mortality limit for PCFG whales under Alternative 3 could, in some years, result in the curtailment of the hunt before the harvest limit is attained. Therefore, the potential for a change in revenues or employment associated with whale watching, compared to the No-action Alternative, could be somewhat lower than the potential described for Alternative 2.

As described in Subsection 4.6.2.3, Whale-watching Industry, there is no information to suggest that individuals would avoid whale-watching tours if a Makah hunt is authorized, and it is unlikely that Makah hunting activities would overlap geographically with whale-watching tours. It is also unlikely that a reduction in the number of gray whales (which are not typically targeted by whale-watching operators) would change public interest in whale-watching tours, nor is it likely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels. As described in Subsection 4.5, Other Wildlife, it is likely that any effects of a hunt on other marine mammals, which might be a target of whale-watching operators, would be localized and temporary. To the extent such an effect might occur under Alternative 3, it is not possible to estimate the amount of decrease that might occur in revenues or employment associated with whale watching. Current revenues of whale-watching operators are unknown, and there is no information available or that could be obtained that would allow an estimation of how much revenues might decrease if ENP gray whale behavior were altered by a Makah hunt.

4.6.3.3.4 Shipping and Ocean Sport/Commercial Fishing

Compared to the No-action Alternative (under which there would be no whale hunts and no activation of the MEZ), activation of the MEZ during hunting on approximately 43 days under Alternative 3 would lead to an increased potential for restrictions on the movement of commercial shipping traffic and sport and commercial fishing. Hunting would occur primarily in April and May.

Compared to Alternative 2, the additional days of hunting (43 days under Alternative 3 versus 33 days under Alternative 2 of estimated suitable hunting conditions) would result in more instances of the MEZ being activated. This would increase the potential for whale hunting to interfere with commercial shipping or sport and commercial fishing operations beyond the potential under Alternative 2. However, as under Alternative 2, the small size of the MEZ and limited duration of activation would likely result in a negligible potential for disruption of vessel movement or fishing operations. The potential for hunt-related activities to interfere with commercial shipping traffic would be further minimized because most, if not all, hunting would likely occur within the Coast Guard RNA, which lies almost entirely within the OCNMS area to be avoided. Also, whale hunting under Alternative 3 would take place outside of the period when most sport fishing for salmon occurs in the action area. Consequently, only minor economic impacts to commercial shipping or sport and commercial fisheries would be expected as a result of implementing Alternative 3.

4.6.3.3.5 Management and Law Enforcement

Under Alternative 3, hunt-related trips would be likely to occur on approximately 60 days from December 1 through May 31 but primarily during April and May. Based on the expectation that

scouting expeditions would also be prepared to hunt if whales were found, it is assumed for this analysis that management and law enforcement resources could also be needed on approximately 60 days with hunt-related trips each year. Therefore, under Alternative 3, costs would be incurred for NMFS and Makah observers during 60 days, resulting in an increase in costs (relative to the No-action Alternative) and the same costs estimated under Alternative 2. Costs associated with photo-identification studies under Alternative 3 would be the same as under Alternative 2. It is uncertain whether the existing photo-identification study would continue to be funded under the No-action Alternative. If not, then its continuation under Alternative 3 could represent an increased cost beyond the No-action Alternative. Daily costs for enforcement could be less under Alternative 3 than the other action alternatives because hunting would take place farther off shore (Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore). Restricting hunts to offshore areas might result in a decreased need for law enforcement response, compared to the other action alternatives, because of the range limitations of some vessels (e.g., jet skis) used by protesters. If fewer people are able to participate in protests near vessels engaged in hunting, there may be fewer situations that result in the issuance of citations for negligent vessel operations, MMPA take violations, or violations of the MEZ. However, many law enforcement elements would still be deployed to monitor the hunt and the vessels transiting to and from the hunt area, and to prepare for any land-based protests. Therefore, law enforcement costs under Alternative 3 would be higher than under the No-action Alternative and would likely be the same or less than those estimated under Alternative 2.

4.6.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. The maximum number of whales struck or harvested under current conditions would be limited to one ENP male whale every other year. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), hunt-related trips under Alternative 4 would be likely to occur on approximately 7 days every other year. It is assumed for this analysis that, on average, approximately 3 whales would be exposed to harpoon attempts and 29 would be approached annually (Table 4-8). Based on the above, Alternative 4 would have a lower potential than Alternative 2 to result in changes in revenue, employment, and/or economic value, relative to the No-action Alternative, associated with (1) tourist-related business activity, (2) household consumption and manufacture and sale of traditional handicrafts, (3) the whale-watching industry, (4) commercial shipping, sport/commercial fishing, and (5) hunt-related management and law enforcement.

4.6.3.4.1 Tourism

Under Alternative 4, visitors would likely be drawn to the action area on or near the approximately 7 days every other year on which hunt-related trips would be expected to occur, potentially creating a minor increase in the level of business activity for nearby tourist-related businesses, compared to the No-action Alternative (under which no visitors would come to the action area to observe whale hunts). The number of whale hunts portrayed in the media would also likely increase compared to the No-action Alternative, possibly increasing public interest in the Makah Reservation as a cultural tourism destination (or, conversely, causing some individuals to avoid the area). The increased business activity would likely be short-term (lasting only during the period immediately surrounding hunt-related activities), as visitors would come to observe the hunt and to participate in harvest-related celebrations.

Compared to Alternative 2, the reduced number of days with hunt-related trips (3.5 on average versus 60) would probably result in a smaller increase (relative to the No-action Alternative) in the total number of visitors coming to the Makah Reservation to observe a whale hunt and/or participate in activities associated with the hunt, such as harvest-related celebrations. Conversely, visitation on days with hunt-related activities may be higher than under Alternative 2 because hunts would likely occur during the summer when visitation by tourists to the Olympic Peninsula is comparatively higher than during April and May (when most hunting would likely occur under Alternative 2). Increased visitation would be expected to increase business activity for tourist-related enterprises in and around the action area. The overall increase would, however, likely be smaller than under Alternative 2 because increased visitation would occur on fewer days.

4.6.3.4.2 Household Use of Whale Products

Under Alternative 4, the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts would increase relative to the No-action Alternative (under which no whales could be harvested and the Tribe would have access only to drift whales or whales incidentally caught in fishing gear). The increased availability of whale products would have the potential to replace foods that Makah families would otherwise have to purchase and result in increased income for households that participate in the making and selling of traditional handicrafts. The increase would come from whales the Tribe was actually able to harvest, which would be no more than one whale annually. It is possible, however, that no whales could be harvested in some additional years if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for the year).

Compared to Alternative 2, therefore, Alternative 4 would have a smaller increase (relative to the No-action Alternative) in the amount of whale products available for household consumption, and

manufacturing and selling of traditional handicrafts. The potential for replacement of foods that Makah families would otherwise have to purchase and increased income for households that participate in the making and selling of traditional handicrafts would likewise be smaller than Alternative 2, although greater than under the No-action Alternative.

4.6.3.4.3 Whale-watching Industry

Compared to the No-action Alternative (under which no hunts would occur and no whales would be struck, exposed to harpoon attempts, or approached by hunters), Alternative 4 would result in an increased potential for effects on whale-watching revenues or employment. The increase would, however, be smaller than under any of the other action alternatives because Alternative 4 would be expected to result in the fewest whales killed (1 every other year), struck (1 every other year), exposed to harpoon attempts (3, on average, annually), or approached (29, on average, annually). For the reasons provided in Subsection 4.6.2.3, Whale-watching Industry, it is unlikely that whale hunting under Alternative 4 would have more than a negligible effect on whale-watching revenues or employment within or outside the action area through any of the scenarios described. In addition, to the extent that any such effects might occur, it is not possible to estimate the amount of decrease that might occur in revenues or employment associated with whale watching.

4.6.3.4.4 Shipping and Ocean Sport/Commercial Fishing

Compared to the No-action Alternative (under which there would be no whale hunts and no activation of the MEZ), activation of the MEZ on approximately 7 days during a whale hunt every other year under Alternative 4 would lead to an increased potential for restricting operations of commercial shipping vessels and sport and commercial fishing. Hunting would occur primarily during the summer months.

Compared to Alternative 2, the reduced number days with whale hunts (3.5 on average versus 33) would result in fewer instances of the MEZ being activated. Alternative 4 would, therefore, result in a smaller increase (relative to the No-action Alternative) in the potential for whale hunting to interfere with commercial shipping or commercial fishing operations than would Alternative 2. As noted above, the number of days when whale hunts result in MEZ activation could be substantially fewer in years when a whale is struck and lost and the hunt is curtailed.

Because hunting would be allowed during the summer, Alternative 4 would result in a greater potential, compared to any of the other action alternatives, for a given instance of MEZ activation to interfere with sport salmon fishing (which occurs during summer and early fall). Alternative 4 could, therefore, have a slightly greater potential than the other action alternatives to affect sport salmon fishing. As

under Alternative 2, however, only minor economic impacts to commercial shipping or sport and commercial fisheries would be expected as a result of implementing Alternative 4.

4.6.3.4.5 Management and Law Enforcement

Under Alternative 4, hunting would be likely to occur on approximately 7 days every other year during the summer, during which costs would be incurred for management and law enforcement agencies. Observer costs would be an increase relative to the No-action Alternative but less than the 33 days likely under Alternative 2 or the 60 days under Alternative 3. Estimated costs for a NMFS observer for 7 days could be as high as $1,841 (NMFS 2014a) (Table 4-16). Costs associated with photo-identification studies under Alternative 4 would be the same as under Alternatives 2 and 3. It is uncertain whether the existing photo-identification study would continue to be funded under the No-action Alternative. If not, then its continuation under Alternative 4 would represent an increased cost beyond current conditions.

Compared to the No-action Alternative, law enforcement costs would increase by the number of days (7) when hunt-related activities (e.g., hunting, protests, and ceremonies) occurred that required a law enforcement presence. Estimated costs for all non-tribal agencies could be as high as $641,690 over the course of 7 days, with the bulk of costs associated with United States Coast Guard aircraft and vessels (NMFS 2014a) (Table 4-16). Therefore, law enforcement costs under Alternative 4 would be higher than under the No-action Alternative but would likely be lower than those estimated under Alternatives 2 and 3, which have more days of hunt-related trips.

4.6.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. A maximum of five whales could be struck or killed per year. Approximately 30 whales would be exposed to harpoon attempts and 122 would be approached annually. Hunt-related trips would likely occur on approximately 22 days in December and May but primarily during May. If tribal members hunted on every suitable hunting day during the December and May seasons, there would be approximately 15 days with actual hunting each year (Subsection 4.1.5.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 5]).

Compared to the No-action Alternative, under which there would be no hunting, Alternative 5 would be likely to result in (1) minor short-term increases in tourism on or near the approximately 22 days per year when hunt-related trips would be expected to occur, (2) an increase of up to one whale annually available for household use by Makah tribal members, (3) negligible changes in whale-watching

revenues because of reduced numbers of gray whales or changes in whale behavior as a result of interactions between hunters with whales, (4) minor increases in the potential for interference with shipping and sport/commercial fishing vessels, and (5) an increase in expenditures for management and law enforcement.

4.6.3.5.1 Tourism

Under Alternative 5, visitors would likely be drawn to the action area on or near the approximately 22 days on which hunt-related trips would be expected to occur, potentially creating a minor increase in the level of business activity for nearby tourist-related businesses, compared to the No-action Alternative (under which no visitors would come to the action area to observe whale hunts). The number of whale hunts portrayed in the media would also likely increase compared to the No-action Alternative, possibly increasing public interest in the Makah Reservation as a cultural tourism destination (or, conversely, causing some individuals to avoid the area because of negative publicity). The increased business activity would likely be short-term (lasting only during the days immediately surrounding hunt-related activities), as visitors would come to observe the hunt and to participate in harvest-related celebrations.

Compared to Alternative 2, the reduced number of days with hunt-related trips (22 versus 60) would probably result in a smaller increase (relative to the No-action Alternative) in the total number of visitors coming to the Makah Reservation to observe a whale hunt and/or participate in activities associated with the hunt, such as harvest-related celebrations. The number of days with hunt-related trips could decrease to as few as 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale.

4.6.3.5.2 Household Use of Whale Products

Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year (Subsection 4.1.5, Alternative 5). During years in which no whales are struck and lost, and no PCFG whales are killed, the maximum limit for the number of whales harvested would be the same as under Alternatives 2 and 3. Compared to the No-action Alternative (under which no whales could be harvested and the Tribe would have access only to drift whales or whales incidentally caught in fishing gear), therefore, Alternative 5 would result in an increase in the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts. The increase would come from whales the Tribe was actually able to harvest, which would likely be zero to one whale annually. Under some scenarios, the potential increase could be as high as under Alternative 2, but the more likely increase would be similar to that expected for Alternative 4.

Compared to Alternatives 2 and 3, the lower number of whales likely to be harvested would be expected to result in fewer whale products being available for household consumption and the making and selling of traditional handicrafts. The potential replacement of foods that Makah families would otherwise have to purchase and the increase in income for households that participate in the making and selling of such articles would likewise be lower.

4.6.3.5.3 Whale-watching Industry

Compared to the No-action Alternative (under which no hunts would occur and no whales would be struck, exposed to harpoon attempts, or approached by hunters), Alternative 5 would result in an increased potential for effects on whale-watching revenues or employment. The increased potential would be a product of the number of whales struck or killed (5), exposed to harpoon attempts (30), or approached (122) per year. These values could decrease to zero in years in which the hunt is on hiatus to allow the PCFG mortality limit to reset at one whale. For the reasons provided in Subsection 4.6.2.3, Whale-watching Industry, it is unlikely that whale hunting under Alternative 5 would have more than a negligible effect on whale-watching revenues or employment within or outside the action area through any of these the scenarios described. In addition, to the extent that any such effects might occur, it is not possible to estimate the amount of decrease that might occur in revenues or employment associated with whale watching.

Compared to Alternatives 2 and 3, fewer whales could be struck or killed (5 versus 6 or 7 per year) or exposed to harpoon attempts (30 versus 36 to 42) or approaches (122 versus 353) under Alternative 5. Therefore, the potential for interactions between hunting and whale watching, or for whale hunting to affect whale behavior around whale-watching vessels, would be less than under Alternative 2 or Alternative 3.

4.6.3.5.4 Shipping and Ocean Sport/Commercial Fishing

Compared to the No-action Alternative (under which there would be no whale hunts and no activation of the MEZ), activation of the MEZ on approximately 15 days under Alternative 5 would lead to an increased potential for restrictions on the movement of commercial shipping traffic and sport and commercial fishing. Compared to Alternatives 2, 3, and 6, the reduced number of days with whale hunts (11 versus 60) would result in fewer instances of the MEZ being activated. Alternative 5 would, therefore, result in a smaller increase (relative to the No-action Alternative) in the potential for whale hunting to interfere with commercial shipping or sport and commercial fishing operations than would Alternatives 2, 3, and 6. As under Alternative 2, only minor economic impacts to commercial shipping or sport and commercial fisheries would be expected as a result of implementing Alternative 5.

Compared to Alternative 4, Alternative 5 could result in a greater increase (relative to the No-action Alternative) in the potential for whale hunting to interfere with commercial shipping or sport and commercial fishing operations. This is based on the anticipated difference in the number of days of hunting (11 versus an average of 3.5). As noted above, however, the number of days when whale hunts result in MEZ activation under Alternative 5 could decrease to 0 during years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Because hunting would not be allowed during summer, Alternative 5 would likely result in a lower potential to affect sport salmon fishing compared to Alternative 4.

4.6.3.5.5 Management and Law Enforcement

Compared to the No-action Alternative (under which no whale-hunting or associated protests would occur), Alternative 5 could result in up to 22 days of hunt-related trips and associated commitments of observers and enforcement personnel, vehicles, and equipment. The costs for hunt observers would increase (compared the No-action Alternative) by the likely number of days of hunt-related trips (22 days) for the reasons described under Alternative 2. Estimated costs for a NMFS observer for 22 days could be as high as $5,786 (NMFS 2014a) (Table 4-16) under Alternative 5, which is intermediate between the lower costs estimated for Alternative 4 and the higher costs estimated for Alternatives 2 and 3. It is uncertain whether the existing photo-identification study would continue to be funded under the No-action Alternative. If not, then its continuation under Alternative 5 could represent an increased cost beyond the No-action Alternative.

Compared to the No-action Alternative, law enforcement costs would increase by the number of days (22) when hunt-related activities (e.g., hunting, protests, and ceremonies) occurred that required a law enforcement presence. Estimated costs for all non-tribal agencies could be as high as $2 million over the course of 22 days with hunt-related trips, with the bulk of costs associated with United States Coast Guard aircraft and vessels (NMFS 2014a) (Table 4-16). Therefore, law enforcement costs under Alternative 5 would be higher than under the No-action Alternative and Alternative 4 but would likely be lower than those estimated under Alternatives 2 and 3, which have more days of hunt-related trips.

4.6.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 6 considers effects over a 10-year period.

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods and would, therefore, be expected to result in the same numbers of days with hunt-related trips (60) and actual hunts (33) over the course of the 10-year waiver period. Thus, the potential effects,

relative to the No-action Alternative, on tourist-related business activity under Alternative 6 would likely be the same as those under Alternative 2. For the same reason, the potential effects on commercial shipping traffic, sport and commercial fisheries, and management and law enforcement costs under Alternative 6 would likely be the same as under Alternative 2. The following paragraphs address potential effects on (1) household consumption of whale products and manufacture and sale of traditional handicrafts and (2) the whale-watching industry.

4.6.3.6.1 Household Use of Whale Products

Alternative 6 would include greater restrictions than Alternatives 2 and 3 on the maximum number of whales that could be killed per year and per 2 years, resulting in a maximum of 3.5 whales harvested per year on average over 10 years. As a result, Alternative 6 would result in an increase, compared to the No-action Alternative, in the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts. This increase would be less than under Alternatives 2 and 3 (under which a maximum of four whales could be harvested per year on average) but greater than under Alternative 4 (under which a maximum of one whale could be harvested every other year under current conditions; refer to Table 4-7). The potential for increased income for households that participate in the making and selling of traditional handicrafts would be smaller than under Alternative 2, although greater than under the No-action Alternative.

4.6.3.6.2 Whale-watching Industry

Under Alternative 6, no more than four whales could be struck or killed per year, and no more than seven whales could be struck or killed over 2 years. Approximately 21 whales would be exposed to harpoon attempts and 353 would be approached annually. These estimates are less than or equal to those for Alternative 2 (under which up to 7 whales may be struck annually, 42 exposed to unsuccessful harpoon attempts, and 353 approached). As a result, the potential for Alternative 6 to result in a change in revenues or employment associated with whale watching, would likely be slightly lower than the potential described for Alternative 2. For the reasons provided in Subsection 4.6.2.3, Whale-watching Industry, it is unlikely that whale hunting under Alternative 6 would have more than a negligible effect on whale-watching revenues or employment within or outside the action area through any of the scenarios described. In addition, to the extent that any such effects might occur, it is not possible to estimate the amount of decrease that might occur in revenues or employment associated with whale watching.

4.6.3.7 Alternative 7, Composite Alternative – Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 7 considers effects over a 10-year period.

Compared to the No-action Alternative, under which there would be no hunting, Alternative 7 would likely result in: (1) minor short-term increases in tourism on or near the approximately 37 days per year when hunt-related trips would be expected to occur (based on the 10-year span of the waiver period); (2) an increase of one to three whales annually available for household use; (3) negligible changes in whale-watching revenues, (4) minor increases in the potential for interference with shipping and sport/commercial fishing, and (5) an increase in expenditures for management and law enforcement during the average of 37 days per year with hunt-related trips (see Table 4-16 below).

Alternative 7 would have the same conditions as Alternative 2 regarding the hunt area and methods and, in winter/spring hunts, would have the same hunt season. In summer/fall hunts, the timing of the hunt would be similar to Alternative 4. Assuming the Tribe receives authorization to hunt during all five winter/spring hunt seasons over the 10-year waiver period, hunt-related trips would likely occur on an average of 37 days per year, with approximately 60 days with hunt-related trips annually in winter/spring hunts and up to 14 days with hunt-related trips annually in summer/fall hunts (Table 4-1). As a result of this alternating hunt season schedule under Alternative 7, potential impacts to tourism, commercial shipping traffic, sport and commercial fisheries, and management and law enforcement sectors are difficult to compare with Alternatives 2 through 6. Over the proposed 10-year waiver period, impacts to these sectors under Alternative 7's winter/spring hunts would occur on half the number of days estimated for Alternatives 2, 3, and 6. These hunts would also occur during the winter/spring when there would be less activity in these sectors. Impacts under Alternative 7's summer/fall hunts would occur over an estimated 70-140 days during the summer/fall over the 10-year period, which is greater than that estimated for Alternative 4 (35 days over 10 years) but less than that estimated for Alternative 5 (220 days over 10 years). It is expected that hunt-related activities would have greater impacts during the summer/fall when there is generally more traffic and tourism in the vicinity of the hunt area. For this reason, it is possible that Alternative 7 would result in greater positive impacts to these economic sectors than Alternatives 2, 3, and 6, which do not allow hunting during the summer/fall. Similarly, Alternative 7 would likely have greater impacts overall than Alternatives 4 and 5 due to the additional large number of days (300 over 10 years) that would occur as a result of the winter/spring hunts.

Implementing a low abundance threshold for the ENP stock may reduce the economic impacts to these sectors below those already analyzed under Alternative 7 without a threshold. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on the tourism, commercial shipping, sport and recreational fishing, and enforcement sectors, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of

reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to these sectors while 7(a) could result in the greatest potential impact.

Alternative 7, resulting in a maximum of 2 whales harvested per year on average, would include greater restrictions than Alternatives 2, 3, and 6 on the maximum number of whales that could be harvested per year. As a result, Alternative 7 would result in an increase, compared to the No-action Alternative, in the amount of whale products available for household consumption and the manufacturing and selling of traditional handicrafts. This increase would be less than Alternatives 2, 3, and 6 (under which a maximum of 4, 4 and 3.5 whales may be harvested per year, respectively) but greater than Alternatives 4 and 5 (under which zero to one whale may be harvested per year under current conditions). However, if the Tribe does not receive authorization to hunt during one or more winter/spring hunting seasons, the total number of whales harvested over the waiver period could be reduced, decreasing the availability of whale products for household consumption and the manufacturing and selling of handicrafts.

Implementing a low abundance threshold for the ENP stock may reduce the availability of whale products available to the Tribe. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on the availability of whale products, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the number of whales harvested over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(a) is likely to result in the highest availability of whale products, while 7(c) may restrict the availability of such products the most.

As noted in the Subsection 4.6.2.3, Whale-watching Industry, it is unlikely that Makah whale hunting under any of the action alternatives would have more than a negligible effect on whale watching. To the extent such an impact did occur, the amount of risk would probably depend on the number of whales that could be killed, struck, or exposed to unsuccessful harpoon attempts and approaches. Under Alternative 7, such risks would be associated with an annual average of 15 whales exposed to unsuccessful harpoon attempts, one to three whales struck, and 353 whales approached (Table 4-1). These estimates indicate that any risks under Alternative 7 would be intermediate to those of the other action alternatives, i.e., while these estimates are greater than those associated with the relatively

limited hunting allowed under Alternative 4, nearly all of these values are less than or equal to those expected under Alternatives 2, 3, 5, and 6. Although it is not possible to estimate the amount of decrease that might occur in revenues or employment associated with whale watching as a result of any action alternative, for the reasons provided in Subsection 4.6.2.3, Whale-watching Industry, it is unlikely that whale hunting under Alternative 7 and its sub-alternatives would have more than a negligible effect.

Table 4-16. Estimated costs of enforcement-related activities and resources.

Entity	Unit Cost	No-action Alternative		Alternatives 2, 3 & 6		Alternative 4		Alternative 5		Alternative 7	
		Freq.	Cost	Freq.	Cost	Freq.	Cost	Freq.	Cost	Freq.	Cost
U.S. Coast Guard	$86,068 per day	*	*	60 days	$5.2 million	7 days	$602,476	22 days	$1.9 million	37 days	$3.2 million
Washington Department of Fish and Wildlife Police	$1,427 per day	*	*	60 days	$85,620	7 days	$9,989	22 days	$31,394	37 days	$52,799
Clallam County Sheriff	$2,089 per day	*	*	60 days	$125,340	7 days	$14,623	22 days	$45,958	37 days	$77,293
NMFS Enforcement and Monitoring	$2,086 per day	*	*	60 days	$125,160	7 days	$14,602	22 days	$45,892	37 days	$77,182
NMFS Gray Whale Monitoring	$75,000 per year	*	*	Annual	$75,000	Annual	$75,000	Annual	$75,000	Annual	$75,000
Total Annual Costs (rounded)		*		**$5.6 million**		**$717,000**		**$2.1 million**		**$3.5 million**	

Estimates derived from (NMFS 2014a). Freq. = Frequency ; * = Assumes no change from existing costs.

4.7 Environmental Justice

4.7.1 Introduction

Executive Order 12898, *Environmental Justice*, requires that federal agencies "identify and address the . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Based on assessment of the demographic data presented in Subsection 3.7, Environmental Justice, and preliminary analysis of the type and location of effects potentially resulting from the proposed action, the potential population of concern for this environmental justice analysis consists of members of the Makah Tribe, who are a Native American population. As described in Subsection 3.7, Environmental Justice, this is a low-income, as well as a minority, population.

4.7.2 Evaluation Criteria

The EPA Office of Civil Rights and Environmental Justice developed guidance for all federal agencies conducting environmental justice analyses. This environmental justice analysis follows the EPA guidelines that offer a range of categories to indicate the presence or absence of environmental justice effects (EPA 1998; EPA 2010). This evaluation draws topically from the range of indicator categories EPA (1998) outlined. These categories correspond to effects described in Subsection 4.6, Economics, Subsection 4.8, Social Environment, and Subsection 4.10, Ceremonial and Subsistence Resources, of this EIS. The EPA environmental justice guidelines also indicate that impacts on human health should be considered in environmental justice analyses. As discussed in Subsection 4.16, Human Health, available information is insufficient to assess the potential of any of the alternatives to affect human health, either positively or negatively.

Analyses in this subsection also do not address the potential for the alternatives to affect the safety of Makah tribal members because environmental justice contemplates impacts imposed on minority and low-income populations by a federal agency. The proposed action is based on the Tribe's MMPA waiver request and the other action alternatives include variations on the restrictions identified in the Tribe's request. Risks associated with whale hunting would be undertaken voluntarily by the Tribe. The safety of hunt participants and others is addressed in Subsection 4.15, Public Safety. Authorization of a whale hunt under the action alternatives would likely result in some level of whale hunting activity by Makah tribal members, increasing the potential for hunt-related injury above the current level of injury under the No-action Alternative.

This analysis was based on a qualitative assessment of adverse effects that would result from the proposed alternatives for each of the three resource areas evaluated. An environmental justice impact would occur if these adverse effects were to have a disproportionate effect on the environmental justice population of concern. A disproportionately high and adverse effect on minority and low-income populations means an adverse effect that (1) is predominantly borne by a minority population and/or a low-income population, or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

For each alternative, the analysis considers potential effects related to economics, ceremonial and subsistence resources, and social environment. Economic effects would be related to tourism, which would be affected by the number of days per year with hunt-related trips, and household consumption of whales, which would be affected by the number of whales harvested (similar to the analyses in

Subsection 4.6, Economics). Effects on ceremonial and subsistence resources and the social environment would be related to whether whale hunting is denied or allowed.

4.7.3 Evaluation of Alternatives

The following subsections compare the potential for the alternatives to affect conditions in the action area as they pertain to environmental justice. For each alternative, the discussion addresses the potential economic, ceremonial and subsistence resources, social environment, and human health effects on the Makah Tribe and other low-income or minority populations.

Business activity at tourist-related enterprises in Neah Bay generates jobs and income for tribal members (Subsection 3.6.3.2.4, Contribution of Tourism to the Local Economy). As described in Subsection 4.6.2.1, Tourism, whale hunts may create short-term increases in tourist-related business activity during a whale hunt. A whale hunt may also create an opportunity over the long term for the Tribe to attract visitors to Neah Bay who are interested in observing traditional cultural activities. On the other hand, hunting could also lead to boycott attempts by whale-hunting opponents, which could reduce the number of visitors to Neah Bay. If, on balance, the absence of a whale hunt resulted in less tourism-related business activity in Neah Bay (compared to the action alternatives), a disproportionate share of the adverse economic effects would fall on the Makah Tribe.

Potential short-term increases (relative to the No-action Alternative) in business activity for tourist-related enterprises on the Makah Reservation would likely be higher under Alternatives 2, 3, 6, and 7 compared to Alternatives 4 and 5 because hunt-related trips would be expected to occur on approximately 60 days per year under Alternatives 2, 3, and 6 and an average of 37 days per year (60 days in winter/spring hunt years and up to 14 in summer/fall hunt years) under Alternative 7. Hunt-related trips would be expected to occur on approximately 22 days per year under Alternative 5 and only 7 days per year under Alternative 4. Increases in business activity on days with hunt-related activity could be higher under Alternative 4 and during the summer/fall hunt years under Alternative 7 than under the other action alternatives, however, because tourist activity is higher during those months than during April and May (when most hunting would likely occur under the other action alternatives). Regarding the Tribe's ability to attract more visitors over the longer term because of a hunt, all of the action alternatives are likely to have an equal effect, compared to the No-action Alternative.

Under the No-action Alternative, no freshly harvested whale products would be available to Makah households. The quantity of whale products available to Makah households for consumption and the making and selling of handicraft articles would be limited to drift whales or whales taken incidentally in fisheries. A disproportionate share of these adverse effects would fall upon the Makah Tribe, which

would have been the primary users of such products. Lack of such products would make largely unavailable a traditional subsistence resource for household members and the Makah community as a whole.

Based on the likely number of whales that would be successfully harvested per year (Table 4-1), the amount of edible and non-edible whale products that would become available would probably be greater under Alternatives 2 and 3 than under the other action alternatives. The likely number of whales harvested under Alternative 6 would be slightly lower (3.5 compared to 4) and, similar to Alternative 3, could be further constrained by the limit on PCFG whale mortality. The number of whales that could be harvested under Alternative 4 would be limited to one every other year under current conditions. It is possible, however, that no whales could be harvested in more years if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case, the hunt would be ended for the year). Based on the constraints imposed by the hunting season and the PCFG mortality limit under Alternative 5, it is expected that the Tribe would harvest up to one whale per year, although the maximum limit would be five.

Under the No-action Alternative, subsistence and cultural activities related to whale hunting (e.g., preparation, hunting, butchering, sharing, consuming, dancing, singing, and rituals) would be more limited than under the action alternatives. A disproportionate share of the adverse effects on subsistence uses, traditional knowledge and activities, spiritual connection to whale hunting, and cultural identity would fall upon the Makah Tribe. The Makah's stated need for the whale hunt is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions. Alternatives 3, 4, 5, 6, and 7 would have the positive ceremonial and subsistence effects associated with a resumption of Makah whale hunting but would restrict whale hunting in various ways that might make these benefits lower than under Alternative 2.

Under the No-action Alternative, the benefits to the social environment (for example, community cohesion) that the Makah Tribe attributes to whale hunting would not be realized, potentially increasing social tension within the Makah Tribe. To the extent they occurred, these adverse social impacts would be borne predominantly by Makah tribal members. Other treaty tribes could view NMFS' action under the No-action Alternative as a breach of faith by the United States government in upholding treaty rights, depending on the reasons for the denial of the request. Any social tension created by this perception would predominantly be borne by Native Americans. Under any of the action alternatives, the social benefits that the Makah Tribe attributes to whale hunting would be realized; however, whale hunts would also probably exacerbate the social tensions between tribal members who do and those

who do not support the hunt. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is not possible to determine if the action alternatives would result in disproportionately high and adverse social effects on the Makah Tribe. Under any of the action alternatives, the Tribe's ability to engage in traditional activities such as whale hunting could be reassuring to other Native Americans.

4.7.3.1 Alternative 1, No Action

4.7.3.1.1 Economics

Under the No-action Alternative, no whale hunt would be permitted, and there would be no short-term increases in business activity as visitors come to Neah Bay to view hunt-related activities or to participate in harvest-related celebrations. In addition, there be no potential for media coverage of the whale hunt to generate interest in the Makah Reservation as a cultural tourism destination. As a result, this alternative might limit the long-term opportunities for the Makah to expand the tribal tourism sector of the reservation economy. On the other hand, under the No-action Alternative it is unlikely there would be attempts to boycott Neah Bay because of whale hunting. If, on balance, the absence of a whale hunt under the No-action Alternative resulted in less tourism-related business activity in Neah Bay (compared to under the action alternatives), a disproportionate share of these adverse effects would fall on the Makah Tribe.

With the possible exception of products from drift whales or whales incidentally caught in fisheries, there would be no potential for households to consume whale meat and blubber or use non-edible whale products for the manufacture and sale of traditional handicrafts. The potential for households to gain additional income from making and selling traditional handicrafts would not be realized. As noted in Subsection 3.7.3.3.3, Makah Tribe, Native Americans living on the Makah Reservation have substantially lower incomes and experience higher poverty rates than residents throughout Clallam County. The adverse impact of this unrealized household income would be borne predominantly by Makah households. The Makah households would principally use the whale products to provide a traditional subsistence resource to household members and the wider Makah community and to derive income from the manufacture and sale of traditional native handicrafts.

4.7.3.1.2 Ceremonial and Subsistence Resources

Under the No-action Alternative, some subsistence and cultural activities related to whale hunting (e.g., preparation, hunting, butchering, sharing, consuming, dancing, singing, and rituals) would not be expected to occur. A disproportionate share of the adverse effects on subsistence uses, traditional knowledge and activities, spiritual connection to whale hunting, and cultural identity would fall upon the Makah Tribe. The Makah's stated need for the whale hunt is to allow the Tribe to exercise treaty

whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

4.7.3.1.3 Social Environment

Under the No-action Alternative, the benefits to the social environment (for example, community cohesion) that the Makah Tribe attributes to whale hunting would not be realized, potentially increasing social tension within the Makah Tribe. To the extent that they would occur, these adverse social impacts would be borne predominantly by members of the Makah Tribe. Other treaty tribes could view NMFS' action under the No-action Alternative as a breach of faith by the United States government in upholding treaty rights, depending on the reasons for the denial of the request. Any social tension created by this perception would predominantly be borne by Native Americans.

4.7.3.2 Alternative 2, Tribe's Proposed Action

4.7.3.2.1 Economics

In comparison to the No-action Alternative, a whale hunt would be allowed and there could be 60 days with hunt-related trips per year, resulting in a minor increase in the level of business activities of tourist-related enterprises in and around the action area. Over the longer term, the Tribe would have opportunities to bolster the tribal tourism sector of the reservation economy, as media stories would increase public awareness of the Makah whale hunt and the Tribe's whale hunting tradition. Boycott attempts, however, could reduce any long term benefits from tourism.

Compared to the No-action Alternative, the potential for whale products to become available to Makah households for consumption and the making and selling of handicraft articles would increase (up to four whales per year on average) as a result of the resumption of Makah whale hunting. The increased potential for whale products to become available for household consumption and the making and selling of traditional handicraft articles would have a beneficial effect on Makah households.

4.7.3.2.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 2 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 2, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

4.7.3.2.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized. However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 2 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 2 would result in disproportionately high and adverse social effects.

Alternative 2 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, allowing the Tribe to engage in traditional activities such as whale, despite their controversial nature, would likely be reassuring to other Native Americans.

4.7.3.3 Alternative 3, Offshore Hunt

4.7.3.3.1 Economics

In comparison to the No-action Alternative, there could be a minor increase, as under Alternative 2, in the level of business activities of tourist-related enterprises in and around the action area. Over the longer term, the Tribe would have opportunities to bolster the tribal tourism sector of the reservation economy, as media stories would increase public awareness of the Makah whale hunt and the Tribe's whale hunting traditions. Boycott attempts, however, could reduce any long-term benefits from tourism.

Compared to the No-action Alternative, the potential for whale products to become available to Makah households for consumption and the making and selling of handicraft articles would increase as a result of the resumption of Makah whale hunting. The increased potential for whale products to become available for household consumption and the making and selling of traditional handicraft articles would have a beneficial effect on Makah households.

Compared to Alternative 2, Alternative 3 would be expected to result in the same number of days with hunt-related trips (60) on which there could be increased business activity caused by an influx of visitors. In contrast to Alternative 2, it is possible that hunting activities in some years could be curtailed before any whales are successfully harvested. Compared to Alternative 2, therefore, it is less likely that the Tribe would be able to harvest an average of four whales per year under Alternative 3. Alternative 3 could, thus, have a smaller increase (relative to the No-action Alternative) in the amount of whale products available for household consumption and manufacturing and selling of traditional handicrafts than would Alternative 2.

4.7.3.3.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 3 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 3, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

Compared to Alternative 2, limits on PCFG whale mortality under Alternative 3 could reduce the total number of whales harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested. In addition, Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore. Consequently, the positive ceremonial and subsistence effects that the Makah would experience as a result of a resumption of whale hunting could be smaller under Alternative 3 than under Alternative 2. Alternative 3, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt.

4.7.3.3.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized. However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 3 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 3 would result in disproportionately high and adverse social effects.

Alternative 3 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, resumption of traditional activities such as whale hunting would likely be reassuring to other Native Americans.

The amount of social benefit the Makah Tribe experiences under Alternative 3 would probably be the same as under Alternative 2.

4.7.3.4 Alternative 4, Summer/Fall Hunt

4.7.3.4.1 Economics

In comparison to the No-action Alternative, there could be a minor increase, as under Alternative 2, in the level of business activities of tourist-related enterprises in and around the action area. Over the

longer term, the Tribe would have opportunities to bolster the tribal tourism sector of the reservation economy, as media stories would increase public awareness of the Makah whale hunt and the Tribe's whale hunting traditions. Boycott attempts, however, could reduce any long-term benefits from tourism.

Compared to the No-action Alternative, the potential for whale products to become available to Makah households for consumption and the making and selling of handicraft articles would increase as a result of the resumption of Makah whale hunting. The increased potential for whale products to become available for household consumption and the making and selling of traditional handicraft articles would have a beneficial effect on Makah households.

Compared to Alternative 2, Alternative 4 would be expected to result in fewer days with hunt-related trips (7 every other year, 3.5 per year on average) on which there could be increased business activity caused by an influx of visitors. In addition, the maximum number of whales struck or harvested would be limited to one ENP male whale per year under current conditions. Alternative 4 would thus have a smaller increase (relative to the No-action Alternative) in the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts than would Alternative 2.

4.7.3.4.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 4 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 4, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

Under Alternative 4, the maximum number of whales struck or harvested would be limited to one ENP male whale every other year under current conditions. Consequently, the positive ceremonial and subsistence effects that the Makah would experience as a result of a resumption of whale hunting could be smaller under Alternative 4 than under Alternatives 2 and 3, under which up to 4 whales could be harvested per year. Alternative 4, like the other action alternatives, would nevertheless be consistent with the Makah's stated need for the whale hunt.

4.7.3.4.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized.

However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 4 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 4 would result in disproportionately high and adverse social effects.

Alternative 4 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, permitting the Tribe to engage in traditional activities such as whale hunting would likely be reassuring to other Native Americans.

Under Alternative 4, the maximum number of whales struck or harvested would be limited to one ENP male whale per year under current conditions (refer to Table 4-7). Consequently, there would be fewer occasions for hunt-related social interactions compared to Alternatives 2 and 3, under which up to 4 whales could be harvested per year.

4.7.3.5 Alternative 5, Split-season Hunt

4.7.3.5.1 Economics

In comparison to the No-action Alternative, there could be a minor increase, as under Alternative 2, in the level of business activities of tourist-related enterprises in and around the action area. Over the longer term, the Tribe would have opportunities to bolster the tribal tourism sector of the reservation economy, as media stories would increase public awareness of the Makah whale hunt and the Tribe's whale hunting traditions. Boycott attempts, however, could reduce any long term benefits from tourism.

Compared to the No-action Alternative, the potential for whale products to become available to Makah households for consumption and the making and selling of handicraft articles would increase as a result of the resumption of Makah whale hunting. The increased potential for whale products to become available for household consumption and the making and selling of traditional handicraft articles would have a beneficial effect on Makah households.

Compared to Alternatives 2 and 3, Alternative 5 would be expected to result in fewer days with hunt-related trips (22 versus 60) on which there could be increased business activity caused by an influx of visitors. In contrast, Alternative 5 would have approximately six times as many days with hunt-related trips compared to Alternative 4. Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year, although the maximum allowable limit would be greater (Subsection 4.1.5, Alternative 5). Thus, the maximum possible increase (relative to the No-action Alternative) in the amount of whale products available for

household consumption, and manufacturing and selling of traditional handicrafts under Alternative 5 would be similar to that anticipated under Alternative 2, although the actual increase would likely be much smaller.

4.7.3.5.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 5 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 5, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

Under Alternative 5, hunting would be restricted to two 3-week periods in December and May each year. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. Consequently, the positive ceremonial and subsistence effects that the Makah would experience as a result of a resumption of whale hunting could be smaller under Alternative 5 than under Alternatives 2, 3, 6, and 7 under which an average of 2 to 4 whales could be harvested per year. Alternative 5, like the other action alternatives, would nevertheless be consistent with the Makah's stated need for the whale hunt.

4.7.3.5.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized. However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 5 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 5 would result in disproportionately high and adverse social effects.

Alternative 5 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, resuming traditional activities such as whale hunting would likely be reassuring to other Native Americans.

The amount of social benefit the Makah Tribe experiences under Alternative 5 would probably be the same as under Alternatives 2, 3, and 4.

4.7.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

4.7.3.6.1 Economics

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods and would, therefore, be expected to result in the same number of days with hunt-related trips. For this reason, in both the short term and the long term, the potential effects, relative to the No-action Alternative, on tourist-related business activity under Alternative 6 would likely be the same as those under Alternative 2.

Like Alternatives 2 and 3, Alternative 5 would be expected to result in 60 days per year of hunt-related trips on which there could be increased business activity caused by an influx of visitors. This increased activity could be substantially greater than under Alternatives 4 and 5, which would likely have fewer days with hunt-related trips (3.5 on average and 11 days, respectively). Alternative 6 would include greater restrictions than Alternative 2 on the maximum number of whales that could be killed per year and per 2 years, resulting in a maximum of 3.5 whales harvested per year on average. As a result, Alternative 6 would result in an increase, compared to the No-action Alternative, in the amount of whale products available for household consumption, and manufacturing and selling of traditional handicrafts. This increase would be less than under Alternatives 2 and 3 (under which up to 4 whales could be harvested in a given year) but greater than under Alternative 4 (under which a maximum of one whale could be harvested every other year under current conditions) and Alternative 5 (under which up to one whale could be harvested per year). The potential for replacement of foods that Makah families would otherwise have to purchase and increased income for households that participate in the making and selling of traditional handicrafts would be smaller than under Alternative 2, although greater than under the No-action Alternative.

4.7.3.6.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 6 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 6, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

Compared to Alternative 2, limits on the maximum number of whales that could be killed per 2 years would result in fewer whales harvested, on average, per year. Consequently, the positive ceremonial and subsistence effects that the Makah would experience as a result of a resumption of whale hunting

could be smaller under Alternative 6 than under Alternatives 2 and 3 but greater than under the No-action Alternative or Alternatives 4 and 5. Alternative 6, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt.

4.7.3.6.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized. However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 6 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 6 would result in disproportionately high and adverse social effects.

Alternative 6 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, officially allowing the Tribe to resume traditional activities such as whale hunting would likely be reassuring to other Native Americans .

The ability to resume hunting gray whales under Alternative 6 would probably result in the Makah Tribe experiencing the same amount of social benefit as under Alternatives 2, 3, 4, and 5.

4.7.3.7 Alternative 7, Composite Alternative—Preferred

4.7.3.7.1 Economics

Alternative 7 would have the same conditions as Alternative 2 regarding the hunt area and methods and, in winter/spring hunts, would have the same hunt season. In summer/fall hunts, the timing of the hunt would be similar to Alternative 4. Hunt-related trips would likely occur on an average of 37 days per year over the proposed 10-year waiver period, with approximately 60 days with hunt-related trips annually in the winter/spring hunts and up to 14 days with hunt-related trips annually in summer/fall hunts. As a result of this alternating hunt season schedule under Alternative 7, potential impacts to tourism are difficult to compare with Alternatives 2 through 6. Over the proposed 10-year waiver period, impacts under Alternative 7's winter/spring hunts would occur on fewer days than estimated for Alternatives 2, 3, 5, and 6. These hunts would also occur during the winter/spring when there would be less activity in these sectors. Impacts under Alternative 7's summer/fall hunts would occur over an estimated 70-140 days during the summer/fall, which is the more than estimated for Alternative 4 (up 35 days over 10 years). It is expected that hunt-related activities would have greater impacts during the summer/fall when there is generally more traffic and tourism in the vicinity of the hunt area. For this reason, it is possible that Alternative 7 would result in greater impacts to tourism than Alternatives 2, 3, 5, and 6, which do not allow hunting during the summer/fall. Similarly, Alternative 7 would likely have

greater impacts than Alternative 4 due to the greater number of summer/fall hunt days over the course of the waiver period. The relative impacts to tourism of Alternative 7's three sub-alternatives are described above in Subsection 4.6, Economics.

Alternative 7 would include greater restrictions than Alternatives 2, 3, and 6 on the maximum number of whales that could be harvested per year, resulting in a maximum of 2 whales harvested per year on average. As a result, Alternative 7 would result in an increase, compared to the No-action Alternative, in the amount of whale products available for household consumption, and the manufacturing and selling of traditional handicrafts. This increase would be less than Alternatives 2, 3, and 6 (under which a maximum of 4, 4 and 3.5 whales may be harvested per year, respectively) but greater than Alternatives 4 and 5. A reduction in the number of winter/spring hunts over the waiver period, however, could reduce the availability of whale products for household consumption. The relative impacts of Alternative 7's three sub-alternatives on the availability of whale products are described above in Subsection 4.6, Economics.

4.7.3.7.2 Ceremonial and Subsistence Resources

In contrast to the No-action Alternative, Alternative 7 would have multiple positive ceremonial and subsistence effects on the Makah Tribe associated with a resumption of whale hunting. Alternative 7, like the other action alternatives, would be consistent with the Makah's stated need for the whale hunt, which is to allow the Tribe to exercise its treaty whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions.

Under Alternative 7, the maximum number of whales harvested would be limited to three in winter/spring hunts and one in summer/fall hunts. This results in an average of 2 whales per year over the 10-year waiver period if the Tribe receives authorization to hunt in the winter/spring months. Therefore, the positive effects that the Makah would experience as a result of a resumption of whale hunting could be larger under Alternative 7 than under Alternatives 4 or 5 but smaller than under Alternatives 2, 3, and 6. If the Tribe does not receive authorization to hunt in any winter/spring seasons, the effects under Alternative 7 would be the same or larger than under Alternatives 4 and 5. Implementing a low abundance threshold for the ENP stock may reduce the number of whales harvested under Alternative 7 by reducing the number of authorized hunting years. It is possible that Sub-alternative 7(c) could provide the fewest ceremonial and subsistence resources of the three sub-alternatives, with 7(a) being the likeliest to provide the most, based on the relative likelihood of triggering the three potential thresholds.

4.7.3.7.3 Social Environment

In contrast to the No-action Alternative, the benefits to the social environment (for example, increased social bonding within the Makah Tribe) that the Tribe attributes to whale hunting would be realized. However, social tensions exist between tribal members who support the hunt and those who do not. Whale hunts under Alternative 7 would probably exacerbate these tensions. There is insufficient information to determine whether the potential social benefits to the Makah Tribe would offset the potential adverse social effects. Consequently, it is impossible to determine if Alternative 7 would result in disproportionately high and adverse social effects.

Alternative 7 would make it possible for the Tribe to carry on traditional whale hunting that is sanctioned by the IWC. In contrast to the No-action Alternative, allowing the Tribe to engage in traditional activities such as whale hunting would likely be reassuring to other Native Americans.

Strike limits under Alternative 7 would provide fewer opportunities for hunting than under Alternatives 2, 3, and 6, and, therefore, less social benefit to the Makah Tribe. Conversely, there would be a greater number of whale hunts than under Alternatives 4 and 5, resulting in greater social benefits.

Implementing a low abundance threshold for the ENP stock may reduce the number of whale hunts under Alternative 7. By potentially reducing the number of authorized hunting years and, therefore, the number of strikes over the 10-year waiver period, it is possible that Sub-alternative 7(c) could provide the fewest opportunities for hunting and, therefore, the least social benefit of the three sub-alternatives, with 7(a) being the likeliest to provide the most opportunities for hunting based on the relative likelihood of triggering the three potential thresholds. The social benefit to the Tribe could be reduced under Alternative 7 if they do not receive authorization for one or more winter/spring hunts.

4.8 Social Environment

4.8.1 Introduction

This subsection addresses the potential for the alternatives to affect the social environment of the Makah Tribe, other tribes, and the general public. As described in Subsection 3.8, Social Environment, various groups and individuals either oppose or support the Makah whale hunt. Makah tribal members and other tribes generally support the hunt, while feelings among some tribal members and the general public are more mixed, with many adamantly opposing the hunt. NMFS' denial of a whale hunt under the No-action Alternative could create tension on the part of the Makah and other Indian tribes toward whale hunting opponents and the federal government, depending on the reasons for a denial. Conversely, a decision to authorize a whale hunt, and subsequent hunting, could lead to tensions on the part of whale hunting opponents towards the Makah and other Indian tribes and the federal

government. Regardless of the decision, like-minded groups could experience moments of increased social bonding.

4.8.2 Evaluation Criteria

Any of the alternatives could affect relationships and interactions among members of the Makah Tribe, other tribes, and the general public. These effects would be expressed to varying degrees as social tension or social bonding, depending on the feelings of individual group members about whale hunting. The criteria for determining the potential effects of the alternatives on the social environment are primarily qualitative and based on the anticipated magnitude and duration of changes in social tensions or social bonding. The amount and content of media coverage might intensify protests and local social tensions. The following three subsections describe how social interactions within and among the three interest groups identified in Subsection 3.8, Social Environment, might be affected under the alternatives.

4.8.2.1 Makah Tribal Members

As noted in Subsection 3.10.3.5.1, Makah Whaling, the 1999 whale hunt appeared to bolster social accord within the Makah community. Participants in the hunt reported enduring intense physical and spiritual training, which culminated in a deep bond between whalers (Subsection 3.10.3.5, Contemporary Makah Society). More broadly, most tribal members believe that restoration of whale hunting improved social and cultural conditions on the reservation (Subsection 3.8.3.1, Makah Tribal Members). Based on these experiences, as well as the potential benefits associated with reinforcing cultural identity (Subsection 4.10, Ceremonial and Subsistence Resources), whale hunts under the action alternatives could increase social bonding within the Tribe (relative to the No-action Alternative). Conversely, a decision to deny the Tribe's request to hunt whales could lead to feelings of resentment toward the federal government by those tribal members who support the hunt, depending on the reason for the denial (Subsection 4.10, Ceremonial and Subsistence Resources [Alternative 1, No Action].

A whale hunt might also generate social tension between tribal members who support the hunt and those who do not. Whale hunts under the action alternatives would probably exacerbate tensions (relative to the No-action Alternative), which might be expressed as vocal dissent and public or private criticism of tribal members who speak out against the hunt.

Under the action alternatives, tension would also increase between tribal members who support the hunt and individuals or group members (including some members of other tribes) who oppose the hunt. As mentioned in Subsection 3.8.3.1, Makah Tribal Members, tribal members have expressed frustration

with protesters and others who oppose the hunt, and some engaged in physical conflicts with protesters during the previous hunts.

4.8.2.2 Other Tribes

Many native organizations have expressed support for Makah whale hunting. In addition, some members of other regional tribes have stated the importance of solidarity with the Makah (Subsection 3.8.3.2, Other Tribes). Following the successful hunt in 1999, members of other tribes attended a community potlatch hosted by the Makah, witnessing the proceedings and sharing food. Whale hunts under the action alternatives (relative to the No-action Alternative) would probably increase social bonding between the Makah and other native groups in the region, the United States, and worldwide. At the same time, members of other tribes might be subject to anti-whaling and anti-Indian sentiments expressed by whaling opponents. Similar to the Makah, other tribes might respond to the No-action Alternative with reinforced feelings of disillusionment with the federal government.

4.8.2.3 Other Individuals and Organizations

Subsection 3.8.3.3, Other Individuals and Organizations, describes the range of attitudes about Makah whale hunting held by people locally, statewide, nationally, and internationally, as well as people affiliated with various organizations. Those expressing support for the Makah gray whale hunt have mentioned treaty rights, the relative health of the gray whale population, and the cultural meaning ascribed to whaling by the Makah. Opponents of the hunt have commented on their perceptions of the beauty, intelligence, and community structure of whales; the existence value of gray whales (collectively and individually); the pain individual whales experience if struck or killed in a hunt; and the possibility that the local economy might be impacted by a boycott in response to a whale hunt. Organizations that oppose whaling in general include animal-rights and marine conservation organizations, the whale-watching industry, and anti-treaty constituents.

Based on the experience of previous hunts, whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (Subsection 3.8.3.3, Other Individuals and Organizations). These feelings would be based on the concerns listed above, among others. Experience from the hunts and hunt exercises in 1998, 1999, and 2000 indicates that the resulting tensions might be expressed through demonstrations, attempts to interfere with hunt activities, or other forms of protest. These expressions might be directed at Makah tribal members, other tribes, and other individuals and organization members who have expressed support for the Makah whale hunt. Several incidents involving violent or near-violent confrontations between hunt opponents and tribal members occurred before and during the previous hunts (Subsection 3.8.3.3, Other Individuals and Organizations). Other expressions of tension that followed the successful

1999 hunt included death threats and anti-whaling messages delivered to tribal members and the U.S. Coast Guard, as well as incidents of Makah tribal members being refused service in area businesses. Some expressions of social tension directed at the Makah are founded in racism and anti-Indian sentiment, as well as resentment over the previous whale hunts. Such expressions would likely continue under all of the alternatives, including the No-action Alternative.

Relative to the No-action Alternative, a whale hunt could also increase social bonding among whaling opponents through a sense of shared adversity and a common cause. Under the No-action Alternative, hunt opponents might bond by celebrating a decision not to issue a permit. Similarly, supporters of the Makah gray whale hunt may bond through celebration under the action alternatives and through shared frustration under the No-action Alternative.

4.8.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect the social environment of the Makah Tribe, other tribes, and the general public. Under the action alternatives, each hunt attempt would probably result in protests and media coverage, with the associated effects described above under Subsection 4.8.2, Evaluation Criteria. It is possible that restrictions on the total number of whales harvested, or on the number of identified whales harvested, would reduce the amount and intensity of opposition to a hunt. No information is available that would allow a prediction of the difference in social tensions under alternatives that would place limits on harvest of identified whales versus those that would not. This analysis therefore treats the potential type and magnitude of effects on the social environment as depending on whether hunting occurs, the number of days with hunt-related trips, and the amount and content of associated media coverage. Alternatives that include more hunting expeditions would provide opportunities for more expression of social tension among those with opposing viewpoints, as well as added opportunities for increased bonding among persons sharing similar viewpoints.

As noted in Subsection 3.8.3.3, Other Individuals and Organizations, many people who watch whales in the action area on a regular basis attach existence values to individual PCFG whales that regularly visit the area. It is possible that these people may express greater opposition to alternatives that allow greater numbers of PCFG whales to be killed per year or that would explicitly target identified PCFG whales.

The lowest risk of adverse effects on the social environment would occur under the No-action Alternative because no whale hunts would be permitted and there would be fewer occasions for confrontation between supporters and opponents of whale hunting compared to any of the action

alternatives. Under all of the action alternatives, whale hunts would result in episodes of increased social tension between hunt supporters and opponents. Each hunt would be expected to result in increased tension as well as increased opportunities for social bonding between like-minded observers, compared to the No-action Alternative. The number of occasions that social tensions would likely exceed conditions under the No-action Alternative would likely correspond to the number of days with hunt-related trips under each alternative. The greatest number of days with hunt-related trips (60) would be expected to occur under Alternatives 2, 3, and 6. Hunt-related trips would be expected to occur on an average of 37 days per year under Alternative 7 (60 days in winter/spring hunt years and up to14 days in summer/fall hunt years), 22 days under Alternative 5, and on 7 days every other year under Alternative 4 (3.5 per year on average). Among the action alternatives, therefore, Alternative 4 would have the lowest risk of adverse effects on the social environment, Alternatives 5 and 7 would have a moderate risk, and Alternatives 2, 3, and 6 would have the greatest risk, based on the number of occasions of elevated tension because of whale hunting. Also, under Alternatives 6 and 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analyses for Alternatives 6 and 7 consider effects only over a 10-year period.

The alternative with the lowest potential of providing benefits to Makah tribal members through social bonding would be the No-action Alternative. Any of the action alternatives would provide some potential for benefits to tribal members through social bonding.

4.8.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted, and no whale hunting or associated activities (e.g., ceremonies, celebrations, protests, or law enforcement) would be anticipated. Individuals and organizations who oppose the Makah gray whale hunt would not engage in demonstrations, attempts to interfere with hunt activities, or other forms of protest. There would, therefore, be no potential for episodes of increased social tensions associated with a whale hunt. Supporters of the Makah whale hunt might bond through a sense of shared adversity and a common cause, and hunt opponents (including some Makah tribal members) might bond by celebrating a decision not to authorize a hunt. Similarly, social bonding and other potential social benefits within the Makah Tribe described above and in Section 3 would not be realized under the No-action Alternative. Renker (2018) cited observations of a connection between unhealthy social behaviors and the inability to practice traditional rituals. Such behaviors could become more common among Makah tribal members. In addition, the Makah and other tribes might feel continued tension toward hunt opponents

and the federal government, in part, because of anger over a perceived lack of respect for tribal traditions and treaty rights.

4.8.3.2 Alternative 2, Tribe's Proposed Action

Any whale hunts that occurred under Alternative 2 would result in increased tension between hunt supporters and opponents, compared to the No-action Alternative. As discussed in Subsection 4.8.2, Evaluation Criteria, the potential type and magnitude of effects on the social environment would likely be affected by the number of hunting expeditions. As described in Subsection 4.1, Introduction, there would likely be approximately 60 days with hunt-related trips per year under Alternative 2. The degree of tension expressed by some hunt opponents might also be affected by the number of PCFG whales that could be killed. The maximum number of PCFG whales that could be killed per year under Alternative 2 would be 5, although the actual number would likely be 1.9 (Table 4-1).

Supporters and opponents would be drawn from all three of the interest groups (i.e., Makah tribal members, other tribes, and other individuals and organizations) described above and in Subsection 3.8.3, Existing Conditions. The reactions of individual members of interest groups would be determined primarily by each person's set of values and beliefs. Members of specific organizations, which are generally made up of people who share similar values and beliefs, would likely express similar reactions. Members of local communities and Indian tribes (including the Makah) would be more likely to differ from one another because those groups are often based on cultural, geographical, or familial ties instead of particular belief systems.

Individuals and organizations who oppose the Makah gray whale hunt may engage in demonstrations, attempts to interfere with hunt activities, or other forms of protest. Some tribal members or other hunt supporters may engage in confrontations with protesters. Social tensions might be expressed as described above or in other ways.

4.8.3.3 Alternative 3, Offshore Hunt

Alternative 3 would likely result in the same number of days with hunt-related trips as Alternative 2 and would, therefore, result in the same number of opportunities for the expression of social tension as under Alternative 2, and more opportunities relative to the No-action Alternative. The degree of tension expressed by some hunt opponents might also be affected by the number of PCFG whales that could be killed. The maximum number of PCFG whales that could be killed per year under Alternative 3 would be 4, although the actual number would likely be 1.6 (Table 4-1). Thus, there would be a lower potential for social tension regarding the killing of PCFG whales than under Alternative 2, and greater potential relative to the No-action Alternative.

4.8.3.4 Alternative 4, Summer/Fall Hunt

Alternative 4 would likely result in fewer days with hunt-related trips than Alternatives 2 and 3 (7 every other year compared to 60 per year) and would, therefore, result in fewer opportunities for the expression of social tension than under those alternatives, but more opportunities relative to the No-action Alternative. As under the other action alternatives, the degree of tension expressed by some hunt opponents might also be affected by the number of PCFG whales that could be killed. The potential number of ENP whales killed under Alternative 4 would be determined by the PCFG limit, which would be one every other year under current conditions (refer to Table 4-7), and any whale struck would be counted as a PCFG whale. (Because Alternative 4, like Alternative 2, would allow seven strikes per year, the number of ENP whales potentially killed could be as high as seven, but this would require the PCFG abundance to more than triple, which is highly unlikely). Thus, while the potential for social tension regarding the killing of PCFG whales would be greater than under the No-action Alternative, the potential could be less than under Alternatives 2 and 3. On the other hand, under Alternative 4, tribal hunters would deliberately hunt whales that are likely to be PCFG males. As noted in Subsection 3.8.3.3, Other Individuals and Organizations, many people who watch whales in the action area on a regular basis attach existence values to individual PCFG whales that regularly visit the area. A hunt targeting these whales could increase the social tension within this group beyond the tension that would exist under Alternatives 2 or 3.

4.8.3.5 Alternative 5, Split-season Hunt

Alternative 5 would likely result in fewer days with hunt-related trips than Alternatives 2 and 3 (22 compared to 60) and would, therefore, result in fewer opportunities for the expression of social tension than under those alternatives, but more opportunities relative to the No-action Alternative or Alternative 4 (22 every year compared to 7 every other year). As under the other action alternatives, the degree of tension expressed by some hunt opponents might also be affected by the number of PCFG whales that could be killed. A maximum of one PCFG whale could be killed every year under Alternative 5 (assuming all struck and lost whales are PCFG whales that subsequently die), although the actual number would likely be one whale ever 5 years (Table 4-1). Thus, while the potential for social tension regarding the killing of PCFG whales would be greater than under the No-action Alternative, the potential would be less than under any of the other action alternatives.

4.8.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Alternative 6 would likely result in the same number of days with hunt-related trips as Alternatives 2 and 3 and would, therefore, result in the same number of opportunities for the expression of social tension, and more opportunities relative to the No-action Alternative. The maximum number of PCFG

whales that could be killed per year (on average) under Alternative 6 would be 3.5, although the actual number would likely be 0.96 (Table 4-1). With respect to the potential for social tension regarding the killing of PCFG whales, Alternative 6 would, therefore, have a lower potential than under Alternatives 2 and 3, and a greater potential than under the No-action Alternative or Alternative 5. The potential could also be greater than under Alternative 4, because of the likelihood of killing more PCFG whales. On the other hand, the deliberate hunting of known whales under Alternative 4 could result in greater potential for social tension than under Alternative 6.

Also, under Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Social tension could increase under Alternative 6 if it creates a foreseeable point in time that compels people to elevate their expression of support or opposition to a tribal whale hunt as the 10-year period draws to a close.

4.8.3.7 Alternative 7, Composite Alternative—Preferred

Under Alternative 7, there would likely be 60 days with hunt-related trips in winter/spring hunts and 7 to 14 days with hunt-related trips in summer/fall hunts, or an average of 37 days per year over ten years (300 days for winter/spring hunts and up to 70 days for summer/fall hunts, each divided by 10 years). This would be fewer than under Alternatives 2, 3, and 6, with up to 60 days with hunt-related activities each. Alternatives 4 and 5 involve fewer days with hunt-related activities (7 every other year and 22, respectively) and, therefore, would provide fewer opportunities for both social tension and bonding, unless the Tribe does not receive authorization for any winter/spring hunts during the waiver period.

The maximum number of PCFG whales that could be killed in winter/springs hunts would be 3, although the actual number would likely be 0.82 (Table 4-1). In summer/fall hunt years, the maximum number of PCFG whales that could be killed would be 2, if the first struck whale is struck and lost. This assumes that struck and lost whales subsequently die. This results in a maximum average annual mortality of 2.5 PCFG whales per year over the course of the 10-year waiver period, and a likely average annual mortality 1.4 PCFG whales per year, assuming, precautionarily, that the first struck whale is lost in every summer/fall hunt and the second strike is utilized. This represents a higher potential for social tension regarding the killing of PCFG whales under Alternative 7 than Alternative 4, 5, and 6 but a lower potential than under Alternative 2 and 3. On the other hand, the deliberate hunting of known whales under Alternative 4 could result in greater potential for social tension than under Alternative 7.

Implementing a low abundance threshold for the ENP stock may reduce number of hunting days under Alternative 7. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on the social

environment of the Makah Tribe, other tribes, and the public, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(a) is likely to result in the most opportunities for social tension and bonding while 7(c) may provide the fewest opportunities.

Also, under Alternative 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Social tension could increase under Alternative 7 if it creates a foreseeable point in time that compels people to elevate their expression of support or opposition to a tribal whale hunt as the 10-year period draws to a close.

4.9 Cultural Resources

This subsection addresses the potential for the alternatives to affect cultural resources in the action area, including historic sites, archaeological sites, and traditional cultural properties. The analysis considers the potential for whale hunting or related activities to affect physical sites with cultural significance. Ways in which hunt-related activities could affect cultural sites include physical damage from towing a whale to shore, or trampling of sensitive sites by persons observing or participating in a hunt or related activities. Potential effects on cultural practices and the cultural identity of the Makah Tribe are addressed in Subsection 4.10, Ceremonial and Subsistence Resources.

Two historic sites listed on the National Register of Historic Places occur in the waters or shoreline of the Makah U&A (Subsection 3.9.3.1, National Historical Register Sites). These are Tatoosh Island and the Wedding Rock Petroglyphs. In addition, Fort Núñez Gaona – Diah Veterans Park is located in Neah Bay (Subsection 3.9.3.3, Other Culturally Important Sites). Under the No-action Alternative, the potential for adverse effects on these sites would not differ from the potential under current conditions. There is a low risk of intentional or unintentional damage or disturbance by recreational users or other people in the areas where these sites occur.

It is improbable that any of these sites would be affected by activities directly related to harvesting a whale (such as towing the whale to shore, butchering, and transporting whale products from the landing site) under any of the action alternatives. Fort Núñez Gaona – Diah Veterans Park is located on Bayview Avenue in Neah Bay and would not be affected by towing a whale to shore or landing it at Front Beach, which is at the opposite side of the bay. At Tatoosh Island, logistical challenges related to

the transport of people, equipment, and butchered whale products make it unlikely that any whales would be landed at that site. In addition, the Tatoosh Island lighthouse is geographically separate from the rocky shore. Moreover, the island is owned by the Tribe and was traditionally used for landing whales, so few (if any) non-tribal onlookers would be present at the landing site and landing a whale there would be in keeping with Makah cultural tradition. The beach where the Wedding Rock Petroglyphs occur is a remote, off-reservation location that lacks vehicle access, making it an unlikely site for landing whales.

The potential for listed historic sites to be damaged by hunt observers or onlookers is also low. The only site where this could occur is the Wedding Rock Petroglyphs because access to Tatoosh Island is restricted by the Makah Tribe. Although it is unlikely that a whale would be landed at the beach where the Wedding Rock Petroglyphs are found, people could attempt to view hunt activities on the water from the access trail. It is possible that persons viewing a whale hunt might accidentally tread or encroach upon an existing archaeological or historic site. Because many activities associated with whale hunting would occur in marine locations not visible from the shoreline, the possibility of such accidental harm to this site is remote. Any damage to the Wedding Rocks Petroglyphs from shore-based visitors would likely be unrelated to any whale-hunting activities.

Unlisted sites, such as the shell midden sites along eroding beach terraces in the Olympic National Park, are also unlikely to be affected for the reasons described above. Makah whalers would be most likely to choose a beach on the reservation for landing a whale to facilitate access for butchering and celebrations. Moreover, any whale that is landed and butchered would be close to the water's edge and not as far upland as the midden sites.

Many unlisted sacred sites on the Makah Reservation were traditionally used by Makah whalers and their families to prepare for whale hunting. Some ceremonial use of these sites would likely occur under the No-action Alternative, but the use would not necessarily be related to whale hunting. Under the action alternatives, the cultural value of these sacred sites would be enhanced by their use for whale hunting-related ceremonies. As noted in Subsection 3.9.3.3, Other Culturally Important Sites, the only traditional cultural property identified for this analysis is First Beach. Under the No-action Alternative, this site would not be used for any practices directly related to whale hunting. Use of this site for butchering whales under the action alternatives would be consistent with its traditional use by the Makah.

4.10 Ceremonial and Subsistence Resources

4.10.1 Introduction

This subsection addresses the potential for the alternatives to affect the Makah Tribe's efforts to revive ceremonial and subsistence practices associated with hunting and using whales, which in turn affect Makah culture. The Makah Tribe has a long history of hunting whales (Subsection 3.10.3.4, Makah Historic Whaling), as well as culturally significant treaty language reserving the right to hunt whales. Despite a more than 70-year hiatus in hunting whales before the 1999 and 2000 hunts, the Makah have maintained a close cultural and ceremonial association to this traditional activity. Makah ceremonial and subsistence practices associated with whale hunting that are undertaken by some members include preparation for the hunt, the hunt itself, processing and distribution of the products, and consumption of products from the hunt (Subsection 3.10.3.5.1, Makah Whaling). Also important is the satisfaction many tribal members derive from harvesting, preparing, sharing, and eating traditional food; practicing traditional activities and applying and transmitting traditional knowledge; participating in ceremonial practices and spiritual connections associated with whales and whale hunting; and reinforcing cultural identity associated with the whale hunt and related activities (Subsection 3.10.3.5.1, Makah Whaling).

All of the alternatives have the potential to affect the Tribe's ceremonial and subsistence practices and Makah culture (Braund and Associates 2007; Renker 2018). Persons whose ceremonial and subsistence practices could be affected by the alternatives include residents of the Makah Reservation, members of the Tribe who live elsewhere, and nearby tribes. Makah tribal members who live off the reservation could be affected because strong kinship and cultural ties extend beyond the reservation's boundaries. Non-Makah tribes could be affected because of the close social and cultural ties among indigenous people (Subsection 3.8.3.2, Other Tribes).

Potential effects of the alternatives on archaeological resources associated with whale hunting are addressed in Subsection 4.9, Cultural Resources. Potential effects on the exercise of ceremonial and subsistence practices of indigenous people worldwide (by influencing the behavior of other countries toward indigenous people within their borders) are addressed in Subsection 4.17, Regulatory Environment Governing Harvest of Marine Mammals.

4.10.2 Evaluation Criteria

We used several criteria to determine the potential effects of the alternatives on the Tribe's ceremonial and subsistence practices related to whale hunting and the subsistence use of whales. They can be grouped into five categories: (1) access to whale hunting opportunities, (2) subsistence use, (3) traditional knowledge and activities, (4) spiritual connection to whale hunting, and (5) cultural identity.

The following five subsections describe these categories in greater detail and identify how the effects of the alternatives may be assessed and differentiated.

4.10.2.1 Access to Whale Hunting Opportunities

Under the No-action Alternative, no whale hunt would be permitted. Whale hunting would be permitted under the action alternatives, with varying degrees and types of restrictions on the timing of hunts, the area in which hunts may occur, and the number of ENP and PCFG whales that may be killed and/or harvested. The following paragraphs provide information about the ways in which such restrictions on access to whale hunting opportunities could influence the ability of tribal members to engage in ceremonial and subsistence practices. Information is also provided about the Makah's perceptions and expectations regarding hunt timing, hunt location, and harvest limits. Additional information about the potential for hunting restrictions under the alternatives to limit opportunities for hunting and the number of whales harvested is provided in Subsection 4.1, Introduction.

Traditionally, whale hunting occurred year-round, whenever whales were present and there was a need for them (Braund and Associates 2007). Historically, the hunting season for gray whales began in March when they appeared in numbers off Tatoosh Island on their coastal migration north and resumed in November during their migration south. Humpback and gray whales may have remained in the area all summer (Huelsbeck 1994), permitting whale hunting to occur from early spring through the fall (Subsection 3.10.3.4, Makah Historic Whaling). Makah tribal members have indicated a preference for hunting during the spring and fall whale migrations, as well as during the summer (Braund and Associates 2007). Several Makah indicated that the whales are fatter in the fall on their migration south. One individual also expressed a preference for hunting during the spring, observing that summer tourism and fall weather conditions could interfere with whale hunting during those times.

Historically, Makah hunted both on the ocean and on waters in the Strait of Juan de Fuca, depending on weather, wind, and the presence of whales. Any restrictions on location would contrast with traditional hunting, which occurred when and where the whales presented themselves, including in the Strait (Braund and Associates 2007). The Strait of Juan de Fuca provided hunting opportunities where conditions were safer because the weather is calm compared to the coastal portion of the Makah U&A, which can have 25-foot (7.6-m) waves (Braund and Associates 2007). Some Makah tribal members believe that excluding the Strait of Juan de Fuca from their hunting area would place whalers at increased risk, would prohibit them from whale hunting where their ancestors traditionally whaled, and would affect their ability to successfully take a whale (Braund and Associates 2007). No information is available about the distance from shore of historical hunting activities, although Braund and Associates (2007) identified areas close to shore as traditional hunting grounds and noted that shallow areas near

rocks and islands are considered to be better locations for striking whales. It is reasonable to expect that tribal hunters traditionally sought opportunities as close to shore as possible, to minimize the risks associated with hunting on the open ocean as well as the distance over which a harvested whale would need to be towed.

Because the Makah have harvested only one whale in recent history (i.e., the 1999 harvest), there are few current whale harvest data upon which to assess the effect of the size of the harvest in terms of meeting Makah needs. However, as described in Subsection 3.10.3.5.2, Makah Subsistence Consumption, the Makah do rely on subsistence foods for a significant portion of their diet and emphasize marine resources. Furthermore, the 2001 tribal survey found that 81 percent of the respondents consumed whale products (blubber, meat, or oil) obtained from the 1999 hunt, and 87 percent would like to have these products available in the future (Renker 2002) (Subsection 3.10, Ceremonial and Subsistence Resources). According to Renker's 2017 household survey (Renker 2018), 85.7 percent of survey respondents wanted whale meat in their households on a regular basis, and 80.4 percent wanted whale oil on a regular basis.

Sepez (2001) calculated that the Makah households received an estimated 2.4 pounds (1.1 kg) of whale meat (0.55 lbs/0.25 kg) and blubber (1.8 lbs/0.82 kg) per capita from the 1999 whale hunt. Makah members have commented that one whale was not adequate to feed the entire community; it was not large enough to go around as a meaningful source of food (Braund and Associates 2007). According to Sepez's (2001) analysis (Subsection 3.10.3.5.1, Makah Whaling), the 1999 whale harvested by the Makah yielded approximately "2,000 to 3,000 pounds [907.2 to 1,360.8 kg] of meat and 4,000 to 5,000 pounds [1,814.4 to 2,268 kg] of blubber, most of which was consumed at the community potlatch." The Tribe's most recent needs statement (Renker 2018) estimates that harvesting an average of four gray whales per year would yield 8 to 20 pounds (4 to 9 kg) of meat per capita and 16 to 20 pounds (7 to 20 kg) of oil or blubber per capita (and a somewhat smaller amount of whale oil after rendering). Renker (2018) reported that Makah tribal members numbered 2,692 persons, with 1,160 of those living on the reservation, and that whale products would be shared with Makah living in and outside of Neah Bay.

This information indicates that there is a high demand for whale products and that one whale would not likely meet that need. It is uncertain how many whales would be needed to meet contemporary Makah needs. One indicator is the number of whales specified in the Makah Tribe's request to resume whale hunting—i.e., an average of four whales annually or approximately one whale per year per Makah village (Renker 2018). The harvest of four whales annually would be expected to provide a substantial opportunity to the Makah to hunt, process, and share whale products and to prepare for and participate in ceremonial activities associated with whale hunting.

4.10.2.2 Subsistence Use

Subsistence use includes, among other things, harvesting, processing, sharing, and consuming foods. The ability to use a customary resource for subsistence depends on the availability of and access to that resource in traditional harvest locations. The resource must be available in sufficient numbers and of adequate health to allow a locally satisfactory harvest. A satisfactory harvest, in turn, would allow the subsistence community to participate in related activities. Access to resources can be affected by roads or trails that enhance access, by physical barriers (such as demonstrators who block access), by regulatory barriers, or by social barriers (such as an influx of recreational boaters into an area, displacing traditional users or resources). Traditional subsistence users of a resource may derive satisfaction from harvesting, processing, sharing, and consuming traditional foods. These activities reinforce traditional knowledge through use, exchange of knowledge, and training in traditional ways of performing subsistence activities (Subsection 3.10.3.5.2, Makah Subsistence Consumption). Under any of the alternatives, the extent to which the Tribe can engage in subsistence use of whales would depend on the opportunity to hunt and on the number of whales that could be harvested.

4.10.2.3 Traditional Knowledge and Activities

Surviving on locally available resources requires an intimate understanding of the environment based on a long-term relationship with the surrounding land, water, and resources. This knowledge comes from continued interaction with and observation of the surrounding environment and resources through subsistence activities, as well as through oral tradition passed down from elders to other community members and shared by active community residents. Individuals who carry and transfer this knowledge are generally those with a long history of participation in subsistence activities. The more a culturally important activity is practiced, the more likely it is that knowledge of that activity will pass from generation to generation. This valuable knowledge is not simply given away. Instead, community members who perform culturally important activities relay the knowledge, and younger participants earn the right to help as they learn from their elders. In some cases, only a limited number of people know specific skills (e.g., a harpooner) (Subsection 3.10.3.5.1, Makah Whaling).

If there is a hiatus in practicing the activity, the knowledge may be lost. It may take a long time, but eventually knowledge of specific elements of the activity wanes as elders die, especially if the cultural activities are not actively practiced. Maintaining traditional and cultural knowledge regarding whale hunting requires active participation in whale hunting (Subsection 3.10.3.4.1, Cessation of the Hunt).

Along with the knowledge of an activity, there are specific indigenous words (vocabulary) used to describe the activity, preparation for the activity, the hunting equipment, the weather and elements, the food, and ways to prepare the food, composing a seemingly endless and detailed list. Participation in

the traditional activity results in more use of indigenous words and language to describe the activity; this, in turn, results in increased cultural awareness and more people and communities identifying themselves with their indigenous culture (cultural identity through shared language). In time, knowledge, activity, and transmission from generation to generation become part of an oral tradition (Subsection 3.10.3.5.1, Makah Whaling).

Under any of the alternatives, the number of traditional activities tribal members can practice and the number of times they can practice them, as well as the amount of traditional knowledge tribal members can apply and transmit, would depend on the number of opportunities to hunt and harvest whales and the number of whales available for the Tribe to use. The number of opportunities to hunt and the number of whales available would depend upon restrictions on the timing and area of the hunt, the mortality of PCFG whales, and the number of whales that could be harvested.

4.10.2.4 Spiritual Connection to Whale Hunting

Makah whale hunting rituals, spiritual and physical training, songs, dances, and ceremonial activities are well documented historically and in association with the 1999 and 2000 whale hunts (Subsection 3.10.3.4, Makah Historic Whaling, and Subsection 3.10.3.5.1, Makah Whaling). Whale hunts increase participation in ceremonial activities and rituals related to whale hunting. Similarly, the spiritual connection to whale hunting is strengthened as participants prepare for and conduct a whale hunt and then share the proceeds of the harvest. Makah whale hunting reinforces the relationship between the Makah and the whales. Makah tribal lore indicates that when the hunters and family prepare for the hunt and conduct it properly, perform the appropriate rituals, and live the culturally correct way, the whale gives itself to the Makah (Subsection 3.10.3.4, Makah Historic Whaling).

The amount of spiritual connection that tribal members have to whale hunting would depend primarily on the opportunity to hunt. The extent of that opportunity could also affect tribal members' spiritual connection to whale hunting. The extent of the opportunity to hunt would depend upon the extent to which hunting activities would be restricted by limits on the timing and area of the hunt, the mortality of PCFG whales, and the number of whales that could be harvested.

4.10.2.5 Cultural Identity

Under current conditions (the No-action Alternative), the cultural identity of Makah tribal members is expressed in a variety of ways, including fishing, singing, dancing, potlatching, making traditional handicraft articles, and using the Makah language. Subsection 3.10.3.5, Contemporary Makah Society, describes the various activities available to tribal members to experience and strengthen their cultural identity. The Makah tribal and cultural identity associated with whale hunting in particular is well documented (Subsection 3.10.3.5.3, Symbolic Expression of Whaling). Actively hunting whales

enhances the community's connection to its whale hunting history and reinforces the sense of connection to the local marine environment and to ancestors who used the resource in the past. Other measures of cultural identity associated with whale hunting include the following:

- Use of the whale as a cultural symbol
- Pride in whale hunting traditions
- Traditional values of pride, self-esteem, responsibility, and identification with the past
- Local perceptions of community cultural identity with whale hunting
- Tribal identity
- A sense of the community cooperatively working together toward the common cultural goal of preparing to hunt, harvesting, processing, distributing, and eating the product of their communal labor
- A sense of autonomy

The potential for any of the alternatives to reinforce Makah cultural identity associated with whale hunting would depend primarily on the opportunity for tribal members to hunt. The extent to which that cultural identity may be reinforced would depend upon the extent to which hunting activities would be restricted by limits on the timing and area of the hunt, the mortality of PCFG whales, and the number of whales that could be harvested.

4.10.3 Evaluation of Alternatives

The following subsections compare the potential for the alternatives to affect Makah ceremonial and subsistence practices. For each alternative, the analysis considers its effect on ceremonial and subsistence practices, including subsistence uses, traditional knowledge and activities, spiritual connection to whale hunting, and cultural identity that would result from a decision by the federal government to permit or deny the Makah Tribe's request to hunt whales. For those alternatives that would allow hunting, the analysis also considers the effect of hunting regulations on the same set of ceremonial and subsistence practices.

The No-action Alternative carries the greatest risk of adverse effects on the Makah Tribe's ceremonial and subsistence practices associated with whale hunting. This is because under the No-action Alternative no whale hunting would be allowed, so these practices either could not occur or would be restricted. In contrast, Alternatives 2 through 7 would all allow the Makah to hunt whales, with variations in season, area, and harvest limits. Having an opportunity to hunt whales would enable the Tribe to engage more frequently in a greater range of ceremonial and subsistence practices, compared to the No-action Alternative. The amount of increase could be affected by regulations on hunting. Possible regulations include limits on the timing and area where a hunt would be allowed, and on the

number of whales that could be struck, struck and lost, or harvested, including limits on PCFG whales. Alternative 2, with the least restrictive limits on hunting among the action alternatives, would have the greatest potential to benefit the Tribe's ceremonial and subsistence practices associated with hunting whales.

In the following discussions of Alternatives 2 through 7, the degree of change from the No-action Alternative and the comparison to other alternatives are included in the summary of effects subsection. In addition, under Alternatives 6 and 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternatives 6 and 7 considers effects only over a 10-year period.

4.10.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted. Gray whales would continue to be available in that they are abundant in traditional harvest areas, but the Makah would not have access to hunt them. Tribal members could engage in some activities associated with whale hunting, such as performing ceremonies and rituals; building whale-hunting canoes; or processing, sharing, and consuming drift whales or whales incidentally caught in fisheries. However, very few such whales have actually been used in recent times; out of 21 entangled or stranded whales in the past 20 years, only two have been used by the Tribe[17] (Subsection 2.4.2, Subsistence Use of Drift Whales). Moreover, many of the activities the Tribe could continue to pursue have limited cultural value if they are not practiced in connection with actual whale hunts. Many other activities associated with the actual hunt would not be permitted and could not occur, such as approaching, striking, killing, and towing whales to shore.

Under the No-action Alternative, transfer of knowledge related to whale hunting would be limited to discussions of past whale hunting, and revitalized culture bearers who would participate in whale hunting would not be forthcoming. There would be no language and vocabulary growth related to whale-hunting activities, and the oral tradition of whale hunting would focus on historic activities and would not include ongoing participation in this culturally central activity.

Under the No-action Alternative, the opportunity for tribal members to experience a spiritual connection to whale hunting is limited to a connection with past whale hunting. Whale hunting songs

[17] In 1994, the Northwest treaty Indian tribes advised NMFS of their intent to exercise their treaty rights to marine mammals (and this was done with the 1995 whale carcass used by Makah tribal members) (NMFS 1995). However, the Tribe's usual response is to assist the entangled animal, and Tribal biologists have participated in several recent disentanglement efforts, including two humpback whales in 2008 and 2010 (Cascadia Research Collective 2008; 2010a) and the successful disentanglements of gray whales in 2009 and 2013 (NMFS 2013a).

and dances would likely remain within whale hunting families, but the hiatus would continue and there would be little reason or opportunity to perform and share them with the larger community. Without any whale hunting activity, the spiritual connection to whale hunting may eventually wane, and young Makah tribal members would lack any active whaler role models living what the Makah consider a culturally proper life that they could respect, admire, and emulate. The community connection to whale hunting would remain a connection to the past without any present reinforcement based on active participation in whale hunting activities.

Although the amount of whale hunting activity and associated cultural use of whales would not differ from current levels, tribal identity could erode in the absence of opportunities to participate in an activity central to Makah cultural identity. The community would have little or no opportunity or incentive to work cooperatively to prepare for the hunt; to harvest, butcher, share, and eat whale; or to participate in song and dance festivals celebrating a successful harvest. Individual and community pride associated with conducting these activities would not occur, and self-esteem could decline among those Makah tribal members who believe the Tribe should continue to hunt whales.

In addition, because contemporary Makah cultural identity includes the 150-year-old treaty right to hunt whales, this alternative would continue to reinforce the sense that the Makah are not in control of their destiny, and it would undermine a sense of autonomy within the community. For Makah who believe strongly in their cultural heritage and treaty rights, this alternative would reinforce their feeling of disillusionment with the federal government.

4.10.3.2 Alternative 2, Tribe's Proposed Action

Whale hunts would be permitted under Alternative 2. An average of four whales could be harvested per year, with no more than five harvested in a single year and no more than seven whales struck per year. Hunting would be limited to the period from December 1 through May 31 in the coastal portion of the Makah U&A. The limit on the number of PCFG whales killed per year would be three, based on current population estimates (Table 4-3). Only PCFG whales harvested, not whales struck and lost, would be counted toward that limit. As a result, Alternative 2 would be expected to increase the Makah Tribe's opportunities to revive ceremonial and subsistence practices associated with hunting and using whales, compared to the No-action Alternative, but to a limited degree, as discussed below.

4.10.3.2.1 Access to Whale Hunting Opportunities

By allowing hunting only during the winter and spring months, when severe weather would be a frequent occurrence, Alternative 2 would likely limit the number of suitable hunting days to approximately 43 (Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days). This in turn could make it difficult to harvest the four whales annually allowed under Alternative 2. In

addition, during 6 months of the year, tribal members would not have the latitude to hunt and harvest whales at opportune times, such as when whales are available, when weather conditions are favorable, or when hunters are prepared.

Restricting whale hunts to the portions of the U&A west of the Bonilla-Tatoosh line would keep the Makah from hunting whales in the Strait of Juan de Fuca. Prohibiting whale hunts in the Strait of Juan de Fuca would preclude access to a traditional hunting area as well as a large area in which hunting could potentially take place. This prohibition would also limit the flexibility of tribal members to hunt in the Strait of Juan de Fuca when weather conditions there are more favorable than in the coastal portion of the Makah U&A. In addition, prohibiting hunting in the Strait of Juan de Fuca would reduce opportunities to hunt a whale close to the community and to butchering sites. A greater distance between the site of a whale kill and the location of the landing beach would mean a greater distance over which the whale carcass would have to be towed, with a greater chance of the meat spoiling.

The Makah Tribe would be allowed to harvest an average of four whales annually, with no more than five whales harvested in any single year. The limit on the number of PCFG whales killed per year would be three, based on current population estimates (Table 4-3). In addition, only PCFG whales harvested, not whales struck and lost, would be counted toward that limit. It is, therefore, unlikely that limits on PCFG whale mortality would restrict the total number of whales that could be harvested per year under Alternative 2.

4.10.3.2.2 Subsistence Use

Under Alternative 2, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. Under Alternative 2, the Makah could hunt for gray whales, a traditional marine resource, using many of their traditional methods. Based on the average number of days with favorable ocean conditions, combined with the probability of encountering gray whales, there would be a total of approximately 43 suitable hunting days during the 6-month hunting season, with an additional 17 days when ocean conditions may be suitable for other hunt-related activities (e.g., scouting) (Subsection 4.1.2.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 2, Tribe's Proposed Action]). The Tribe could harvest as many as four whales per year, and the Makah community could process, share, and consume this traditional food.

Under Alternative 2, the extent to which tribal members would be able to engage in subsistence use activities would thus increase from no opportunity to hunt whales (under the No-action Alternative) to an opportunity to hunt in the coastal portion of the Tribe's U&A on approximately 60 days from December 1 through May 31. The number of whales available for subsistence use would also increase

by up to four harvested whales per year compared to the current potential use of perhaps one drift whale every 10 years[18] (i.e., drift whales or whales incidentally killed in fishing operations) under the No-action Alternative. Under Alternative 2, with its limited hunting season, it may be difficult for the Tribe to harvest the full limit of four whales on average per year. On the other hand, the initial portion of the hunting season under Alternative 2 (i.e., December and January) would overlap with the whales' southward migration when, according to some tribal members, the whales are fatter and would thus provide more products for subsistence use than whales harvested during the late winter/spring northward migration or early in the summer feeding period (which begins around June 1).

The amount of satisfaction tribal members would derive from this increased subsistence use of whales would also likely increase compared to the No-action Alternative. The Tribe's needs statement indicated that 80.4 percent of surveyed households would like whale oil on a regular basis, 85.7 percent would like whale meat on a regular basis, and 63.7 percent would like whale blubber on a regular basis (Renker 2018).

4.10.3.2.3 Traditional Knowledge and Activities

As described above, under the No-action Alternative tribal members may engage in some, but not all, of the traditional activities associated with subsistence use of whales. The ability to actively hunt whales, which is prohibited under the No-action Alternative, would be allowed under Alternative 2, increasing the number of traditional activities that tribal members could practice. Specifically, tribal members could search for and find whales and strike, harvest, and tow whales to shore. The number of times tribal members could participate in searching for and finding whales would increase compared to the No-action Alternative by approximately 60 days per year, from December 1 through May 31. The number of times they could participate in striking, harvesting, and towing whales to shore would increase by up to seven whales struck per year and four whales harvested per year on average. The increase in the number of times these activities are performed would also increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

In addition to permitting some currently prohibited activities, and, thereby, increasing the number of traditional activities that could be practiced, implementation of Alternative 2 could increase the number of times tribal members engage in activities that are not currently prohibited. Specifically, tribal members are not currently prevented from building large whale-hunting canoes or fabricating and

[18] This is likely an overestimate given that it is rare to find a drift whale that is suitable for human consumption and attempts are made (by the Tribe and others) to free entangled whales.

maintaining whale-hunting equipment, but there is little practical reason for them to do so. If a whale hunt were authorized under Alternative 2, there would likely be an increase in the number of times that tribal members practice these activities.

Similarly, tribal members are not currently prohibited from processing and consuming whale products from drift whales, but the opportunity to do so is limited. The number of times tribal members could participate in processing whales would increase from the current potential of perhaps one drift whale every 10 years to four whales per year. The amount of whale products tribal members could share and consume would similarly increase from one drift whale every 10 years to four whales per year, although limits on hunt timing might make it difficult for tribal members to harvest the full limit.

Under Alternative 2, tribal members would again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale-hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, could become more widely used (Braund and Associates 2007). Makah cultural awareness, both inside and outside of the Tribe, would become more pronounced, and the whale-hunting component of the Makah oral tradition would grow.

In contrast to the No-action Alternative, Alternative 2 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 2, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge would increase beyond that of the No-action Alternative.

4.10.3.2.4 Spiritual Connection to Whale Hunting

Under Alternative 2, the ability to resume whale hunting could increase the Makah's spiritual connection to whale hunting over the No-action Alternative, as whale-hunting activity could resume and recur year after year. This is because the connection would be current and ongoing, rather than a connection to a past activity that can no longer be pursued (Braund and Associates 2007).

4.10.3.2.5 Cultural Identity

As described above and in Subsection 3.10.3.5, Contemporary Makah Society, Makah tribal members currently have a variety of ways to express and reinforce their cultural identity. Also, as described above and in Subsections 3.10.3.4, Makah Historic Whaling, and 3.10.3.5.3, Symbolic Expression of

Whaling, whale hunting was a culturally central activity in historic Makah society and the Tribe's whale-hunting past remains culturally important. Under Alternative 2, Makah whale-hunting rituals, spiritual training, songs, dances, and ceremonial activities would likely increase compared to the No-action Alternative and would regularly recur, thus reinforcing Makah cultural identity. The opportunity under Alternative 2 to regularly harvest, process, share, and consume whale products could lead to increased communal activities and an increase in tribal members' sense of community. The whale-hunting ceremonies that whalers and family members would follow for the hunt could provide the Makah with an additional social framework, which could contribute to social and spiritual community stability.

4.10.3.3 Alternative 3, Offshore Hunt

Under Alternative 3, as under Alternative 2, whale hunts would be permitted. Alternative 3 would include the same hunting season and the same limits on the number of whales harvested as Alternative 2, but would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore and would impose additional restrictions on the mortality of PCFG whales.

The number of whales that could be harvested under Alternative 3 would be the same as under Alternative 2 (an average of four per year, with no more than five in any one year). In contrast to Alternative 2, however, whales struck and lost would be counted toward the annual mortality limit for PCFG whales, potentially reducing the total number of whales that could be harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested (Subsection 4.1.3, Alternative 3). Compared to Alternative 2, therefore, it is less likely that the Tribe would be able to harvest an average of four whales per year under Alternative 3.

4.10.3.3.1 Access to Whale Hunting Opportunities

Hunt timing would be the same under Alternative 3 as under Alternative 2, resulting in the same practical effects and tribal perceptions and expectations.

As under Alternative 2, hunting would not be allowed in the portion of the Makah U&A that extends into the Strait of Juan de Fuca, resulting in similar constraints on opportunities to hunt in traditional areas close to the community and to butchering sites. The additional restriction under Alternative 3 on hunting within 5 miles (8 km) of shore would further restrict tribal members' ability to hunt whales. Areas close to shore are traditional hunting grounds, and shallow areas near rocks and islands are considered to be better locations for striking whales (Braund and Associates 2007). Whale hunts that take place more than 5 miles (8 km) off shore would have a greater potential to encounter rough seas, compared to hunts closer to shore (i.e., under the other action alternatives), and expose tribal hunters to

greater hazards. In addition, prohibiting hunting within 5 miles (8 km) of shore would further reduce opportunities to kill a whale close to the community and to butchering sites. A greater distance between the site of a whale kill and the location of the landing beach would mean a greater distance over which the whale carcass would have to be towed, with a greater chance of the meat spoiling.

Although Alternative 3 would have the same limits as Alternative 2 on the number of whales that could be harvested, whales struck and lost would be counted toward the annual mortality limit for PCFG whales, potentially reducing the total number of whales that could be harvested in some years. Under some scenarios, it is possible that hunting activities for a given year could be curtailed before any whales are successfully harvested (Subsection 4.1.3, Alternative 3). Compared to Alternative 2, therefore, it is less likely that the Tribe would be able to harvest an average of four whales per year under Alternative 3.

4.10.3.3.2 Subsistence Use

Under Alternative 3, as under Alternative 2, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. Under Alternative 3, the Makah could hunt for gray whales, a traditional marine resource, using many of their traditional methods. Based on the average number of days with favorable ocean conditions, combined with the expectation that scouting expeditions would also be prepared to hunt if whales were found, it is assumed for this analysis that hunting could occur on approximately 60 days each year (Subsection 4.1.3.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 3, Offshore Hunt]). The Tribe could harvest as many as four whales per year, and the Makah community could process, share, and consume this traditional food.

Under Alternative 3, the extent to which tribal members would be able to engage in subsistence use activities would thus increase from no opportunity to hunt whales (under the No-action Alternative) to an opportunity to hunt in the coastal portion of the Tribe's U&A (greater than 5 miles [8 km] off shore) on approximately 60 days from December 1 through May 31. The number of whales available for subsistence use would also increase by as many as four harvested whales per year compared to the current potential use of perhaps one drift whale every 10 years under the No-action Alternative. The amount of satisfaction tribal members would derive from the increased subsistence use of whales would also likely increase compared to the No-action Alternative.

As under Alternative 2, the requirement to hunt only during the winter and spring months could reduce the likelihood of harvesting the full limit of four whales on average per year. The likelihood of attaining the harvest limit would be further reduced by the prohibition on hunting activities within

5 miles (8 km) of shore and by the restrictions on mortality of PCFG whales. As under Alternative 2, whales harvested during their southward migration may be fatter, thus providing more products for subsistence use than whales harvested at other times of year. Compared to Alternative 2, the Tribe's subsistence use of whales would be less under Alternative 3 because no hunting would be allowed within 5 miles (8 km) of shore and because restrictions on the mortality of PCFG whales could result in the curtailment of hunting activities in some years, possibly even before any whales are harvested.

4.10.3.3.3 Traditional Knowledge and Activities

Under Alternative 3, the increase compared to the No-action Alternative in some aspects of traditional knowledge and activities would likely be the same as under Alternative 2 because the restrictions on the hunt area, season, and methods would the same under the two alternatives, with the exception that Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore. This restriction would likely mean that the Tribe would conduct a motorized hunt and not use canoes; however, it would not be expected to result in a different number of days with hunt-related activities than under Alternative 2. Therefore, compared to the No-action Alternative, the increase in traditional knowledge and activities associated with searching for and finding whales under Alternative 3 would likely be similar to Alternative 2.

The number of times tribal members could participate in striking, harvesting, and towing whales to shore would increase by up to six whales struck per year (compared to seven whales per year under Alternative 2) and four whales harvested per year on average. The increase in the number of times these activities are performed would also increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

Under Alternative 3, as under Alternative 2, the number of times tribal members could participate in activities associated with harvesting and processing whales would increase from the current potential of perhaps one drift whale every 10 years to as many as four whales per year, on average. The amount of whale products tribal members could share and consume would similarly increase from one drift whale every 10 years to four whales per year, although limits on hunt location and on the mortality of PCFG whales might make it difficult for tribal members to harvest the full limit. Under Alternative 3, other aspects of traditional knowledge and activities would likely increase over current conditions to the same extent as under Alternative 2.

Similar to Alternative 2, Alternative 3 would afford tribal members more opportunities, compared to the No-action Alternative, to engage in traditional activities that are currently prohibited, as well as activities that are not currently prohibited. Although it is likely that the Tribe would choose to conduct motorized hunts under Alternative 3, canoe-based hunts would still be possible. Therefore, under

Alternative 3, tribal members could again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale-hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, would likely become more widely used.

In contrast to the No-action Alternative, Alternative 3 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 3, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge would increase beyond the current level.

Compared to Alternative 2, the Makah Tribe would be able to practice the same number of activities and apply and transmit the same types of traditional knowledge. However, the number of times they could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would be less under Alternative 3 than under Alternative 2 because Alternative 3 would be expected to result in a lower chance that the Tribe would be able to harvest four whales per year.

4.10.3.3.4 Spiritual Connection to Whaling

Under Alternative 3, the ability to resume whale hunting would likely increase the Makah's spiritual connection to whale hunting compared to the No-action Alternative, as described under Alternative 2.

4.10.3.3.5 Cultural Identity

Under Alternative 3, the ability to resume whale hunting would likely increase the cultural identity of the Makah compared to the No-action Alternative, as described under Alternative 2.

4.10.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, as under Alternatives 2 and 3, whale hunts would be permitted. Under Alternative 4, whale hunting would be permitted in the same portion of the Makah U&A as under Alternative 2, but the hunting season would extend from June 1 through November 30 instead of December through May. In addition, the maximum number of whales harvested would be limited to one ENP male whale every other year. It is possible that no whales could be harvested in additional years if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for that year).

4.10.3.4.1 Access to Whale Hunting Opportunities

Hunting during summer under Alternative 4 would enable Makah tribal members to hunt during months with the lowest risk of encountering adverse weather conditions or rough seas that would interfere with hunting opportunities and compromise hunter safety. In addition, hunting would target PCFG whales that are feeding in the action area. Actively feeding whales tend to be found in relatively shallow waters close to shore and remain in the area for extended periods (Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements), potentially making them more accessible and vulnerable to a strike. Compared to Alternative 2, therefore, Alternative 4 would give tribal hunters greater latitude to hunt and harvest whales at opportune times, based on sea and weather conditions, presence and availability of whales, subsistence need, and preparedness of hunters. The area in which whale hunting would be allowed under Alternative 4 would be the same as under Alternative 2 (i.e., the coastal portion of the Makah U&A, excluding the Strait of Juan de Fuca) and would be expected to result in the same practical effects and tribal perceptions and expectations.

The maximum number of whales that could be harvested under Alternative 4 would be limited to one every other year under current conditions. It is possible, however, that no whales could be harvested in additional years if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for the year). This would mean that the number of whales harvested under Alternative 4 would be 0 percent to 25 percent of the number of whales (four) specified in the Makah Tribe's request to resume whale hunting. The harvest of zero to one whale per year would thus be expected to provide opportunities for Makah tribal members to engage in ceremonial and subsistence practices that would not be available under the No-action Alternative, but to a lesser degree than under Alternatives 2 and 3.

4.10.3.4.2 Subsistence Use

Under Alternative 4, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. Under Alternative 4, the Makah could hunt for gray whales, a traditional marine resource, using many of their traditional methods. Based on the expectation that locating and striking a known ENP male would take no more than 7 days, it is assumed for this analysis that hunting could occur on approximately 7 days every other year (Subsection 4.1.4.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 4, Summer/Fall Hunt]). The Tribe could harvest up to one whale every other year under current conditions, and the Makah community could process, share, and consume this traditional food.

Under Alternative 4, the extent to which tribal members would be able to engage in subsistence use activities would thus increase from no opportunity to hunt whales under current conditions (the No-action Alternative), to an opportunity to hunt in the coastal portion of the Tribe's U&A on approximately 7 days from June through November (Subsection 4.1.4.1, Potential Timing of a Hunt and Number of Hunting Days) every other year. The number of whales available for subsistence use would also increase by zero to one harvested whale every other year compared to the current potential use of perhaps one drift whale every 10 years under the No-action Alternative. Although this would be an increase over current conditions, the number of whales harvested under Alternative 4 would be 0 percent to 25 percent of the number of whales (four) specified in the Makah Tribe's request to resume whale hunting. Based on the high percentage of Makah residents desiring whale products for consumption and use, limiting the number of whales harvested to one would likely not meet the Makah's need for whale products (Braund and Associates 2007).

The amount of satisfaction tribal members would derive from the increased subsistence use of whales would also likely increase compared to the No-action Alternative. As indicated above, however, an increase of one whale per year would not likely be perceived by tribal members as adequate to meet the Tribe's needs. The Tribe's needs statement indicated that four whales per year would likely be sufficient to meet demand for whale oil, whale meat, and whale blubber (Renker 2018).

Compared to Alternatives 2 and 3, the Tribe's subsistence use of whales would be less under Alternative 4 because under the No-action Alternative no more than one whale could be harvested every other year (compared to four on average under Alternatives 2 and 3) and because restrictions on the mortality of PCFG whales could result in the curtailment of hunting activities in some years, possibly even before any whales are harvested.

4.10.3.4.3 Traditional Knowledge and Activities

Under Alternative 4, the number of times tribal members could participate in searching for and finding whales would increase compared to the No-action Alternative on approximately 7 days every other year with hunt-related activities. The number of times tribal members could participate in striking, harvesting, and towing whales to shore would also increase, with up to one whale struck and harvested every other year under current conditions (refer to Table 4-7). The increase in the number of times these activities are performed would increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

Under Alternative 4, the number of times tribal members could participate in processing whales would increase from the current potential of perhaps one drift whale every 10 years to as many as one whale every other year. The amount of whale products tribal members could share and consume would

similarly increase from one whale every 10 years to one whale every other year, although limits on the mortality of PCFG whales could reduce that to zero whales in some additional years if a whale is struck and lost. Under Alternative 4, other aspects of traditional knowledge and activities would likely increase, compared to the No-action Alternative, to the same extent as under Alternative 2.

Similar to Alternatives 2 and 3, Alternative 4 would afford tribal members more opportunities, compared to the No-action Alternative, to engage in traditional activities that are currently prohibited, as well as activities that are not currently prohibited. Under Alternative 4, tribal members would again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale-hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, would likely become more widely used.

In contrast to the No-action Alternative, Alternative 4 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 4, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge would increase beyond the current level.

As under Alternatives 2 and 3, the Makah Tribe would be able to practice the same number of activities and apply and transmit the same types of traditional knowledge. However, the number of times they could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would be less under Alternative 4 than under Alternatives 2 and 3.

4.10.3.4.4 Spiritual Connection to Whaling

Under Alternative 4, the ability to resume whale hunting would likely increase the Makah's spiritual connection to whale hunting compared to the No-action Alternative, as described under Alternative 2.

4.10.3.4.5 Cultural Identity

Under Alternative 4, the ability to resume whale hunting would likely increase the cultural identity of the Makah compared to the No-action Alternative, as described under Alternative 2.

4.10.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, as under Alternatives 2, 3, and 4, whale hunts would be permitted. Under Alternative 5, whale hunting would be permitted in the same portion of the Makah U&A as under

Alternatives 2 and 4, but the hunting season would be limited to 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under Alternatives 2 and 3. During years in which no whales are struck and lost, and no PCFG whales are killed, the maximum limit for the number of whales harvested would be four on average (and no more than five in a single year), the same as under Alternatives 2 and 3. However, the landing of a single PCFG whale or the striking and losing of a single whale would end the hunt for any given year and subsequent years until the PCFG mortality limit accrues to greater than or equal to one. Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year (Subsection 4.1.5, Alternative 5).

4.10.3.5.1 Access to Whale Hunting Opportunities

The hunting season under Alternative 5 would occur during 3 weeks in December and 3 weeks in May as compared to Alternatives 2 and 3 (i.e., occurring December through May), resulting in the same practical effects and tribal perceptions and expectations. The difficulties associated with not having the latitude to hunt and harvest whales at opportune times would be compounded by the additional limitation on the number of days when hunting would be allowed. By limiting the hunting season to two 3-week periods in December and May, Alternative 5 would reduce the number of potential hunting days to approximately 11 days in May (most likely timing of hunt), compared to 33 days and 43 days under Alternatives 2 and 3, respectively. Compared to Alternatives 2 and 3, therefore, tribal members would have fewer opportunities to hunt, reducing the likelihood of harvesting the four whales annually allowed under Alternative 5. The hunting area under Alternative 5 would be the coastal portion of the Makah U&A, as under Alternatives 2 and 4 and would be expected to result in the same practical effects and tribal perceptions and expectations.

Although the maximum number of whales that could be harvested under Alternative 5 would be four, it is expected that the Tribe would actually harvest no more than one whale every year. This would mean that the number of whales harvested annually under Alternative 5 would be approximately 25 percent of the number of whales (four) specified in the Makah Tribe's request to resume whale hunting. The harvest of zero to one whale per year would thus be expected to provide opportunities for Makah tribal members to engage in ceremonial and subsistence practices that would not be available under the No-action Alternative, but to a lesser degree than under Alternatives 2 and 3.

4.10.3.5.2 Subsistence Use

Under Alternative 5, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. Under Alternative 5, the Makah could hunt for gray whales, a traditional marine

resource, using many of their traditional methods. Based on the average number of days with favorable ocean conditions, combined with the probability of encountering gray whales, there would be a total of approximately 15 suitable hunting days (11 of those days in May) during the split hunting season, with an additional 7 days when ocean conditions may be suitable for other hunt-related activities (e.g., scouting in either May or December) (Subsection 4.1.5.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 5, Split-season Hunt]). The Tribe could harvest as many as four whales per year (although the actual number would likely be between zero and one), and the Makah community could process, share, and consume this traditional food.

Under Alternative 5, the extent to which tribal members would be able to engage in subsistence use activities would thus increase from no opportunity to hunt (under the No-action Alternative) to an opportunity to engage in hunting or hunt-related activities in the coastal portion of the Tribe's U&A on approximately 17 days in May and 5 days in December. The number of whales available for subsistence use would also increase by as many as four whales per year compared to the potential use of perhaps one drift whale every 10 years under the No-action Alternative.

The amount of satisfaction tribal members would derive from the increased subsistence use of whales would also likely increase compared to the No-action Alternative. As indicated above, however, an increase of zero to one whale per year would not likely be perceived by tribal members as adequate to meet the Tribe's needs. The Tribe's needs statement indicated that four whales per year would likely be sufficient to meet demand for whale oil, whale meat, and whale blubber (Renker 2018).

Compared to Alternatives 2 and 3, the Tribe's subsistence use of whales would likely be less under Alternative 5 because the number of whales harvested per year would probably be between zero and one, compared to four on average under Alternatives 2 and 3. Compared to Alternative 4, the Tribe's potential subsistence use of whales could be greater under Alternative 5 because the maximum number of whales harvested per year would be four, compared to one every other year under current conditions under Alternative 4 (refer to Table 4-7). Whether the actual subsistence use would be greater would depend on the Tribe's ability to locate and harvest non-PCFG whales.

4.10.3.5.3 Traditional Knowledge and Activities

Under Alternative 5, the number of times tribal members could participate in searching for and finding whales would increase compared to the No-action Alternative by approximately 22 days per year (17 days in May and 5 days in December). The number of times tribal members could participate in striking, harvesting, and towing whales to shore would increase by up to five whales struck and four whales harvested per year, although the actual number harvested would likely be between zero and one whale per year on average. The increase in the number of times these activities are performed would

also increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

The number of times tribal members could participate in processing whales would increase from the current potential of perhaps one drift whale every 10 years (under the No-action Alternative) to zero to one whale (and possibly as many as four whales) per year. The amount of whale products tribal members could share and consume would similarly increase from one whale every 10 years to as many as four whales per year, although that number would more likely be between zero and one because of limits on hunt timing and the mortality of PCFG whales.

Similar to Alternatives 2, 3, and 4, Alternative 5 would afford tribal members more opportunities, compared to the No-action Alternative, to engage in traditional activities that are currently prohibited, as well as activities that are not currently prohibited. Under Alternative 5, tribal members would again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, would likely become more widely used.

In contrast to the No-action Alternative, Alternative 5 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 5, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge would increase beyond the current level.

As under Alternatives 2, 3, and 4, the Makah Tribe would be able to practice the same number of activities and apply and transmit the same types of traditional knowledge. The number of times they could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would be less under Alternative 5 than under Alternatives 2 and 3. Based on the anticipated number of days with hunt-related trips, the number of times tribal members could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would likely be greater under Alternative 5 than under Alternative 4.

4.10.3.5.4 Spiritual Connection to Whale Hunting

Under Alternative 5, the ability to resume whale hunting would likely increase the Makah's spiritual connection to whale hunting compared to the No-action Alternative, as described under Alternative 2.

4.10.3.5.5 Cultural Identity

Under Alternative 5, the ability to resume whale hunting would likely increase the cultural identity of the Makah compared to the No-action Alternative, as described under Alternative 2.

4.10.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, as under Alternatives 2, 3, 4, and 5, whale hunts would be permitted. Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods. Alternative 6 would include greater restrictions than Alternatives 2 and 3 on the maximum number of whales that could be killed per year and per 2 years, resulting in a maximum of 3.5 whales harvested per year on average. Also, under Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 6 considers effects only over a 10-year period.

4.10.3.6.1 Access to Whale Hunting Opportunities

Because hunt timing (December through May) and the area in which hunting would be allowed (the coastal portion of the Makah U&A, excluding the Strait of Juan de Fuca) under Alternative 6 would be the same as under Alternative 2, the two alternatives would be expected to result in the same practical effects and tribal perceptions and expectations.

Under Alternative 6, the maximum number of whales that could be killed per year by the Tribe would be determined by the total limit on strikes, which would be not more than four in a single year and seven over 2 years, equating to 3.5 whales per year on average. The average number of whales harvested annually under Alternative 6 would be approximately 88 percent of the number of whales (four) specified in the Makah Tribe's request to resume whale hunting. The harvest of 3.5 whales per year on average would thus be expected to provide opportunities for Makah tribal members to engage in ceremonial and subsistence practices that would not be available under the No-action Alternative, but to a lesser degree than under Alternatives 2 and 3.

4.10.3.6.2 Subsistence Use

Under Alternative 6, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. The Makah could hunt for gray whales, a traditional marine resource, using many of their traditional methods. Because Alternative 6 would include the same conditions as Alternative 2 regarding the hunt area, season, and methods, the two alternatives would be expected to result in the same number of days with opportunities for whale hunting and related activities. Under

Alternative 6, the extent to which tribal members would be able to engage in subsistence use activities would thus increase from no opportunity to hunt whales (under the No-action Alternative) to an opportunity to hunt in the coastal portion of the Tribe's U&A on approximately 60 days from December 1 through May 31. Alternative 6 would impose an additional burden on the Makah Tribe's ceremonial and subsistence use of gray whales as it would require the Tribe to submit a new request for waiver and invest resources in the pursuit of a waiver if the Tribe desired to continue hunting gray whales after the initial 10-year waiver and regulations lapse.

The number of whales available for subsistence use under Alternative 6 would increase by 3.5 harvested whales per year on average, compared to the potential use of perhaps one whale every 10 years (i.e., drift whales or whales incidentally caught in fishing operations) under the No-action Alternative. As under Alternative 2, limitations on the hunting season could impede the Tribe's ability to harvest the full limit each year, although the ability to hunt during much of the period of the whales' southward migration could result in the harvest of whales that provide relatively large amounts of products for subsistence use.

The amount of satisfaction tribal members would derive from the increased subsistence use of whales would also likely increase compared to the No-action Alternative. An increase of 3.5 whales on average per year would be slightly less than the amount that might be considered sufficient to meet demand for whale oil, whale meat, and whale blubber (i.e., four whales per year) (Renker 2018).

Compared to Alternatives 2 and 3, the Tribe's subsistence use of whales would likely be less under Alternative 6 because the average number of whales harvested per year would be approximately 3.5, compared to four under Alternatives 2 and 3. Compared to Alternatives 4 and 5, the Tribe's subsistence use of whales could be greater under Alternative 6 because the number of whales harvested per year would be greater than the number (zero to one) anticipated under those two alternatives.

4.10.3.6.3 Traditional Knowledge and Activities

Under Alternative 6, as under Alternative 2, the number of times tribal members could participate in searching for and finding whales would increase compared to the No-action Alternative by approximately 60 days per year. The number of times tribal members could participate in striking, harvesting, and towing whales to shore would increase by up to 3.5 whales struck and 3.5 whales harvested per year, on average. The increase in the number of times these activities are performed would also increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

The number of times tribal members could participate in processing whales would increase from the current potential of perhaps one drift whale every 10 years to 3.5 whales per year on average. The amount of whale products tribal members could share and consume would similarly increase from one whale every 10 years to 3.5 whales per year, although limits on hunt timing might make it difficult for tribal members to harvest the full limit.

Similar to Alternatives 2, 3, 4, and 5, Alternative 6 would afford tribal members more opportunities, compared to the No-action Alternative, to engage in traditional activities that are currently prohibited, as well as activities that are not currently prohibited. Under Alternative 6, tribal members would again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, would likely become more widely used.

In contrast to the No-action Alternative, Alternative 6 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 6, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge, would increase beyond the current level.

As under Alternatives 2, 3, 4, and 5, the Makah Tribe would be able to practice the same number of activities and apply and transmit the same types of traditional knowledge. The number of times they could practice both currently allowed and currently prohibited activities and could apply traditional knowledge would be slightly less under Alternative 6 than under Alternatives 2 and 3. Based on the anticipated number of days with hunt-related trips, the number of times tribal members could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would likely be greater under Alternative 6 than under Alternatives 4 and 5.

4.10.3.6.4 Spiritual Connection to Whale Hunting

Under Alternative 6, the ability to resume whale hunting would likely increase the Makah's spiritual connection to whale hunting compared to the No-action Alternative, as described under Alternative 2.

4.10.3.6.5 Cultural Identity

Under Alternative 6, the ability to resume whale hunting would likely increase the cultural identity of the Makah compared to the No-action Alternative, as described under Alternative 2.

4.10.3.7 Alternative 7, Composite Alternative – Preferred

Under Alternative 7, as under Alternatives 2 through 6, whale hunts would be permitted. Alternative 7 would have the same conditions as Alternative 2 regarding the hunt area and methods. Alternative 7 would include greater restrictions than Alternatives 2, 3, and 6 on the maximum number of whales that could be killed per year, resulting in an average of 2 whales harvested per year, with a maximum of 3 harvested in winter/spring hunts and a maximum of 1 harvested in summer/fall hunts. Also, under Alternative 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 7 considers effects only over a 10-year period.

Implementing a low abundance threshold for the ENP stock may reduce the number of days with hunt-related trips relative to that which is already analyzed under the Preferred Alternative without a threshold in the following subsections. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on the Tribe's efforts to revive ceremonial and subsistence practices, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the number of whales harvested and the number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(a) is likely to result in more opportunities to employ ceremonial and subsistence practices, while 7(c) may result in the fewest.

4.10.3.7.1 Access to Whale Hunting Opportunities

During winter/spring hunts, there would be an estimated 60 days of hunt-related activities. During summer/fall hunts there would be 7-14 days with hunt-related trips. To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number (based on the 10-year span of the waiver period) of 37 days with hunt-related trips. Therefore, access to whale hunting opportunities under Alternative 7 would be lower than Alternatives 2, 3, and 6 (each with 60 days of hunt-related trips) and higher than Alternatives 4 and 5, each with less than 22 days of hunt-related trips—unless the Tribe does not receive authorization for any winter/spring hunts—as well as the No-action Alternative (no trips). The area in which whale hunting would be allowed under Alternative 7 would be the same as under Alternative 2 (i.e., the coastal portion of the Makah U&A, excluding the Strait of Juan de Fuca) and would be expected to result in the same practical effects and tribal perceptions and expectations.

Under Alternative 7, the maximum number of whales that could be harvested per year by the Tribe would three in winter/spring hunts and 1 in summer/fall hunts, or 2 per year on average over the course of the 10-year waiver period. The harvest of 2 whales per year on average would thus be expected to provide opportunities for Makah tribal members to engage in ceremonial and subsistence practices that would not be available under the No-action Alternative but to a lesser degree than under Alternatives 2, 3, and 6.

Due to the alternating hunt years' framework under Alternative 7, there would be a substantial 13-month period (from June 1 to July 1 of the following year) following a winter/spring hunt season during which hunters would not be able to pursue whales for harvest. However, ceremonial and subsistence practices would be promoted by hunt training, which could occur year-round in winter/spring hunt years so long as no more than 353 gray whales were approached each year during hunting expeditions or training exercises. Also, tribal hunters could make training harpoon throws (using a mock harpoon) on up to 18 whales at any time during winter/spring hunt years and on up to 12 whales between July and October in summer/fall hunt years (although these annual limits also include unsuccessful harpoon attempts during actual hunts). The benefits of utilizing ceremonial and subsistence practices could be reduced, however, if the Tribe does not receive authorization for one or more winter/spring hunts during the course of the waiver period.

4.10.3.7.2 Subsistence Use

Under Alternative 7, the opportunity to resume hunting and harvesting whales would increase the Makah Tribe's ability to engage in a broad range of subsistence practices that are currently not possible or are severely limited. The Makah could hunt for gray whales, a traditional marine resource, using many of their traditional methods. Compared to the No-action Alternative, the Tribes opportunity to hunt in the coastal portion of the Tribe's U&A would increase from zero to an average of 37 days per year. Alternative 7, like Alternative 6, would impose an additional burden on the Makah Tribe's ceremonial and subsistence use of gray whales as it would require the Tribe to submit a new request for waiver and invest resources in the pursuit of a waiver if the Tribe desired to continue hunting gray whales after the initial 10-year waiver and regulations lapse.

The number of whales available for subsistence use under Alternative 7 would increase by two harvested whales per year on average, compared to the potential use of perhaps one whale every 10 years (i.e., drift whales or whales incidentally caught in fishing operations) under the No-action Alternative. As under the other action alternatives, limitations on the hunting season and PCFG strike limits could impede the Tribe's ability to harvest the full limit each year, although the ability to hunt

during much of the period of the whales' southward migration in winter/spring hunt years could result in the harvest of whales that provide relatively large amounts of products for subsistence use.

The amount of satisfaction tribal members would derive from the increased subsistence use of whales would also likely increase compared to the No-action Alternative. An increase of two whales on average per year, however, would be less than the amount that might be considered sufficient to meet demand for whale oil, whale meat, and whale blubber (i.e., four whales per year) (Renker 2018).

Compared to Alternatives 2, 3, and 6, the Tribe's subsistence use of whales would likely be less under Alternative 7 because the average number of whales harvested per year would be approximately two, compared to four under Alternatives 2 and 3. Compared to Alternatives 4 and 5, the Tribe's subsistence use of whales could be greater under Alternative 7 because the number of whales harvested per year would be greater than the number (zero to one) anticipated under those two alternatives.

4.10.3.7.3 Traditional Knowledge and Activities

Under Alternative 7, the number of times tribal members could participate in searching for and finding whales would increase compared to the No-action Alternative by an average of 37 days per year. The number of times tribal members could participate in striking, harvesting, and towing whales to shore would increase by up to 2.5 whales struck and 2 whales harvested per year, on average. The increase in the number of times these activities are performed would also increase the amount of traditional knowledge associated with the activities, and the opportunities to apply and transmit that knowledge.

The number of times tribal members could participate in processing whales would increase from the current potential of perhaps one drift whale every 10 years to 2 whales per year on average. The amount of whale products tribal members could share and consume would similarly increase from one whale every 10 years to 2 whales per year on average, although limits on hunt timing and PCFG strike limits might make it difficult for tribal members to harvest the full limit each year.

Similar to Alternatives 2 through 6, Alternative 7 would afford tribal members more opportunities, compared to the No-action Alternative, to engage in traditional activities that are currently prohibited, as well as activities that are not currently prohibited. Under Alternative 7, tribal members would again actively practice the skills necessary to build large whale-hunting canoes; fabricate and maintain whale hunting equipment; search for and find whales; strike, harvest, and tow whales to shore; butcher and distribute whales; and perform ceremonial songs and dances to celebrate successful hunts. As a result, words and vocabulary related to preparing to hunt, hunting, harvesting, towing, and processing whales, as well as sharing, preparing, and consuming whale products, would likely become more widely used.

In contrast to the No-action Alternative, Alternative 7 would enable new generations to participate in whale hunting activities; develop, apply, and transmit knowledge of whale hunting; and learn and use words related to whale hunting. Makah youth would have active whalers as role models. With a resumption of whale hunting under Alternative 7, the amount of satisfaction tribal members might derive from the practice of traditional activities and the application of traditional knowledge, would increase beyond the current level.

As under Alternatives 2 through 6, the Makah Tribe would be able to practice the same number of activities and apply and transmit the same types of traditional knowledge. The number of times they could practice both currently allowed and currently prohibited activities and could apply traditional knowledge would be slightly less under Alternative 7 than under Alternatives 2, 3, and 6. Based on the anticipated number of days with hunt-related trips, the number of times tribal members could practice both currently allowed and currently prohibited activities, and could apply traditional knowledge, would likely be greater under Alternative 7 than under Alternatives 4 and 5.

4.10.3.7.4 Spiritual Connection to Whale Hunting

Under Alternative 7, the ability to resume whale hunting would likely increase the Makah's spiritual connection to whale hunting compared to the No-action Alternative, as described under Alternative 2.

4.10.3.7.5 Cultural Identity

Under Alternative 7, the ability to resume whale hunting would likely increase the cultural identity of the Makah compared to the No-action Alternative, as described under Alternative 2.

4.11 Noise

4.11.1 Introduction

This subsection addresses the potential for the alternatives to affect sensitive noise receptors in the action area, specifically receptors in the human environment. Of particular concern is the potential for noise from hunt-related activities (including vessels, aircraft, or firearms) to disturb residents, businesses, and visitors in the action area. Residential and commercial areas that could potentially be affected by noise from hunt-related activities include properties adjacent to Neah Bay and the Makah Tribal Center, as well as low-density residential areas south of the Wa'atch River on the Pacific coast and near State Route 112 on the Strait of Juan de Fuca. Recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park could also be affected by noise disturbance. The potential for hunt-related noise, including underwater noise, to disturb wildlife species is addressed in Subsection 4.5, Other Wildlife.

4.11.2 Evaluation Criteria

We used two criteria to determine the potential for adverse effects on sensitive noise receptors under the alternatives. The first is the anticipated intensity and duration of noise produced by hunt-related activities (including vessels, vehicles, and aircraft involved in the hunt, protests, media coverage, and law enforcement, as well as weapons used to strike and/or kill a whale). The second is anticipated noise levels at sensitive sites, as indicated by the distance between noise sources and potential receptors.

4.11.2.1 Noise Generated by Hunt-related Activities

Under the No-action Alternative, noise from vehicles, marine vessels, and aircraft is commonly heard throughout the action area. Other sources of noise include commercial areas, sports fields, logging operations, and the foghorn at Tatoosh Island. Natural sounds, such as those of wind and surf, contribute to high ambient noise levels in portions of the action area, particularly in areas close to the shoreline of the Pacific coast and the Strait of Juan de Fuca. A whale hunt and associated activities (such as monitoring, protests, law enforcement, and weapons discharge) would be expected to result in increased noise levels in the action area. Sources of noise from hunt-related activities would include vessels and aircraft (noise would persist for the duration of each hunt), and firearms and explosive devices (noise would be intense and brief). Noise from automobile traffic would not be expected to increase at nearby properties as a result of implementing any of the action alternatives because daily and monthly traffic counts from the period of the previous hunts did not show an appreciable change in traffic volumes in the action area (Subsection 3.13.3.1.2, Vehicle Traffic Patterns During the 1999 Hunt).

It is possible that the number and types of vessels and aircraft participating in each hunting expedition (including observation, protests, law enforcement, and media coverage) would vary under the action alternatives. For example, Alternative 4 (which would allow hunting during summer) could attract more observers because of better weather conditions, or alternatives that allow more hunts might attract less media coverage as whale hunting becomes less of a novelty. Because of the difficulty of predicting such variations and how they might affect the precise numbers of vessels and aircraft participating in each hunt, this analysis assumes each hunting expedition would be accompanied by the same amount of vessel and aircraft activity and associated noise. Vessels and aircraft associated with each hunt would likely be similar to those associated with the previous hunts, described in Subsection 3.11.3.2.1, Atmospheric Noise. The amount of noise generated by vessels and aircraft under each alternative would depend on the number of days of scouting or hunting that are likely to occur.

Weapons that may be used to strike and kill whales are described in Subsection 3.15.3.5.2, Weapons Associated with the Hunt. The Makah propose to strike and secure a whale with a hand-thrown toggle-

point harpoon and to kill it with a .50-caliber rifle. An alternative method for striking a whale would be a hand-thrown darting gun with an explosive grenade. Alternative methods for killing a whale include explosive grenades delivered either by a hand-thrown darting gun or shoulder gun. If a shoulder gun were used, the blast would likely be louder than the noise associated with a rifle. The grenade is designed to detonate after entering the whale. Atmospheric noise from the detonation would be muffled by the surrounding tissue and by the water surrounding the whale and would probably not exceed the noise level of either the rifle or shoulder gun. Underwater noise from the grenade explosion, which would likely be intense, is discussed in Subsection 4.5, Other Wildlife. The amount of noise produced by weapons would depend on the number of whales that may be struck and killed under a given alternative.

4.11.2.2 Noise Levels at Receiving Properties

As a general rule, sound level in an open environment (such as occurs throughout the action area) drops 6 decibels (dB) for every doubling of the distance from the noise source (Occupational Safety and Health Administration 2013). Thus, if a sound has an intensity of 100 dB 50 feet (15.2 m) from the source (a standard distance for measuring noise output levels), the intensity at 100 feet (30.5 m) would be 94 dB; at a distance of 1 mile (1.6 km), the sound level would be approximately 60 dB. Thus, the potential for noise from hunt-related activities to affect sensitive receptors would depend primarily on the distance between the activities and the receptors. Any activities that occur closer to shore would be more audible to receptors on land than activities further off shore. For example, whale hunting during summer may target whales that are feeding in the action area and may therefore take place closer to shore than hunting during winter or spring, which may target migrating whales further off shore. In addition, most recreational visits occur during summer. Whale hunting activities during summer may be audible to more persons on trails and beaches in the Olympic National Park and the Makah Reservation compared to activities at other times of year. Conversely, hunting restrictions that cause whale hunting to occur farther from shore (e.g., by prohibiting hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore) would reduce the potential for hunt-related activities to be audible to persons on shore.

For firearms, the noise level at a receiving property would also depend on the direction the muzzle is facing at the moment of discharge, because gunfire noise is louder in the direction the weapon is pointed. Weapons discharged intentionally during a whale hunt would be pointed at a downward angle toward the whale:

> The rifleman on the chase boat may not discharge his weapon until authorized to fire by a safety officer designated by the whaling captain. The safety officer would not authorize the discharge of the rifle unless the barrel of the rifle is above and within 30

> feet [9.1 m] from the target area of the whale and the rifleman's field of view is clear of all persons, vessels, buildings, vehicles, highways, and other objects or structures that if hit by a rifle shot could cause injury to human life or property (Subsection 2.3.2.2.12, Other Environmental Protection Measures).

It is reasonable to expect that the direction of fire would be away from commercial or residential areas.

Based on observations of the hunts that took place in 1999 and 2000, most hunting under the action alternatives would be expected to take place 1 to 2 miles (1.6 to 3.2 km) off shore, unless explicitly restricted to other areas (Gosho 1999; Gearin and Gosho 2000). Under any of the action alternatives, noise from vessels and weapons would be audible at few, if any, residential or commercial properties, including the Makah Tribal Center. Recreational users of beaches in the OCNMS, the Makah Reservation, and the Olympic National Park would be most likely to hear noise associated with whale hunts under the action alternatives.

Aircraft engaged in monitoring and law enforcement for the hunt would be audible primarily near vessels engaged in hunt-related activities or other vessels that might be in the vicinity of a hunt, such as recreational fishing vessels. Aircraft within OCNMS boundaries would be expected to observe the requirement to stay above an altitude of 2,000 feet (610 m). Increased noise levels (compared to the No-action Alternative) from aircraft taking off and landing would also be audible at commercial and residential properties near the landing pad at Coast Guard Station Neah Bay. Media helicopters would likely arrive from other areas and would be present only near a successful harvest or major protest activity. Aircraft monitoring hunt-related activities that occurred outside the OCNMS (e.g., events at Neah Bay under all action alternatives) would not have to maintain an altitude of at least 2,000 feet (610 m). For this reason, aircraft noise levels at receiving properties in Neah Bay would likely be louder than those along the Pacific coast portion of the Makah U&A.

The area with greatest potential for disturbance from hunt-related activities under any of the action alternatives is Neah Bay, where most protests and law enforcement activities occurred during the previous hunts. If protest vessels moor at Clallam Bay, as they did during the previous hunts, increased noise levels would also be expected there and possibly along the travel route between Clallam Bay and Neah Bay.

4.11.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect sensitive noise receptors in the action area. For each alternative, the discussion addresses the potential number of occasions on which hunt-related activity may lead to elevated noise levels, as well as the likelihood that such noise would be detectable at sensitive sites.

The lowest risk of adverse effects on sensitive noise receptors would occur under the No-action Alternative because no whale hunts would be permitted. The risk under the action alternatives would increase, with the amount of increase depending on the number of days of scouting and hunting, the number of rifle shots or grenade explosions, and the distance from shore of hunt-related discharges. Table 4-1 identifies those numbers and Subsection 4.1, Introduction, describes the rationale for expecting those numbers.

Compared to the No-action Alternative, the risk of adverse effects on sensitive noise receptors would increase under any of the action alternatives because of increases in noise from motorized vessels and aircraft on days when tribal members are scouting or hunting for whales. The greatest increases in the risk of adverse effects on sensitive noise receptors would occur under Alternatives 2, 3, and 6, under which hunt-related trips would occur on approximately 60 days from December through May (primarily during the months of March through May). As noted above, much of the hunting-related noise under Alternative 3 would likely be inaudible to sensitive receptors on shore because it would occur more than 5 miles (8 km) from shore. The increased risk of adverse effects on sensitive noise receptors because of increases in noise from motorized vessels would be less under Alternatives 5 and 7 than under Alternatives 2, 3, and 6 because hunt-related trips would occur on approximately 22 days in December and May (Alternative 5), or on an average of 37 days per year (Alternative 7). The increased risk would be even less under Alternative 4, under which scouting and hunting would likely occur on only 7 days every other year (albeit during the summer months, when recreational use of trails and beaches would be higher than during the winter and spring months).

Alternative 2 would be expected to result in the greatest increased risk to sensitive noise receptors from weapons discharge, compared to the No-action Alternative, because it would likely result in up to 64 rifle shots or 12 grenade explosions per year, with no restrictions on distance from shore. The increased risk of adverse effects on sensitive noise receptors because of weapons discharge would be less under Alternative 3 because most whale hunting activity would be expected to occur farther off shore than under Alternative 2. The amount of weapons discharge under Alternative 6 and 7 would be less than under Alternatives 2 and 3, with 16 to 56 rifle shots or 3 to 11 grenade explosions per year over 10 years under Alternative 6, or an average of 40 shots or 7.5 grenade explosions per year over 10 years under Alternative 7, but there would be no constraints on distance from shore. This amount would be even less under Alternatives 4 and 5 (0 to 16 rifle shots or 0 to 3 grenade explosions), but there would also be no constraints on distance from shore.

4.11.3.1 Alternative 1, No action

Under Alternative 1, no whale hunt would be permitted, and no whale hunting or associated activities would be expected to occur. The amount of noise-generating activity in the action area under the No-action Alternative would not be expected to differ from current levels (described in Subsection 3.11.3.2, Existing Noise Levels).

4.11.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, vessel and aircraft noise associated with hunt-related trips would likely occur on approximately 60 days from December through May, mostly during April and May. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 2 would be likely to result in as many as 64 rifle shots or 12 grenade explosions annually. Compared to the No-action Alternative (under which there would be no hunt-related noise), the noise from vessels, aircraft, and weapons discharge would likely result in increased noise levels at receiving properties in Neah Bay on approximately 43 days each spring and possibly 17 days each winter. There could also be increased noise levels at receiving properties along State Route 112, east of Neah Bay, from protest vessels traveling between Clallam Bay and Neah Bay.

In contrast to the No-action Alternative, increased noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 2 may be audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park. The number of recreational visitors who may be affected would be limited, however, because hunting would be restricted to the winter and early spring months when visitation is comparatively low.

4.11.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same hunting season and the same limits on the number of whales harvested as Alternative 2, but would prohibit Makah hunters from making an initial strike on a gray whale within 5 miles (8 km) of shore. As under Alternative 2, vessel and aircraft noise associated with hunt-related trips under Alternative 3 would likely occur on approximately 60 days from December through May, mostly during April and May, and there would be as many as 64 rifle shots or 12 grenade explosions annually. Compared to the No-action Alternative (under which there would be no hunt-related noise), the noise from vessels, aircraft, and weapons discharge would likely result in increased noise levels at receiving properties in Neah Bay on approximately 43 days each spring and possibly 17 days each winter. There could also be increased noise levels at receiving properties along State Route 112, east of Neah Bay, from protest vessels traveling between Clallam Bay and Neah Bay. In addition, noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 3 may be

audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park, in contrast to the No-action Alternative, which would involve no hunt-related noise.

Compared to Alternative 2, Alternative 3 would be likely to result in a smaller increase in noise levels at receiving properties because most hunt activities would take place farther off shore. Although some hunting activities under Alternative 3 could occur less than 5 miles (8 km) from shore (i.e., if a struck whale moves toward shore, and hunters and chase boats would be required to follow it and dispatch it), it is likely that most hunting activities would occur further off shore than under the other action alternatives because all initial strikes would occur more than 5 miles (8 km) off shore.

It is possible that Alternative 3 could result in slightly greater increases in noise levels in Neah Bay and other areas where hunt-related vessels are moored compared to Alternative 2. This is because the number of motorized vessels engaged in each hunt-related trip would likely be greater, based on the expectation that the hunting party would likely be in a motorized vessel rather than a canoe (Subsection 4.1.3.2, Potential Number and Type of Vessels [Alternative 3]). For much of each trip, however, hunt-related vessels would be 5 or more miles (8 or more km) off shore, where they would likely be inaudible to sensitive receptors on shore. In addition, any potential increases in the number of motorized vessels in the hunting party could be offset by a reduction in the number of jet skis used by interested observers, because jet skis may not have sufficient range for an offshore hunt.

4.11.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. The maximum number of whales harvested would be limited to one ENP male whale every other year under current conditions. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), vessel and aircraft noise associated with scouting and hunting would be likely to occur on approximately 7 days every other year. Alternative 4 may result in as many as 16 rifle shots or 3 grenade explosions every other year, although those values could be much lower if tribal hunters are unable to locate and strike a known ENP male or if a whale is struck and lost (in which case the hunt would be ended for the year).

Compared to the No-action Alternative (under which there would be no hunt-related noise), noise from vessels, aircraft, and weapons discharge would likely result in increased noise levels at receiving properties in Neah Bay on a maximum of 7 days every other year, or 3.5 days per year, on average. There could also be increased noise levels at receiving properties along State Route 112, east of Neah Bay, from protest vessels traveling between Clallam Bay and Neah Bay. In addition, noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 4 may be audible to

recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park, in contrast to the No-action Alternative, which would involve no hunt-related noise.

Alternative 4 would have a greater potential to result in the disturbance of recreational users in the action area than any of the other action alternatives because whale hunts would likely occur during the peak period of recreational use and may target whales that are feeding relatively close to shore (compared to whales that are migrating farther off shore at other times of year). The elevated potential for disturbance would occur on fewer days, however (e.g., 3.5 days under Alternative 4 versus 60 days under Alternative 2).

4.11.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. Based on the constraints imposed by the hunting season and the PCFG mortality limit, it is expected that the Tribe would harvest up to one whale per year, under current conditions (Subsection 4.1.5, Alternative 5).

Based on the length of the hunting season, vessel and aircraft noise associated with hunt-related trips would likely occur on approximately 22 days in December and May, mostly during May. These values could decrease to 0 in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 5 would be likely to result in as many as 16 rifle shots or 3 grenade explosions annually, or as few as 0 rifle shots and grenade explosions during years in which the hunt is on hiatus.

Compared to the No-action Alternative (under which there would be no hunt-related noise), the noise from vessels, aircraft, and weapons discharge would likely result in increased noise levels at receiving properties in Neah Bay and along State Route 112 east of Neah Bay on approximately 17 days each spring and possibly 5 days each winter. In addition, noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 5 may be audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park, in contrast to the No-action Alternative, which would involve no hunt-related noise.

Compared to Alternatives 2 and 3, Alternative 5 would be expected to result in fewer days with hunt-related trips (22 compared with 60) and therefore a smaller increase (compared to the No-action Alternative) in aircraft and vessel noise at receiving properties. Similarly, Alternative 5 would result in a smaller increase in noise from weapons discharges because of the smaller number of discharges. Compared to Alternative 4, Alternative 5 would result in more days of hunt-related trips (22 compared

with an average of 3.5) and similar numbers of weapons discharges (0 to 16 rifle shots and 0 to 3 grenade explosions) and would therefore result in a slightly greater increase in noise.

4.11.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 6 considers effects only over a 10-year period.

Alternative 6 would have the same conditions as Alternative 2 regarding the hunt area, season, and methods and would, therefore, result in the same number of scouting and hunting days. Alternative 6 would include greater restrictions than Alternatives 2 and 3 on the maximum number of whales that could be killed per year and per 2 years. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 6 would be likely to result in as many as 56 rifle shots or 11 grenade explosions annually.

Compared to the No-action Alternative (under which there would be no hunt-related noise), the noise from vessels, aircraft, and weapons discharge would likely result in increased noise levels at receiving properties in Neah Bay and along State Route 112 east of Neah Bay on approximately 60 days (likely 43 days in spring and possibly 17 days in winter), the same as under Alternatives 2 and 3. In addition, noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 6 may be audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park, in contrast to the No-action Alternative, which would involve no hunt-related noise. Based on the anticipated number of weapons discharges, Alternative 6 would result in a smaller increase in noise from weapons discharges than Alternative 2 or Alternative 3 and a larger increase than Alternatives 4 or 5.

4.11.3.7 Alternative 7, Composite alternative – Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 7 considers effects over a 10-year period.

As with the other action alternatives, Alternative 7 would result in increased effects on sensitive noise receptors compared to the No-action Alternative (although much of the hunting-related noise under Alternative 3 would likely be inaudible to sensitive receptors on shore because it would occur more than 5 miles (8 km) from shore). These noise effects would come from motorized vessels and aircraft

on days when tribal members are scouting or hunting for whales, and from weapons discharged during a hunt. The area with the greatest potential for disturbance from hunt-related activities under any of the action alternatives is Neah Bay, where most protests and law enforcement activities occurred during the previous hunts. If protest vessels moor at Clallam Bay, as they did during the previous hunts, increased noise levels would also be expected there and possibly along the travel route between Clallam Bay and Neah Bay.

During winter/spring hunt seasons, whale hunts would likely occur on approximately 60 days from December through May, provided the Tribe receives an ITA for WNP whales, allowing them to hunt in those months. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 7 would be likely to result in as many as 48 rifle shots or 9 grenade explosions annually. In contrast to the No-action Alternative (under which there would be no hunt-related noise), increased noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 7 may be audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park. The number of recreational visitors who may be affected would be limited, however, because hunting would be restricted to the winter and early spring months when visitation is comparatively low

During summer/fall hunt seasons, whale hunts would likely occur on 7-14 days from July through October. Based on estimates of the number of rifle shots or grenade explosions per whale harvested, Alternative 7 would be likely to result in as many as 32 rifle shots or 6 grenade explosions in summer/fall hunt years. In contrast to the No-action Alternative, increased noise from vessels, aircraft, and weapons associated with whale hunts under Alternative 7 may be audible to recreational users of the OCNMS, the Makah Reservation, and the Olympic National Park. Like Alternative 4, Alternative 7 would have a greater potential to result in the disturbance of recreational users in the action area than the other action alternatives because whale hunts would likely occur during the peak period of recreational use and may target whales that are feeding relatively close to shore (compared to whales that are migrating farther off shore at other times of year). The elevated potential for disturbance each year would occur on fewer days, however (e.g., 7-14 days under Alternative 7 versus 22-60 days under Alternatives 2, 3, 5, and 6).

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number (based on the 10-year span of the waiver period) of 37 days with hunt-related trips and up to 40 rifle shots and 7.5 explosive projectiles to harvest an average of two whales per year. Alternative 7 would therefore result in a lower potential for adverse effects than Alternatives 2, 3, and 6, each with 60 days of hunt-related trips and higher numbers of shots/explosions. However, Alternative 7 would result in a greater risk than the No-action Alternative (0 days and 0

shots/explosions), as well as Alternatives 4 and 5, each with less than 22 days of hunt-related trips and fewer than 32 shots and 6 explosions, unless the Tribe does not receive authorization for any winter/spring hunts over the waiver period.

Implementing a low abundance threshold for the ENP stock may reduce the overall amount of noise generated during the 10-year waiver period. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c), we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of hunt-related trips, rifle shots, and explosive projectiles used over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to sensitive noise receptors while 7(a) could result in the greatest potential noise impact.

4.12 Aesthetics

4.12.1 Introduction

This subsection addresses the potential for the alternatives to result in adverse aesthetic effects on observers based on the potential for viewers to see a whale hunt, either directly or through the media. Media images of the previous hunt prompted reactions ranging from revulsion to admiration. Analyses in this subsection consider the effects on observers who may be present at sites with direct views of a whale hunt (including views of a whale dying, being towed to shore, and/or being butchered), as well as those who may see such images through various media outlets. Whale hunting and related activities under the action alternatives would be short term and localized and would take place upon the water; such activities, therefore, would not affect natural visual resources in the action area, such as stacks, pillars, and islands (Subsection 3.12.3.1, Visual Resources in the Action Area).

4.12.2 Evaluation Criteria

We used two criteria to determine the potential for aesthetic effects under the alternatives. The first is the anticipated number of persons who may be present at sites that may offer views of hunt-related activities, as well as their expectations (that is, whether individuals may encounter views of hunt-related activities without intending to do so). The second criterion includes the anticipated amount, intensity, duration, scope, and content of media coverage. The following two subsections discuss these matters in greater detail and identify how the effects of the alternatives may be assessed and differentiated.

4.12.2.1 On-scene Observers

Analyses in this subsection consider two groups of potential observers: interested observers and casual observers. Interested observers include those who would actively seek viewing opportunities out of concern about the outcome of the hunt, as well as persons engaged in monitoring, law enforcement, and media coverage. Casual observers include persons, such as recreational users in portions of the OCNMS, Olympic National Park, and Makah Reservation, who may encounter views of hunt-related activities without expecting to do so.

Under any of the alternatives, the number of opportunities for interested observers to view whale hunts would depend on the number of days on which hunting occurs, as well as the distance of hunting from shore. On days with hunting, interested observers would have the opportunity to view a whale being hunted, towed to shore, or butchered; no such opportunities would occur on days when no hunting occurs. (Note that analyses in this subsection focus on days of actual hunting, rather than hunt-related activities (i.e., training or scouting), because there would be no opportunities to view a whale being hunted, towed to shore, or butchered on days when only training or scouting occurs.) Based on observations of the hunts that took place in 1999 and 2000, most hunting under the action alternatives would be expected to take place 1 to 2 miles (1.6 to 3.2 km) off shore, unless explicitly restricted to other areas. At this distance, hunt activities would be visible from few, if any, land-based vantage points. Any activities that occur closer to shore (e.g., towing a harvested whale to shore and butchering it) would be more readily viewed. Also, hunting that occurs during the summer (i.e., under Alternative 4) would likely target whales that are feeding in the action area, and may therefore take place closer to shore than hunting that targets migrating whales further off shore.

As with interested observers, the number of opportunities for casual observers to view whale hunts would depend on the number of days on which hunting occurs and the distance of hunting from shore. In addition, the number of casual observers who could see hunt activity on the water (including pursuits, strikes, and possibly the death of a whale) would vary seasonally, with the greatest number of potential observers during the peak visitation period from June through September. The potential for inadvertent encounters with views of whale hunting would occur mostly from hiking trails and beaches along the Pacific coastal portion of the action area, and from a limited number of road-based locations on the Makah Reservation (Subsection 3.12.3.2, Vantage Points and Viewing Opportunities). Similar to interested observers, casual observers would be able to view hunt activities from few, if any, land-based vantage points.

The number of potential observers (interested or casual) for a whale carcass being towed to shore and butchered would depend in part on the location of the beach to which the whale is brought. The whale

that was harvested in 1999 was brought to Neah Bay, where butchering and harvest-related ceremonies and celebrations were readily observable by numerous tribal members, local residents, protesters, enforcement personnel, and media representatives. Alternative locations where a whale carcass may be brought to shore and butchered would likely be along the Pacific coast portion of the Makah Reservation at sites that are far less prominent and accessible than Neah Bay. Under Alternative 4, which would allow whale hunting during the months of peak recreational use, there would be a greater potential for recreational users of such areas to encounter views of a whale carcass without actively seeking such views.

4.12.2.2 Media Viewers

As described in Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts, previous Makah whale hunts were the focus of intense coverage in local and regional newspapers, television broadcasts, and other media outlets. Stories and images of the hunt were also distributed nationwide and internationally. As with the previous hunts, media coverage would be expected to include images of hunt activities, protests, and public ceremonies and celebrations, as well as of a whale being struck, killed, brought to shore, and butchered.

The amount of media coverage would depend on the amount of hunt-related activity, which in turn would depend primarily on the number of days with hunt-related trips (including both hunting and scouting). It is possible that media coverage would be more intense for initial hunts, and would diminish as subsequent hunts occur. Even if that were to occur, alternatives that result in more days with hunt-related trips would still be likely to result in more media coverage overall.

4.12.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to result in aesthetic effects on observers. For each alternative, the discussion addresses the potential number of on-scene observers who might view whale-hunting activities and the amount of media coverage.

The lowest risk of adverse aesthetic effects to casual observers would occur with the No-action Alternative, under which no whale hunts would be permitted. The No-action Alternative, however, would have adverse aesthetic effects on interested observers who desire to view a hunt. Under all of the action alternatives, interested observers could view a whale being hunted, towed to shore, or butchered from numerous points along the shoreline near Neah Bay and, to a lesser degree, the Pacific coast portion of the Makah U&A. Viewers not desiring to see a hunt, such as recreational users in the portions of the OCNMS, Olympic National Park, and Makah Reservation, may encounter views of

hunt-related activities without expecting to do so (Subsection 3.12.3.2, Vantage Points and Viewing Opportunities).

4.12.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted and no whale hunting or associated activities (e.g., ceremonies, celebrations, protests, or law enforcement) would be anticipated. Therefore, there would be no potential to view hunt-related activities in the action area or through the media. With the possible exception of drift whales, no whale carcasses would be encountered by interested observers or recreational users of area beaches, trails, or campsites. Those desiring to view a hunt would not have the opportunity under this alternative.

4.12.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, whale hunts would likely occur on approximately 33 days from December through May, primarily during March through May. Hunts might be visible to observers at beaches and vantage points along the Pacific coast portion of the action area. Hunt-related activities would take place during the winter and spring when recreational use of these areas is typically lower than during the summer months. Compared to the No-action Alternative, Alternative 2 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. This increased potential would occur on approximately 33 days per year. The number of potentially affected casual observers would be limited by the timing of the hunt during periods of relatively low visitation.

As occurred in 1999 and 2000, whale hunts and associated activities (including protests and law enforcement) would likely receive extensive coverage in various media outlets. Such episodes of elevated media attention would be expected to occur on 60 days with hunt-related trips (including scouting) under Alternative 2. Public response would likely be substantial, expressing a wide range of opinions (Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts).

4.12.3.3 Alternative 3, Offshore Hunt

Under Alternative 3, whale hunts would likely occur on approximately 43 days (Subsection 4.1.3.1, Potential Timing of a Hunt and Number of Hunting Days [Alternative 3]). As under Alternative 2, hunt-related activities would take place during the winter and spring when recreational use of the action area is typically lower than during the summer months. In contrast to the other action alternatives, under Alternative 3, Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore. This would essentially eliminate the potential for persons at land-based vantage points in the action area to view a hunt, either intentionally or unintentionally. In addition, this restriction could limit the number of interested observers who seek to view the hunt from the water on

jet skis because jet skis may not have sufficient range for an offshore hunt. Compared to the No-action Alternative, Alternative 3 would therefore result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. This increased potential would occur on approximately 43 days per year. The area with this increased potential would likely be limited to Neah Bay or other locations where a harvested whale might be towed to shore and butchered.

Compared to Alternative 2, Alternative 3 would likely result in a similar number of days with hunt-related trips (60) and therefore the same opportunities for observers at beaches and vantage points along the Pacific coast portion of the action area to inadvertently view hunting activities located close to shore (e.g., scouting or towing a killed whale). Therefore, compared to the No-action Alternative, Alternative 3 would have a similar potential for observers to view some hunt activities as Alternative 2.

As occurred in 1999 and 2000, whale hunts and associated activities (including protests and law enforcement) would likely receive extensive coverage in various media outlets. As under Alternative 2, such episodes of elevated media attention would be expected to occur on 60 days with hunt-related trips. Public response to media coverage would likely be substantial, with a variety and intensity of response similar to that described in Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts. Because there would be the same number of days with hunt-related trips under Alternative 3 as under Alternative 2, Alternative 3 would likely result in a similar increase in the number of media broadcasts over the No-action Alternative compared to Alternative 2.

4.12.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, whale hunts would likely occur on approximately 7 days from June through November every other year. Hunts might be visible to observers at beaches and vantage points along the Pacific coast portion of the action area. In contrast to the other action alternatives, hunt-related activities under Alternative 4 would likely take place during summer when recreational use of these areas is typically at its peak. In addition, whale hunting would target PCFG whales that are feeding in the action area, and may therefore take place closer to shore than hunting that targets migrating whales further off shore. Compared to the No-action Alternative, Alternative 4 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. This increased potential would occur on approximately 7 days every other year.

Compared to the other action alternatives, Alternative 4 would likely result in fewer days of hunt-related trips (3.5 on average per year versus 22 to 60) and therefore fewer opportunities for observers at beaches and vantage points along the Pacific coast portion of the action area to view hunting activities.

However, the number of potential casual observers present in the action area on any given day of hunting would be greater under Alternative 4 than under Alternatives 2 and 3, because hunting would occur during the summer months when recreational use of the action area is higher. Alternative 4 would result in a smaller increase, relative to the No-action Alternative, in the number of opportunities for observers (interested or casual) to witness hunt-related activities but a greater potential for casual observers to inadvertently encounter sights of a whale being hunted, towed to shore, or butchered.

As occurred in 1999 and 2000, whale hunts and associated activities (including protests and law enforcement) would likely receive extensive coverage in various media outlets. Under Alternative 4, such episodes of elevated media attention would be expected to occur on 7 days every other year with hunt-related trips. Public response to media coverage would likely be substantial, with a variety and intensity of response similar to that described in Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts. Because there would be fewer days with hunt-related trips under Alternative 4 compared to Alternatives 2 and 3, Alternative 4 would likely result in a smaller increase in the number of media broadcasts over the No-action Alternative compared to Alternatives 2 and 3.

4.12.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, hunting would likely occur during 3 weeks in December and 3 weeks in May, with a likely total of 11 days of hunting. Hunts might be visible to observers at beaches and vantage points along the Pacific coast portion of the action area. Compared to the No-action Alternative, Alternative 5 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. This increased potential would occur on approximately 11 days per year, although it could be as low as 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale.

Compared to Alternatives 2 and 3, Alternative 5 would likely result in fewer days of hunt-related trips, including scouting days (22 versus 60) and therefore fewer opportunities for observers at beaches and vantage points along the Pacific coast portion of the action area to view hunting activities. Alternative 5 would result in more days of hunt-related trips than Alternative 4 (22 versus 3.5 on average), but those days would occur during the winter and spring months when recreational use of the action area is comparatively low. Compared to the other action alternatives, therefore, Alternative 5 would likely result in a smaller increase, relative to the No-action Alternative, in the potential for casual observers to inadvertently encounter sights of a whale being hunted, towed to shore, or butchered.

As occurred in 1999 and 2000, whale hunts and associated activities (including protests and law enforcement) would likely receive extensive coverage in various media outlets. Under Alternative 5, such episodes of elevated media attention would be expected to occur on 22 days with hunt-related

trips. Public response to media coverage would likely be substantial, with a variety and intensity of response similar to that described in Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts. Because there would be fewer days with hunt-related trips under Alternative 5 compared to Alternatives 2 and 3, Alternative 5 would likely result in a smaller increase in media broadcasts than those alternatives, as compared to the No-action Alternative. Because there would be more days with hunt-related trips under Alternative 5 compared to Alternative 4, Alternative 5 would likely result in a greater increase in media broadcasts than Alternative 4, as compared to the No-action Alternative.

4.12.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 6 considers effects only over a 10-year period.

Alternative 6 would include the same provisions as Alternative 2 for the timing and location of the hunt and would, therefore, be expected to result in the same number of days with hunting (33) and with hunt-related trips (i.e., 60 days of hunting or scouting). Compared to the No-action Alternative and Alternatives 4 and 5, therefore, Alternative 6 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. As under Alternatives 2 and 3, this increased potential would likely occur on approximately 33 days per year, primarily during winter and spring when recreational use of the action area is typically lower than during the summer months. Also as under Alternatives 2 and 3, episodes of elevated media attention would be expected to occur on 60 days with hunt-related trips. This represents a greater increase in media coverage than would be expected under Alternatives 4 and 5. Public response to media coverage would likely be substantial, with a variety and intensity of response similar to those described in Subsection 3.12.3.3, Media Coverage of Previous Authorized Hunts.

4.12.3.7 Alternative 7, Composite alternative – Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 7 considers effects only over a 10-year period.

Alternative 7 would include the same provisions as Alternative 3 for timing and location for the hunt during winter/spring hunt seasons and would, therefore, be expected to result in the same number of days with hunting (33) and with hunt-related trips (i.e., 60 days of hunting or scouting), provided the

Tribe receives an ITA for WNP gray whales, allowing them to hunt from December through May. Compared to the No-action Alternative, Alternative 7 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. During winter/spring hunts, this increased potential would occur on approximately 33 days per year when recreational use of the action area is typically lower than during the summer months.

During summer/fall hunt seasons, whale hunts would likely occur on 7-14 days from July through October. Hunts might be visible to observers at beaches and vantage points along the Pacific coast portion of the action area. As with Alternative 4—but in contrast to most of the other action alternatives—hunt-related activities under Alternative 7 summer/fall hunts would likely take place during a period when recreational use of these areas is typically at its peak. In addition, whale hunting would target PCFG whales that are feeding in the action area and may, therefore, take place closer to shore than hunting that targets migrating whales further off shore. Compared to the No-action Alternative, Alternative 7 would result in an increased potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered. This increased potential would occur on approximately 7-14 days per year.

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number of 37 days with hunt-related trips (300 winter/spring days plus 70 summer/fall days divided by the 10-year span of the waiver period). Alternative 7 would therefore result in lower potential for persons in the action area to view (intentionally or unintentionally) a whale being hunted, towed to shore, or butchered than Alternatives 2, 3, and 6 (each with 60 days of hunt-related trips). However, Alternative 7 would result in a potential than the No-action Alternative (0 days), as well as Alternatives 4 and 5 (7 every two years and 22 annual days of hunt-related trips, respectively), unless the Tribe does not receive authorization for any winter/spring hunts over the waiver period.

Implementing a low abundance threshold for the ENP stock may reduce the potential for aesthetic effects (both positive and negative). To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on aesthetics, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential for aesthetic effects while 7(a) could result in the greatest potential for aesthetic effects.

4.13 Transportation

4.13.1 Introduction

This subsection addresses the potential for a whale hunt and hunt-related activities in the action area to interfere with normal traffic patterns on highways, marine waters, and air routes near Neah Bay. In addition, the analysis addresses the potential for changes in traffic patterns to result in an increased risk of traffic accidents or to impede access by emergency services.

4.13.2 Evaluation Criteria

For this analysis, transportation resources in the action area are subdivided into three categories: land, water, and air. We used two criteria to determine the potential for effects on transportation under the alternatives. The first is the extent to which a particular alternative may affect traffic volumes or impede the movement of vehicles, vessels, or aircraft. Because each hunt would be expected to result in the same change in highway, marine, and air traffic volumes in the action area, the change in traffic would depend primarily on the amount of hunt-related activity. The amount of hunt-related activity would vary depending on the number of days with hunt-related trips. Table 4-1 identifies the anticipated number of days with hunt-related trips under each alternative and Subsection 4.1, Introduction, describes the rationale for those numbers.

The analysis also considers whether changes in traffic patterns under each alternative might result in an increased risk of traffic accidents or might impede access by emergency services. An alternative would be more likely to result in problems if it impeded or created a substantial increase in traffic during a time of year when volumes were higher than average. The following subsections describe the potential effects of each alternative on transportation, based on the extent and timing of traffic changes in each of the three transportation resource categories.

4.13.2.1 Highway Traffic

Based on experience with whale hunts in past years, it is unlikely that whale-hunt-related activities under the action alternatives would have a detectable effect on highway traffic volumes in the action area. For example, automated traffic count data for Highway 101 during the month of May 1999 (when the most recent successful hunt occurred) do not indicate any anomalous spikes in traffic volume during the days surrounding the hunt and subsequent events (Table 3-41).

As noted in Subsection 3.13.3.1.2, Vehicle Traffic Patterns During the 1999 Hunt, previous hunts affected highway traffic flow in the action area on one occasion when protesters and local police responding to them blocked traffic on State Route 112 for approximately 2.5 hours. The likelihood of a blockage occurring under the action alternatives cannot be predicted, but the potential for such an

occurrence would be expected to increase with the number of days with hunt-related activities. Table 4-1 identifies the anticipated number days with hunt-related activities under each alternative. The intensity of any roadway blockage would depend on the time of year during which it occurred. Therefore, hunts that occur during the peak travel season (June through September) (Figure 3-14) would affect more travelers and have a greater risk of impeding emergency vehicles compared to hunts during other times of year. Summer is also the period with the greatest number of visitors to the Makah Reservation (Subsection 3.13.3.1.1, Typical Vehicle Traffic Volume Patterns). A road blockage during summer would also be expected to have a greater impact on access to the reservation than a blockage at other times of year.

4.13.2.2 Marine Traffic

Accounts from previous hunts indicated that protesters operated approximately 15 vessels near hunt activities, including Neah Bay and Sekiu (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). There were no reports of whale hunting or protest vessels hindering the passage of commercial or recreational fishing vessels, or of marine accidents associated with hunt-related traffic. The incident in 2000, in which a protester on a jet ski collided with a Coast Guard vessel enforcing the MEZ, was a direct result of the actions of the parties involved, rather than a byproduct of increased traffic volume.

Hunt-related activities would be unlikely to interfere with commercial shipping traffic because most (if not all) hunting would probably occur within the Coast Guard RNA, which lies almost entirely within the OCNMS area to be avoided. Commercial shipping traffic largely honors the area to be avoided (Subsection 3.6.3.1.4, Commercial Shipping) and would, therefore, be unlikely to encounter any hunt-related vessels.

The only area where commercial shipping traffic could reasonably be expected to encounter hunt-related marine traffic is in the Strait of Juan de Fuca because the area to be avoided does not extend eastward of Neah Bay on Cape Flattery. Because no hunting would be allowed in the Strait of Juan de Fuca, the potential for encounters between commercial shipping traffic and hunt-related vessels in the Strait of Juan de Fuca under any of the action alternatives would be very limited. Hunt-related marine traffic in the Strait of Juan de Fuca could consist of: (1) protest vessels, (2) enforcement vessels (3) hunting crews and support vessels transiting the approximately 9-mile (14.5-km) run between Neah Bay and coastal waters west of Cape Flattery, and (4) hunting crews and support vessels pursuing a harpooned whale travelling into the Strait of Juan de Fuca from the coastal hunt area. Protest or hunt-

related vessels traveling between Sekiu[19] and Neah Bay or Neah Bay and the open ocean would be unlikely to encounter commercial shipping traffic, however, because they would be expected to remain fairly close to shore (i.e., within 1 mile/1.6 km). Traffic lanes for commercial ships in the Strait of Juan de Fuca are generally 3 to 4 miles (4.8 to 6.4 km) from the northern shore of the Olympic Peninsula. The likelihood for protest- or hunt-related vessel traffic to interfere with commercial shipping traffic in the Strait of Juan de Fuca under any of the alternatives would therefore be very low, because most vessel traffic would be unlikely to occur in commercial shipping lanes. During the 1999 hunt, it took 8 minutes between the time the whale was harpooned and the fatal shot. Therefore, in the case that a harpooned whale is pursued into the Strait of Juan de Fuca, it is likely that any vessel interactions would be of very limited duration. Vessel traffic in areas south of the traffic lanes would have the potential to interfere with slow-moving vessels, such as small fishing vessels and tugs with barges, which are allowed to travel in waters south of the commercial traffic lanes. Any instances of interference would likely occur over a matter of minutes and would not be likely to have appreciable effects on the ability of slow-moving vessels to pass through the Strait of Juan de Fuca.

While it is possible that vessels engaged in hunts, protests, media coverage, or law enforcement could interfere with vessels entering or leaving Neah Bay, the likelihood of such interference occurring under the action alternatives cannot be predicted. The potential for interference or marine accidents would depend primarily on the number of days with hunt-related activities (Table 4-1). The potential for interference would also depend on the time of year that hunting occurs. As noted in Subsection 3.13.3.2, Marine Vessel Traffic, approximately 80 percent of all boat trips (commercial and recreational) from Neah Bay occur during the months of May through August. Approximately 6 percent of all trips occur during the 5-month period from November through March, and 6 percent occur during April. Hunt-related activities that occur during the summer peak period for marine traffic would have a greater potential to affect commercial or recreational fishing vessel traffic, compared to activities at other times of year. Recreational and commercial fishing vessel landings from Neah Bay have decreased precipitously in recent years (which was exacerbated by the COVID-19 pandemic) (Table 3-42). However, data from 2022 suggests landings could increase to pre-pandemic levels in the coming years. If the number of boat trips related to recreational and commercial fishing vessel landings continues to increase to pre-pandemic levels (Table 3-42), the likelihood of hunt-related vessel traffic interfering with other marine traffic (particularly recreational fishing trips) would likewise be expected

[19] During the hunts that took place in 1998 and 1999, several protest vessels moored in Sekiu, approximately 20 miles (32.2 km) east of Cape Flattery in the Strait of Juan de Fuca.

to increase relative to the last three years but decrease (or stay constant) relative to the entire time series assessed in Table 3-42.

4.13.2.3 Air Traffic

There is no indication from accounts of previous hunts that law enforcement or media aircraft interfered with air traffic in the action area. The likelihood of such interference occurring under the action alternatives cannot be predicted, but the potential would be expected to increase each time a hunt-related trip occurs. Hunt-related activities that occur during a peak period for aircraft use would have a greater potential to affect air traffic, compared to activities at other times of year. No data are readily available to quantify seasonal differences in air traffic in the action area, but the peak period of aircraft use likely coincides with the summer months when conditions of low wind and good visibility are relatively common.

4.13.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect transportation in the action area. For each alternative, the discussion addresses the anticipated increases in the volume or patterns of highway, marine, and air traffic in the action area, as well as changes in the risk of traffic accidents and the potential for highway blockages to interfere with emergency vehicles. The lowest risk of adverse effects on transportation would occur with the No-action Alternative, under which no whale hunts would be permitted and traffic volumes and patterns on highways, marine waters, and air routes near Neah Bay would not be expected to differ from their current levels. Under all of the action alternatives, elevated levels of marine and air traffic associated with whale hunts would have the potential to interfere with normal traffic patterns and could result in an increased risk of accidents relative to the No-action Alternative. Although none of the alternatives would be likely to increase the volume of highway traffic, it is possible there could be road blockages associated with protests and ensuing law enforcement responses, creating the possibility of traffic accidents or impediments to access by emergency services.

During each hunt, there would be an increased likelihood, relative to the No-action Alternative, that protests and/or ensuing law enforcement responses could result in highway blockages; vessels involved in the hunt, protests, media coverage, and law enforcement could interfere with fishing or shipping traffic; or aircraft involved in law enforcement or media coverage could interfere with other air traffic in the action area. The number of occasions on which this potential would exceed conditions under the No-action Alternative would correspond to the number of days on which hunt-related trips would occur under a particular alternative.

The risk of adverse effects on transportation would also be related to the time of year in which whale hunting takes place. Alternatives that allow whale hunting during summer months would be more likely to affect commercial and recreational fishing boat trips from Neah Bay. Similarly, changes in traffic patterns as a result of highway blockages could have a greater effect during summer months when traffic volumes are typically higher.

4.13.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted and no whale hunting or associated activities (e.g., protests, law enforcement, or media coverage) would be expected to occur. Traffic volumes in the action area would not be expected to differ from current levels. There would be no potential for hunt-related activities to interfere with highway, marine, or air traffic or to result in an elevated risk of accidents or impede access by emergency vehicles.

4.13.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, hunt-related trips would be expected to occur on approximately 60 days from December through May, primarily during April and May. Compared to the No-action Alternative, increased vessel and air traffic associated with whale hunts under Alternative 2 would result in an increased potential for interference with marine or air traffic in the action area and, possibly, an increased risk of accidents. Potential highway blockage resulting from protest activities and law enforcement response could result in traffic accidents or impediments to emergency vehicles. During each day with hunt-related activities, there would be an increased likelihood (relative to the No-action Alternative) that protests and/or ensuing law enforcement responses could result in highway blockages; vessels involved in the hunt, protests, media, and law enforcement could interfere with fishing or shipping traffic; or aircraft involved in law enforcement or media coverage could interfere with other air traffic in the action area. These risks would occur on approximately 60 days per year, most likely during April and May, compared to no occurrences under the No-action Alternative.

Because whale hunting under Alternative 2 would be limited to the winter and early spring months, it would not overlap the peak periods for highway and air traffic. If most hunts take place during April and May, they would overlap the period during which there is a high volume of marine vessel traffic, particularly for recreational fishing in May. More boat trips from Neah Bay occur during the months of June through August (combined) compared to May, however (Figure 3-16).

4.13.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same hunting season as Alternative 2 and would, therefore, result in the same increased potential, compared to the No-action Alternative, for interference with marine or air traffic in the action area and risk of highway traffic accidents or impediments to emergency vehicles.

During each day with hunt-related activities, there would be an increased likelihood (relative to the No-action Alternative) that protests and/or ensuing law enforcement responses could result in highway blockages; vessels involved in the hunt, protests, media coverage, and law enforcement could interfere with fishing or shipping traffic; or aircraft involved in law enforcement or media coverage could interfere with other air traffic in the action area. These risks would occur on approximately 60 days from December through May (most likely throughout the year).

Hunting would take place farther off shore under Alternative 3 than under the other action alternatives because Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore. This would not be likely to affect the potential for interference with commercial shipping traffic, however, because most of the OCNMS area to be avoided extends more than 20 miles (32.2 km) off shore, and safety considerations and logistical constraints would likely keep hunting vessels as close as possible to the 5-mile (8-km) limit.

4.13.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), hunt-related trips under Alternative 4 would be likely to occur on approximately 7 days every other year. Compared to the No-action Alternative, therefore, Alternative 4 would result in an increased potential for interference with marine or air traffic in the action area and increased risk of highway traffic accidents or impediments to emergency vehicles on approximately 7 days every other year. Compared to the other action alternatives, this increased potential would occur on fewer days per year (3.5 on average versus 22 to 60 annually).

Hunting activities under Alternative 4 would likely take place during the summer, when highway, vessel, and air traffic are highest. Whale hunts during the summer months would thus have a greater potential to affect traffic compared to activities at other times of year. Compared to the other action alternatives, therefore, Alternative 4 would result in a smaller increase, relative to the No-action Alternative, in the number of occasions on which hunt-related activities could increase the potential for interference with highway, vessel, and air traffic, but a greater potential for each occasion to result in interference (though less than Alternative 7; see Subsection 4.6.3.7, Alternative 7, Composite alternative).

4.13.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be limited to 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given

year. Based on the length of the hunting season, Alternative 5 would likely result in approximately 22 days per year with hunt-related trips. This could decrease to 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Compared to the No-action Alternative (under which there would be no hunt-related vessel traffic), Alternative 5 would therefore result in an increased potential for interference with marine or air traffic in the action area and increased risk of highway traffic accidents or impediments to emergency vehicles on approximately 22 days per year. Compared to Alternatives 2 and 3, this increased potential would occur on fewer days per year (22 versus 60). Compared to Alternative 4, this increased potential would occur on more days per year (22 annually versus 7 every other year).

The increased potential for interference, accidents, or impediments would be limited to the months of December and May (more likely during May), outside of the peak periods for highway and air traffic. As under Alternatives 2 and 3, hunt-related trips during May would have a higher potential for interference with recreational fishing vessel traffic than trips during December.

4.13.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 6 considers effects only over a 10-year period.

Alternative 6 would be expected to result in the same number of days with hunt-related trips (60) as Alternative 2 and would include the same restrictions on hunting area and season. Thus, the increased potential for interference with marine or air traffic in the action area and risk of highway traffic accidents or impediments to emergency vehicles would be the same as under Alternatives 2 and 3, compared to the No-action Alternative. This increased potential and risk is greater under Alternative 6 as compared to Alternatives 4 and 5 with 0 to 22 days of hunt-related activities.

4.13.3.7 Alternative 7, Composite alternative – Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternative 7 considers effects only over a 10-year period.

During winter/spring hunt seasons, whale hunts would likely occur on approximately 60 days from December through May, provided the Tribe receives an ITA for WNP gray whales, allowing them to hunt in those months. These hunts would not overlap the peak periods for highway and air traffic. If

most hunts take place during April and May, they would overlap the period during which there is a high volume of marine vessel traffic, particularly for recreational fishing in May. During summer/fall hunt seasons, an estimated 7-14 days with hunt-related trips would occur when highway, vessel, and air traffic are highest. Whale hunts during the summer and fall months would thus have a greater potential to affect traffic, especially commercial and recreational fishing traffic, compared to activities at other times of year.

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number (based on the 10-year span of the waiver period) of 37 days with hunt-related trips. The increased potential for effects on traffic would be less under Alternative 7 than Alternatives 2, 3, and 6, each with 60 days of hunt-related trips. However, Alternative 7 would result in greater impacts on traffic than the No-action Alternative (0 days), as well as Alternatives 4 and 5 with 0 to 22 days of hunt-related trips per year, unless the Tribe does not receive authorization for any winter/spring hunts over the waiver period.

Implementing a low abundance threshold for the ENP stock may reduce the impacts of the hunt on transportation by reducing the number of authorized hunting years, should the selected threshold be triggered. As the highest threshold, Sub-alternative 7(c) carries the highest likelihood of being triggered and reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to transportation resources while 7(a) could result in the greatest potential impact.

4.14 Public Services

4.14.1 Introduction

This subsection addresses the potential for the alternatives to affect public services in the action area. This subsection analyzes the potential for a whale hunt and hunt-related activities to impede the ability of law enforcement to maintain order, and medical professionals and facilities to treat injuries. Subsection 4.13, Transportation, discusses the potential for the alternatives to have transportation-related effects on access by emergency vehicles.

4.14.2 Evaluation Criteria

We used two criteria to determine the potential for effects on public services under the alternatives. The first is the anticipated number of events requiring the attention of law enforcement personnel, and the second is the anticipated number of events requiring the attention of medical personnel.

4.14.2.1 Law Enforcement

Activities by protesters or counter-protesters could result in conflicts or legal infractions that would require intervention by law enforcement agents at sea or on land. A sudden, unanticipated increase in the number or frequency of such incidents could overwhelm the ability of local law enforcement personnel or facilities to respond. Even if such an occurrence were prevented through careful planning and coordination, hunt-related incidents could divert law enforcement resources from other missions. An increase in traffic incidents requiring law enforcement intervention could also divert law enforcement resources from other missions. Subsection 4.13.3, Evaluation of Alternatives [Transportation], also evaluates the potential for the alternatives to result in changes in traffic incidents, which could require law enforcement intervention or medical response.

As with the previous hunts, a law enforcement task force (Subsection 3.14.3.2, Police) would likely be assembled to ensure public safety during any whale hunts permitted under the action alternatives. We evaluated the enforcement response during the previous hunts in 1999 and 2000 and made inquiries with various non-tribal enforcement agencies. Based on that information, we expect that the following entities would likely commit resources to any future whale hunt: U.S. Coast Guard, National Marine Fisheries Service, Washington Fish and Wildlife Police, and Clallam County Sheriff. The task force would coordinate county, state, federal, and tribal authorities' efforts to address any potential public disturbances related to whale hunts. Planning undertaken by the previous whale hunt task force included logistics (including assuring the availability of adequate staffing, equipment, and facilities), communications, interagency cooperation, crowd control, and establishment of incident command systems. Similar planning would most likely precede any whale hunts under the action alternatives, reducing the potential for hunt-related incidents to overwhelm law enforcement personnel or facilities.

As noted in Subsection 3.14.3.2, Police, the Clallam County Sheriff's Office did not find that the previous hunts and associated activities imposed a substantial burden on staff. The reported increase in traffic stops by the Washington State Patrol on State Route 112 in 1999 could have been related to the Makah whale hunt, but it is not possible to determine from the available data whether that increase occurred before, during, or after the period of the whale hunt. There is no evidence of an increase in traffic volumes or the number of collisions on action area highways during the years in which previous hunts or practice exercises took place (Subsection 4.13.2.1, Highway Traffic [Evaluation Criteria]). Because there is no clear indication of an increase in traffic stops or collisions as a result of previous hunting activities, it is reasonable to conclude there would be no substantial increases in these rates in the action area under any of the alternatives.

During the previous Makah whale practice exercise in 1998 and hunts in 1999 and 2000, U.S. Coast Guard personnel were responsible for ensuring the safety of persons and vessels near the hunt, which included enforcing the MEZ around Makah whale hunt vessels. The Coast Guard used helicopters, a cutter, and several utility boats and Zodiacs. They issued citations for negligent vessel operations, MMPA take violations, and violations of the MEZ (Subsection 3.14.3.1, Coast Guard). The Coast Guard would likely resume these activities under any of the action alternatives. In addition to participating in law enforcement activities, the Coast Guard would likely be the first to respond to any incidents requiring search and rescue in marine waters, for example, if a vessel capsized because of inclement weather or a collision. The risk of such events occurring would probably be greater under alternatives that restricted whale hunting to winter and spring (i.e., Alternatives 2, 3, 5, and 6), when adverse weather and sea conditions would more likely occur (Subsection 4.15.2.2, Injury from Boating Accidents). As noted in Subsection 3.14.3.1, Coast Guard, most search and rescue cases occur during the summer months when sports fishers and tourists are present in greatest numbers. Therefore, under alternatives in which Makah tribal members could hunt during summer (i.e., Alternative 4), there would be a greater potential for a hunt-related boating incident to occur simultaneously with another incident requiring Coast Guard attention.

The potential for incidents requiring a law enforcement response would likely be similar for all hunt-related activities. The risk of hunt-related incidents leading to law enforcement responses that overwhelmed the ability of local law enforcement personnel or facilities to respond would thus depend on the number of days with hunt-related trips. The severity of the effect on public services could vary according to the time of year the hunts occur. If law enforcement is diverted during periods when demand might be higher (such as during the busier summer season), the consequences of the diversion could be greater.

4.14.2.2 Medical Facilities

As noted in Subsection 4.15 (Public Safety), hunt-related activities might result in injuries from boating accidents, mishaps with weapons, violence associated with protests, or possible traffic accidents. A sudden influx of persons requiring medical attention could exceed the physical or technical capacities of tribal and other local public health facilities. Additional trauma care facilities are available nearby. They include a Level 3 trauma care facility in Port Angeles and a Level 1-2 facility in Seattle. During the spring 2000 hunt, one protester sustained a shoulder injury and was transported to Port Angeles for medical care (Subsection 3.15.3.4, Behavior of People Associated with the Hunt).

The potential for injuries requiring medical attention would likely be similar for all hunt-related activities, though hunt-related trips during inclement weather and further from shore might increase the

risk of boating accidents for both protesters and hunters (Subsection 4.15.2.2, Injury from Boating Accidents). The risk of injury associated with any given alternative would, therefore, depend on the number of days with hunt-related trips, restrictions on the location of the hunt (i.e., distance from shore), and seasonal restrictions on hunting (that is, the ability of the Tribe to hunt during summer and therefore choose hunting opportunities with better weather conditions).

4.14.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect public services in the action area. For each alternative, the discussion addresses the anticipated change in the number of incidents requiring law enforcement intervention and injuries requiring medical attention.

The lowest risk of adverse effects on public services would occur under the No-action Alternative because no whale hunts would be permitted and the need for law enforcement and medical attention in the action area would not be expected to differ from current levels. Under all of the action alternatives, protests and other activities associated with whale hunts would have the potential to divert law enforcement resources from other missions. Hunt-related activities could also result in an increase in the number of injuries and exceed the capabilities of local health facilities. The greatest increases in the potential for such occurrences would occur under Alternatives 2, 3, and 6, under which hunt-related trips would occur on approximately 60 days per year. Hunting under these alternatives would be limited, however, to periods when the number of recreational visitors in the action area is comparatively low, reducing the likelihood that hunt-related incidents might occur when public services resources were engaged elsewhere. On the other hand, vessels engaged in hunt-related trips during winter and spring months under these alternatives would face an elevated risk (compared to during the summer months) of encountering unanticipated storms and capsizing, resulting in injuries.

The increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities would be less under Alternatives 5 and 7 than under Alternatives 2, 3, and 6 because hunt-related trips would occur on approximately 22 days and 37 days, on average. Some of the hunting under Alternative 7 would occur during the summer months, however, when the risk of vessels capsizing in unanticipated storms would be reduced compared to the other action alternatives. Summer hunts would, however, occur during a comparatively busy time of year when law enforcement and medical services are more likely to be engaged elsewhere. The increased risk would be even less under Alternative 4, under which hunt-related trips would likely occur on only 7 days every other year. In addition, hunt-related trips under Alternative 4 could be conducted only during the summer months.

4.14.3.1 Alternative 1, No Action

Under the No-action Alternative, no whale hunt would be permitted and no whale hunting or associated activities (e.g., protests or law enforcement) would be expected to occur. The need for law enforcement and medical services in the action area would probably not differ from current levels. There would be no potential for injuries or incidents associated with hunt-related activities to overwhelm personnel and facilities or divert resources away from other duties. As under current scenarios, any persons who sustained injuries unrelated to hunt activities exceeding the physical or technical capacities of local public health facilities could be transported to other facilities in the region.

4.14.3.2 Alternative 2, Tribe's Proposed Action

Whale hunts and related activities under Alternative 2 would result in an increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities compared to the No-action Alternative. As discussed in Subsection 4.14.2, Evaluation Criteria, the potential for these effects would depend on the number of days with hunt-related trips, as well as the time of year the hunts occur. As described in Subsection 4.1, Introduction, there would likely be approximately 60 days with hunt-related trips per year under Alternative 2. Hunt-related activities would be limited to the period from December through May and would be expected to occur primarily during April and May. If a law enforcement task force were implemented, similar to previous hunts, protests or other activities would probably not overwhelm the combined personnel and facilities of county, state, federal, and tribal authorities based on the size of the protest activities experience in the 1999/2000 hunts.

Similarly, Alternative 2 could result in injuries requiring medical assistance during approximately 60 days with hunt-related trips. The increased risk of injuries compared to the No-action Alternative could result in an increased risk of exceeding the capabilities of local health facilities. Whale hunting would be limited to the winter and early spring months, outside the period when most search and rescue cases typically occur but also during a period when weather and sea conditions are more likely to contribute to boating accidents. If hunt-related activities resulted in injuries that exceeded the physical or technical capacities of local public health facilities, persons requiring medical attention could be transported to other facilities in the region.

4.14.3.3 Alternative 3, Offshore Hunt

Alternative 3 would include the same hunting season as Alternative 2 and would, therefore, result in the same increased potential, compared to the No-action Alternative, for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities. This increased potential would occur on approximately 60 days from December through May (most likely

during April and May). As under Alternative 2, if a law enforcement task force were implemented, similar to previous hunts, protests or other activities would probably not overwhelm the combined personnel and facilities of county, state, federal, and tribal authorities.

Hunting would take place farther off shore under Alternative 3 than under the other action alternatives because Makah hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore. This restriction might result in a decreased need for law enforcement response during hunt-related trips compared to the other action alternatives because of the range limitations of some vessels (e.g., jet skis) used by protesters. If fewer people are able to participate near vessels engaged in hunting, there may be fewer situations that result in the issuance of citations for negligent vessel operations, MMPA take violations, or violations of the MEZ.

Alternative 3 could result in injuries requiring medical assistance during approximately 60 days with hunt-related trips, similar to Alternative 2. The increased risk of injuries compared to the No-action Alternative could result in an increased risk of exceeding the capabilities of local health facilities. Whale hunting would be limited to the winter and early spring months, outside the period when most search and rescue cases typically occur but also during a period when weather and sea conditions are more likely to contribute to boating accidents. In addition, hunt-related trips that occur farther off shore would have a greater potential to encounter rough seas, possibly increasing the risk of boating accidents and the need for medical attention compared to the other action alternatives. If hunt-related activities resulted in injuries that exceeded the physical or technical capacities of local public health facilities, persons requiring medical attention could be transported to other facilities in the region.

4.14.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. Based on the expectation that locating and striking a known ENP male whale would take no more than 7 days (Subsection 4.1.4, Alternative 4), hunt-related trips under Alternative 4 would be likely to occur on approximately 7 days every other year. Compared to the No-action Alternative, therefore, Alternative 4 would result in an increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities. This increased potential would occur on an average of 3.5 days per year (y days every other year), which is less than under any of the other action alternatives.

Hunting under Alternative 4 would likely take place during the summer when the need for law enforcement resources is generally higher and the potential for conflict between hunt-related law enforcement needs and other law enforcement needs would be higher. As under Alternatives 2 and 3, however, implementation of a law enforcement task force would minimize the potential for protests or

other activities to overwhelm the combined personnel and facilities of county, state, federal, and tribal authorities. In addition, hunt-related trips during summer would be less likely to encounter weather and sea conditions that contribute to boating accidents, reducing the potential for any given trip to result in the need for search and rescue operations or medical attention of injured persons.

4.14.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale or the striking and losing of a single whale would end the hunt for any given year. Based on the length of the hunting season, Alternative 5 would likely result in approximately 22 days per year with hunt-related trips. This could decrease to 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale.

Compared to the No-action Alternative, therefore, Alternative 5 would result in an increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities. This increased potential would occur on approximately 22 days per year. Compared to Alternatives 2, 3, and 6, this increased potential would occur on fewer days per year (22 versus 60). Compared to Alternative 4, this increased potential would occur on more days per year (22 versus 7 every other year). However, there would be no increase in potential in years in which the hunt is on hiatus. If a law enforcement task force were implemented, similar to previous hunts, protests or other activities would probably not overwhelm the combined personnel and facilities of county, state, federal, and tribal authorities. The increased risk of injuries compared to the No-action Alternative could result in an increased risk of exceeding the capabilities of local health facilities but is unlikely to do so for the reasons identified above.

4.14.3.6 Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 6 considers effects over a 10-year period.

Alternative 6 would be expected to result in the same number of days with hunt-related trips (60) as Alternative 2 and would include the same restrictions on hunting area and season. Thus, the increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities would be the same as under Alternative 2 compared to the No-action Alternative.

4.14.3.7 Alternative 7, Composite Alternative—Preferred

Under Alternative 7, like Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 7 considers effects over a 10-year period.

As with the other action alternatives, Alternative 7 would increase the risk of adverse effects to public services compared to the No-action Alternative. During winter/spring hunt seasons, an estimated 60 days of hunt-related trips would occur during a period when vessels engaged in hunt-related trips would face an elevated risk of encountering unanticipated storms and capsizing, resulting in injuries. During summer/fall hunt seasons, an estimated 7-14 days with hunt-related trips would occur during a period when more favorable ocean conditions would lessen the risk of such accidents and injuries. During winter/spring hunts, inclement weather would result in comparatively fewer recreational visitors in the action area, reducing the likelihood that hunt-related incidents might occur when public services resources were engaged elsewhere. Summer/fall hunts would, however, occur during a comparatively busy time of year when law enforcement and medical services are more likely to be engaged elsewhere. As under Alternatives 2 and 3, however, implementation of a law enforcement task force would minimize the potential for protests or other activities to overwhelm the combined personnel and facilities of county, state, federal, and tribal authorities.

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number (based on the 10-year span of the waiver period) of 37 days with hunt-related trips. The increased potential for diversion of law enforcement resources or the occurrence of injuries that exceed the capabilities of local health facilities would be less under Alternative 7 than Alternatives 2, 3, and 6, each with 60 days of hunt-related trips. However, Alternative 7 would result in greater impacts on public services than the No-action Alternative (0 days), as well as Alternatives 4 and 5 with an average of 3.5 and 22 days of hunt-related trips, respectively, unless the Tribe does not receive authorization for any winter/spring hunts over the waiver period.

Implementing a low abundance threshold for the ENP stock may reduce adverse effects to public services under Alternative 7. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on public services, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could result in the lowest potential impact to public services while 7(a) could result in the greatest potential impact.

4.15 Public Safety

4.15.1 Introduction

This subsection addresses the potential for a whale hunt and hunt-related activities in the action area to affect public safety. Persons whose safety may be affected by whale-hunt-related activities are divided into three groups: hunters and other participants (such as official observers, members of the media, and law enforcement personnel), protesters, and bystanders. Bystanders on the water may include recreational and other boaters; bystanders on land may include Makah tribal members at protests, tourists, or motorists. Individuals from any of these groups could be injured by weapons, boating accidents, or protests and related activities (such as civil disobedience or law enforcement actions). This subsection examines how the potential for those types of injuries might vary depending on the time of year and location of any hunt and on the frequency of any hunting.

4.15.2 Evaluation Criteria

We used three criteria to determine the potential for effects on public safety under the alternatives, based on the ways in which injury may occur as a result of any proposed gray whale hunt. These include injuries from weapons (harpoon, rifle, or explosive grenade), from boating accidents (including those associated with protest activities on the water), or from land-based protest activities.

With the exception of injuries related to adverse weather or sea conditions, the risk of injury would likely be equal for each hunt attempt. The risk of injury associated with any given alternative would, therefore, depend on the harvest limit, the number of days of hunting, the time of year the hunts occur, and the location of the hunt. Table 4-1 identifies the expected number of days of hunting and hunt-related trips under each alternative. Alternatives under which more hunts would occur would probably result in greater risk of injury to hunters, protesters, and bystanders. Alternatives that limit hunting to the winter and spring period would probably result in different levels of risk of injury than an alternative that allowed hunting during the summer (e.g., Alternative 4), depending upon the group involved and the type of injury considered. The following subsections discuss the risk of each type of injury for each of the groups that may be affected.

4.15.2.1 Injury from Weapons

Under the No-action Alternative, no whale hunting is authorized and no weapons are used in the action area to kill whales. Some level of hunting currently exists (e.g., for deer and elk), but the number of injuries associated with weapons accidents in hunting is unknown. Under any of the action alternatives, hunters and other participants would be at the greatest risk of injury from weapons because they would be handling weapons, while protesters and bystanders would experience a lesser risk. The possibility of

any person being struck by a bullet or shoulder-fired explosive projectile would be minimized by proposed safety requirements that would include, among other things, the U.S. Coast Guard navigational restrictions (Subsection 3.1.1.3, Coast Guard Regulated Navigation Area), hunter training, visibility requirements, and a lookout to determine when the shooter would have a clear line of fire at a whale (Subsection 2.3.2.2.12, Other Environmental Protection Measures). In addition, the offshore hunt area under Alternative 3 would mitigate the risk of bullets injuring persons on shore (although hunters and other participants would still be at risk as in the other action alternatives).

The risk of injury to any group of individuals from weapons would depend on several factors. One is the number of whales that could be struck and the number of whales that could be harvested, which in turn would affect the number of shots fired or grenades launched. Table 4-1 identifies the number of whales that may be struck and the number of shots fired or grenades launched under each alternative. The risk of injury would also depend on the season during which hunting occurs. Hunts that take place during the winter and spring months may have a greater potential to result in injury from weapons than hunts that occur during the summer. This is because the limited hunting season would include periods of rougher weather and sea conditions, which might hamper the accuracy of hunters using harpoons, rifles, or explosive projectiles. Less accurate strikes might result in greater risk of injury to hunt participants, protesters, and bystanders. The risk of injury from weapons may also be affected by the location of the hunt. Hunts that take place in waters more than 5 miles (8 km) off shore (as under Alternative 3) would have an elevated potential of encountering rough seas, possibly hampering the accuracy of hunters but also essentially eliminating the risk of stray projectiles striking bystanders on land.

Hunters and Other Participants

Hunters using a toggle-point harpoon could be cut by the harpoon tip or struck with the shaft. Hunters using either a harpoon or an explosive projectile as the primary weapon for striking the whale could become tangled in the line. Hunters using an explosive projectile either as the primary or secondary hunting weapon (launched either from a darting gun or shoulder gun) could be injured if the grenade exploded prematurely. There would be a greater risk with black powder grenades, where the fuse would be lit before the grenade was fired (Subsection 3.15.3.5.2, Weapons Associated with the Hunt). The fuse on penthrite grenades would not be lit until the projectile entered the whale, reducing the risk of hunter injury from premature detonation (Subsection 3.15.3.5.2, Weapons Associated with the Hunt). Hunters using a rifle as the secondary weapon for killing a whale could potentially be injured from the rifle recoiling or misfiring; hunters could also be struck directly or by ricochet with a .50 caliber bullet.

Weapons also present the potential for injury to other participants, such as members of the media, hunt observers, and enforcement officials. Such individuals could be exposed to many of the same potential injuries from weapons as hunters, but they would be less likely to be injured by a harpoon, premature detonation of grenades, or rifle recoil. Such injuries are more likely to be associated with handling a weapon.

Protesters

Protesters would face a lower risk than hunters of being injured by weapons misfiring because protesters would not likely be handling weapons. Records of the 1999 and 2000 protests do not show that protesters possessed weapons. Protesters could be struck by an errant harpoon, bullet, or explosive projectile, and protesters who attempt to interfere with a hunt by positioning their vessels between whales and hunters would be more likely to be struck by a projectile. Protesters might also sustain injuries if their vessels were struck by a projectile.

Bystanders

Recreational boaters and other potential bystanders would probably not encounter hunting activities under the action alternatives because of the large size of the hunting area, its remoteness, and the presence of the Coast Guard MEZ. Any recreational boaters who encountered hunting activities would likely avoid them. Because they would probably not be near the hunt, bystanders on the water would most likely not be injured by weapons. It is extremely unlikely that bystanders on land would be exposed to injury from weapons under the action alternatives because any hunt would probably occur hundreds to thousands of yards (meters) from shore and tribal hunters would adhere to weapon discharge procedures (e.g., visibility and shot distances) expected to constrain the area of potential danger to the immediate vicinity of the whale being pursued (Beattie 2001; Graves et al. 2004; Makah Tribe 2005). There is nevertheless a remote possibility (intended to be extremely remote under Alternative 3) that a bystander on shore could be struck by a .50 caliber bullet, which has a range of up to 5 miles (8 km).

4.15.2.2 Injury from Boating Accidents

Under the No-action Alternative, no whale hunts are authorized and no vessel activity associated with whale hunts would occur. There is a considerable amount of commercial and recreational vessel activity in the area, some of which results in boating accidents and injuries. The U.S. Coast Guard responds to approximately 100 search and rescue cases each year (Subsection 3.14.3.1, Coast Guard). The number of injuries associated with these incidents is not known. Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. Any type of boating accident could result in

traumatic injury, drowning, or hypothermia. The risk of individuals being injured in a boating accident associated with protester activities would be reduced by the Coast Guard navigational restrictions (Subsection 3.1.1.3, Coast Guard Regulated Navigation Area) to the extent protesters obeyed those restrictions.

The risk of injury to any group of individuals from boating accidents would depend on several factors. One is the number of days with hunt-related trips. Table 4-1 identifies the anticipated number of days with hunt-related trips under each alternative and Subsection 4.1, Introduction, describes the rationale for those numbers. The risk of injury would also depend on the season during which hunting occurs. Hunts that take place during the winter and spring months may have a greater potential to result in injury from boating accidents. This is because the limited hunting season would include periods of rougher weather and sea conditions, which might increase the potential for boating accidents compared to hunts that occur during milder weather and calmer seas. Risk of injury from boating accidents may also depend on the location of the hunt. Generally, the further from shore the hunt occurs, the greater the potential to encounter rough seas, and the potential consequences of any resultant injuries could be aggravated by the increased time needed to transport injured persons to medical facilities on shore. Finally, the risk of injury from boating accidents may also depend on the type of vessel used for hunting (motorized versus canoe). For this analysis, accidents caused by the behavior of protesters on the water, the behavior of a wounded whale, or as a result of attempting to tow a whale to shore, are considered as boating accidents.

Hunters and Other Participants

Protesters on small vessels, jet skis, and a small submarine accompanied the 1999 and 2000 hunts (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). Some protesters attempted to interfere with the hunt by placing their vessels between whales and hunting vessels, charging hunting vessels, or harassing whales to make them move away from hunting vessels (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). This type of vessel operation could cause boating accidents involving hunters or other participants. No hunters or other participants were injured as a result of actions of protest vessel operators during the 1999 and 2000 hunts.

An injured whale could also cause a boating accident. A harpooned whale might ram or otherwise strike boats. A harpooned whale might also swamp a canoe or motorized vessel by swimming away or diving (Subsection 3.4.3.5.3, Whale Response to Being Struck), though the risk would be less with a motorized vessel. Also, the secondary weapon (either a .50 caliber rifle as proposed or an explosive projectile launched from a darting gun or shoulder gun) would most likely kill a wounded whale within minutes of a harpoon strike.

A boating accident could also result if boats became unstable, swamped, capsized, or struck other boats, especially during rough weather or high seas conditions. A boat towing a whale to shore could also become unstable because of the size and weight of the whale. This type of risk would be greater under alternatives that restrict hunting to the winter and spring months (i.e., Alternatives 2, 3, 5, or 6), when the potential for encountering adverse weather conditions is greater than during summer. The risk of boating accidents may also increase with the distance of hunting from shore. Generally, the further from shore the hunt occurs, the greater the transit time and the potential to encounter rough seas. The risk of accidents may also be influenced by the type of vessels used for hunting because motorized vessels are assumed to be less susceptible than human-powered canoes to swamping or capsizing.

Protesters

Persons operating vessels engaged in protests may place themselves at risk of injury from boating accidents. For example, in 2000, one jet ski operator entering the MEZ collided with a Coast Guard vessel and sustained a shoulder injury (Subsection 3.15.3.4, Behavior of People Associated with the Hunt).

In addition, protesters may face a risk of boating accidents from the actions of an injured whale or as a result of adverse weather and sea conditions, as described in Hunters and Other Participants. The risk of injury from a wounded whale would probably be lower for protesters than for hunters, as hunters would likely be closer to injured whales. Similarly, the risk of boating accidents as a result of weather and sea conditions would be lower during hunts that take place during the summer months than during winter and spring.

The potential for boating accidents involving protesters could be reduced by restrictions on the location of hunting. Under Alternative 3, which would restrict hunting to areas more than 5 miles (8 km) from shore, it is possible that fewer protesters would be present (and exposed to injury) because they would not have the capacity to travel that far from shore or keep pace with the hunt vessels. On the other hand, protesters who do accompany an offshore hunt would be exposed to greater risk of injury from boating accidents than with nearshore hunts because of the elevated potential for encountering rough seas.

Bystanders

As described above in 4.15.2.1 Injury from Weapons [Bystanders], bystanders on the water probably would not be close enough to the hunting area to be injured in a boating accident related to protest activities or a wounded whale. The potential for recreational boaters to sustain injury because of adverse weather or sea conditions would be independent of the presence or absence of hunt-related activities under any of the alternatives.

4.15.2.3 Injury from Land-based Protest Activities

Under the No-action Alternative, no whale hunts would be authorized and no whale-hunting protests would occur. There are presently no known incidents of other forms of organized civil disobedience in the area. Under the action alternatives, protesters might stage protests on the road leading to the Makah Reservation, on or near the reservation itself, or on the water around the hunt. Potential risks associated with water-based protests are addressed in Subsection 4.15.2.2, Injury from Boating Accidents. During the 1999 and 2000 hunts, demonstrators on the Makah Reservation exchanged insults with tribal members, including hunters (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). The risk of individuals being injured as a result of protest activities on land would be minimized by implementation of an enforcement management plan similar to that applied during previous hunts. The risk of injury to any group of individuals from protest activities would most likely depend on the number of days with hunt-related activities (Table 4-1).

Hunters and Other Participants

Protest activities on land might expose hunters and other participants (including law enforcement personnel) to risk of injury. No hunters or other participants were injured during the 1999 and 2000 hunts because of protests on land.

Protesters

Protesters might face a risk of injury from the actions of law enforcement personnel, protesters, or counter-protesters. In one incident during the 1998 practice whale hunt exercise, a protester was pushed from a dock but did not sustain injury. There was also an instance of Makah youth throwing rocks at protester vessels, causing no injury but damaging a vessel windshield (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). No protesters were seriously injured during the 1999 and 2000 hunts because of protests on land.

Bystanders

For this analysis, Makah tribal members and non-members who are not actively engaged as hunt participants are considered bystanders, along with persons who are not engaged in protests. During the 1999 and 2000 protests, some tribal members not involved in the hunt engaged protesters, and there were some altercations, although no one was seriously injured (Subsection 3.15.3.4, Behavior of People Associated with the Hunt). Bystanders might approach protest scenes as onlookers or could be drawn into protests, with an attendant risk of personal injury.

4.15.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect the safety of hunters and other participants, protesters, and bystanders. For each alternative, the discussion addresses the anticipated change in the number of injuries resulting from weapons, boating accidents, or protest activities.

The lowest risk of adverse effects to public safety would occur under the No-action Alternative because no hunting would occur and there would be no associated protest activities. Alternative 2, which would include the highest maximum number of gray whales that could harvested and would be expected to result in the greatest number of days with hunt-related trips (60), would result in the greatest increased risk to public safety from weapons, boating accidents, and protest activities compared to the No-action Alternative. Alternatives 3 and 6 would be expected to result in similar numbers of days with hunt-related trips as Alternative 2 (and during the same times of year) but would impose stricter limits on the number of ENP whales harvested and on the mortality of PCFG whales. As a result, Alternatives 3 and 6 would be expected to have a lower risk of weapons-related injuries, compared to Alternative 2, and a similar risk of injuries as a result of boating accidents or protest activities. Of the action alternatives, Alternative 3 would also have the lowest risk of weapons-related injuries to bystanders on shore because hunting would occur beyond the range of a .50 caliber rifle. The potential for boating accidents under Alternative 3 could be higher than under Alternatives 2 and 6 because hunts would take place farther off shore where there would be a greater risk of encountering rough seas.

Under Alternatives 4 and 5, hunt-related trips would be expected to occur on fewer days than under Alternatives 2, 3, 6 and 7 (22 versus 60 and 37, on average), reducing the potential for injuries as a result of boating accidents or protest activities. Stricter limits on the number of ENP whales harvested and on the mortality of PCFG whales would reduce the number of whales that could be struck and harvested, reducing the potential for weapons-related injuries compared to Alternatives 2, 3, 6 and 7. Lastly, Alternative 4 would include the strictest limits among the action alternatives on the number of whales harvested (1) and would allow hunting only during the summer months when the risk of encountering adverse weather and seas would be lowest. Compared to the other action alternatives, therefore, Alternative 4 would result in the smallest increase, relative to the No-action Alternative, in the risk to public safety from weapons, boating accidents, and protest activities. Alternative 7 may result in an even smaller increase, relative to the No-action Alternative, in the risk to public safety compared to Alternative 4 if: (1) the Tribe does not receive authorization for winter/spring hunts, resulting in a summer/fall hunt every other year for the duration of the 10-year waiver period, or (2) a

low abundance threshold for ENP gray whales is triggered, preventing the Tribe from hunting for the entire waiver period.

4.15.3.1 Alternative 1, No Action

Currently, no whale hunting occurs in the action area, so there are no accidents related to whale hunting. Recreational boaters, commercial and recreational fishers, and commercial vessels currently use the action area (Subsection 3.13.3.2, Marine Vessel Traffic), and there is likely currently some level of injury associated with boating, although the amount is unknown. Hunting also currently occurs in the action area (e.g., for deer and elk), and there is likely some level of injury from weapons associated with hunting, although the amount is unknown. Under the No-action Alternative, there would be no increased risk of injury to individuals beyond those levels that occur under current conditions.

4.15.3.2 Alternative 2, Tribe's Proposed Action

Under Alternative 2, hunt-related trips would likely occur on approximately 60 days from December through May each year, primarily during April and May. Compared to the No-action Alternative (under which there would be no whale-hunt-related injuries), there would be an increased risk of injury from weapons, boating accidents, and protest activities in the action area on each day that hunting occurred. Based on the gray whale harvest limit and restrictions on the mortality of PCFG whales, Alternative 2 would be expected to result in 7 strikes and up to 42 unsuccessful harpoon attempts each year (Table 4-4), plus 64 rifle shots and 12 grenade explosions (Table 4-1). With each strike attempt, rifle shot, or grenade explosion there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders.

Hunt-related trips under Alternative 2 would occur only during winter and spring when there is a greater risk of encountering rough weather. As a result, the potential for injuries from weapons or boating accidents would be elevated compared to hunts that occur during summer when milder weather and calmer seas are more common.

4.15.3.3 Alternative 3, Offshore Hunt

As under Alternative 2, hunt-related trips under Alternative 3 would likely occur on approximately 60 days from December through May each year, primarily during April and May. Compared to the No-action Alternative, Alternative 3 would thus be expected to result in the same increase as Alternative 2 in the number of days with an elevated risk of injury from boating accidents and protest activities. Because tribal hunters would be prohibited from making an initial strike on a gray whale within 5 miles (8 km) of shore, most hunt activities would likely take place more than 5 miles (8 km) off shore. This, and the time of year, would increase the potential for hunt participants and protestors to encounter

rough seas, possibly increasing the potential for boating-related accidents. As discussed in Subsection 4.1.3.2, Potential Number and Type of Vessels, it is assumed for this analysis that whale hunting under Alternative 3 would be conducted from motorized vessels rather than canoes. Because motorized vessels would likely be less susceptible than human-powered canoes to swamping or capsizing, the risk of injury to hunting party participants from boating accidents as a result of rough seas could be offset to an unknown extent by the reduced risk of swamping or capsizing. In addition, the greater distance from shore could limit the number of protest vessels that pursue the hunting party, potentially reducing the number of protesters and law enforcement personnel who are exposed to an elevated risk of boating accidents.

Alternative 3 would include the same limits on the number of whales harvested as Alternative 2 but would impose additional restrictions on the mortality of PCFG whales. Based on the gray whale harvest limit and restrictions on the mortality of PCFG whales, Alternative 3 would be expected to result in 6 strikes and up to 36 unsuccessful harpoon attempts each year (Table 4-6), plus 64 rifle shots and 12 grenade explosions (Table 4-1). With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders. Because hunts would take place in waters more than 5 miles (8 km) off shore, hunters would have an elevated potential of encountering rough seas while operating weapons, as compared to Alternative 2, possibly increasing the risk of weapons-related injuries. The potential for stray projectiles to strike bystanders on land would be eliminated, however, because the maximum range of the longest-range weapon (a .50 caliber rifle) is less than 5 miles (8 km) (Subsection 3.4.3.5.4, Method of Killing and Time to Death). As with the risk of boating accidents, the greater distance from shore could limit the number of protest vessels that pursue the hunting party, potentially reducing the number of protesters and law enforcement personnel who are exposed to an elevated risk of weapons-related injuries.

4.15.3.4 Alternative 4, Summer/Fall Hunt

Under Alternative 4, the hunting season would extend from June 1 through November 30 instead of December through May. Based on the expectation that locating and striking a known ENP male would take no more than 7 days (Subsection 4.1.4, Alternative 4), hunt-related trips under Alternative 4 would be likely to occur on approximately 7 days every other year. Compared to the No-action Alternative, therefore, Alternative 4 would result in an increased risk to public safety from weapons, boating accidents, and protest activities. This increased risk would occur on fewer days, however, than under any of the other action alternatives (3.5 on average versus 22 to 60).

Hunting under Alternative 4 would likely take place during the summer when the risk of encountering adverse weather conditions or rough seas would be lower than during winter or spring. Compared to the other action alternatives, the ability to hunt during summer under Alternative 4 could reduce the potential associated with each hunt for injury from weapons and boating accidents because of unfavorable weather and sea conditions. Hunting under Alternative 4 may also target whales that are feeding relatively close to shore (compared to whales that are migrating farther off shore at other times of year). If hunting under Alternative 4 occurred closer to shore, there would be an increased risk of injury, per rifle shot, to bystanders on shore compared to the other action alternatives. Based on the gray whale harvest limit and restrictions on the mortality of PCFG whales, Alternative 4 would be expected to result in 1 strike and up to 6 unsuccessful harpoon attempts every other year (Table 4-8), plus up to 16 rifle shots or 3 grenade explosions every other year (Table 4-1). With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders. The increased risk associated with strike attempts would be less than under any of the other action alternatives due to the lower number of potential strikes, harpoon attempts, shots, and grenade explosions.

4.15.3.5 Alternative 5, Split-season Hunt

Under Alternative 5, the hunting season would be limited to 3 weeks in December and 3 weeks in May, in contrast to the 6-month-long hunting seasons under the other action alternatives. In addition, the landing of a single PCFG whale, or the striking and losing of a single whale, would end the hunt for any given year. Based on the length of the hunting season, Alternative 5 would likely result in approximately 22 days per year with hunt-related trips. This could decrease to 0 days in years in which the hunt is on hiatus to allow the PCFG mortality limit to re-set at one whale. Compared to the No-action Alternative, therefore, Alternative 5 would result in an increased risk to public safety from weapons, boating accidents, and protest activities on approximately 22 days per year—fewer days than under Alternatives 2, 3, 6, and 7(60 and 37 days) but more than under Alternative 4 (7 days).

Based on the gray whale harvest limit and restrictions on the mortality of PCFG whales, Alternative 5 would be expected to result in as many as 5 strikes (likely fewer) and up to 30 unsuccessful harpoon attempts each year (Table 4-10), plus up to 16 rifle shots or 3 grenade explosions (Table 4-1). With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders. Risks from strike attempts would be less than under Alternatives 2 and 3 but greater than under Alternatives 4,6, and 7. Risks from rifle shots or grenade explosions would be less than under Alternatives 2, 3, 6, and 7 but greater than Alternative 4. However, a hunt under Alternative 4 may

occur closer to shore, potentially posing a greater risk from rifle shots or grenades despite an estimated lower occurrence.

4.15.3.6 Alternative 6, Different Limits on Strikes and PCGF, and Limited Duration of Regulations and Permits

Under Alternative 6, the waiver and implementing regulations would lapse after 10 years. Therefore, the analysis for Alternative 6 considers effects over a 10-year period.

Alternative 6 would be expected to result in the same number of days with hunt-related trips over the course of the 10-year waiver period as Alternative 2 and would include the same restrictions on hunting area and season. Compared to the No-action Alternative, Alternative 6 would thus be expected to result in the same increase as Alternative 2 in the number of days with an elevated risk of injury from boating accidents and protest activities.

Based on the gray whale harvest limit and restrictions on the mortality of PCFG whales, Alternative 6 would be expected to result in an average of 3.5 strikes and up to 21 unsuccessful harpoon attempts each year (Table 4-12), plus up to 56 rifle shots or 11 grenade explosions over 10 years (Table 4-1). With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders. Based on the anticipated number of strike attempts, this increase would be less than under Alternatives 2, 3, and 5 but greater than under Alternatives 4 and 7. Based on the anticipated number of rifle shots or grenade explosions, this increase would be less than under Alternatives 2 and 3 but greater than under Alternatives 4,5, and 7 (with the caveat that each shot during the summer/fall months of the hunt under Alternatives 4 and 7 could have a greater likelihood of injuring a bystander on shore).

4.15.3.7 Alternative 7, Composite Alternative – Preferred

As under Alternative 6, the waiver and implementing regulations would lapse after 10 years under Alternative 7. Therefore, the analysis for Alternative 7 considers effects over a 10-year period.

To compare the overall impact of Alternative 7 to the impacts of the other six alternatives, we use an annual average number (based on the 10-year span of the waiver period) of 37 days with hunt-related trips, 15 strike attempts, 40 rifle shots, and 7.5 explosive projectiles to harvest an average of two whales per year (Table 4-1). With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alternative, of weapons-related injury to hunt participants, protesters, or bystanders. Based on the anticipated number of strike attempts, this increase would be less than under Alternatives 2, 3, 5, and 6 but greater than under Alternative 4. Based on anticipated number of rifle shots or grenade explosions, this increase would be less than under

Alternatives 2, 3, and 6 but greater than under Alternatives 4 and 5, unless the Tribe does not receive authorization for any winter/spring hunts over the waiver period.

Implementing a low abundance threshold for the ENP stock may further reduce the risk to public safety under Alternative 7, although it is difficult to determine to what degree and how that may compare against other alternatives. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on public safety, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Sub-alternative 7(c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the annual average number of days with hunt-related trips, rifle shots, and explosive projectiles used over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to allow hunting to occur during all 10 years of the proposed waiver period. As such, of the three sub-alternatives, 7(c) could have the lowest potential impact to public safety while 7(a) could have the greatest potential impact.

4.16 Human Health

4.16.1 Introduction

This subsection addresses the potential for the alternatives to affect human health of the Makah Tribe in the action area. Three issues pertain to human health and whale hunt-related activities: (1) the potential nutritional benefits associated with consuming whale food products, (2) the potential for exposure to contaminants in food items from whale harvests, and (3) the potential for exposure to food-borne pathogens in food items from whale harvests. Based on the information available for this analysis, all of the alternatives would have a reasonably foreseeable potential to affect human health both positively and negatively. There are too many uncertainties, however, to quantify either type of effect or to predict whether any of the alternatives would result in a net positive or negative effect on human health. We therefore analyze these points in greater detail for Alternatives 2 through 7 together in the following subsections.

4.16.2 Evaluation Criteria

Three criteria were used to determine the potential for effects on human health. The first is the change in nutritional benefits the Makah Tribe could experience under any of the alternatives. The second is the amount of environmental contamination tribal members might be exposed to as a result of consuming gray whale products. The last is the extent to which Makah tribal members would be exposed to food-borne pathogens as a result of processing and consuming whale products.

4.16.2.1 Nutritional Benefits

As described in Subsection 3.16.3.1, Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods, marine mammal tissues historically were an important nutritional component of the Makah diet (Renker 2018). Marine mammal tissues, including large whales, contain vitamins, essential elements, and both essential and beneficial polyunsaturated fatty acids (United States Department of Agriculture 2019). While many of these nutrients are present in other foods (e.g., fish, shellfish, nuts, and vegetable oils), some (e.g., polyunsaturated fats) are present in higher concentrations in marine mammal food products. Documented benefits of consuming essential fatty acids present in whale and fish food products include prevention or alleviation of symptoms associated with diabetes, kidney disease, heart disease, hypertension, and other similar health problems (Budowski 1988; Simopoulos 1999; Simopoulos 2002; Holub and Holub 2004; Ebbesson et al. 2005b; Ebbesson et al. 2005c; Reynolds et al. 2006). In addition, whale products provide a good source of antioxidants (vitamin E) and selenium, which play a role in protecting against some contaminants (e.g., mercury) (Arnold and Middaugh 2004). Whale-derived food products are a source of minerals and vitamins that have well-documented nutritional benefits to populations consuming them.

There are no specific studies that compare the types and concentrations of nutrients in food products obtained from the drift whales occasionally consumed by the Makah with those found in the fresh gray whale food products that would be available to them under Alternatives 2 through 7. Whether consuming freshly harvested gray whale food products would affect the level of nutrition available to Makah tribal members would depend largely on the types and levels of nutrition present in an individual tribal member's existing diet relative to several factors: (1) what part(s) of the whale and how much of each would be consumed, (2) what currently consumed food items (and associated nutritional levels) would be replaced by gray whale food products, and (3) how each food item would be collected, stored, and prepared for consumption. None of this information is currently available or could reasonably be obtained.

4.16.2.2 Environmental Contaminants

As described in Subsection 3.16.3.2, Environmental Contaminants in Gray Whales, gray whale tissues contain chemical contaminants that Makah tribal members would be exposed to if they consumed fresh gray whale food products generated from a successful hunt. Similar contaminants are present in the foods that Makah tribal members typically consume, including fish and shellfish from the action area as well as store-purchased food products. There are no data to compare the amount of contaminants currently being consumed by the Makah Tribe with the amount of contaminants found in fresh whale

products, making it difficult to determine the net change in contaminants to which tribal members would be exposed. Also, data do not exist to indicate the amount of fresh whale food products an individual Makah member may consume in lieu of other food sources normally consumed by the same individual. As a result of this lack of data, it is not possible to discern precise risk levels based upon the existing best available information addressing the rate of consumption and method of cooking fresh whale tissues by Makah tribal members. However, it is reasonable to conclude that whale products—in particular blubber—would likely contain higher levels of certain contaminants (e.g., PCBs) than other foods consumed by Makah (and may exceed levels that trigger human health concerns as described in guidelines published by state and federal agencies) (Subsection 3.16.3.2, Environmental Contaminants in Gray Whales). For example, PCB concentrations in Chinook salmon from the Makah National Fish Hatchery (19 µg/kg) (Missildine et al. 2005) are considerably lower than those found in samples of gray whale blubber (39 to 1,200 µg/kg) (Table 3-47).

There are no specific studies that compare the types and concentrations of contaminants in food products obtained from the drift whales occasionally consumed by the Makah with those found in the fresh gray whale food products that would be available to them under Alternatives 2 through 7. High contaminant loads are just one of many causes of death for drift whales, yet even whales that appear to be healthy (e.g., the whale killed by the Makah Tribe in 1999) can have contaminant levels higher than those found in stranded animals (Subsection 3.16.3.2, Environmental Contaminants in Gray Whales). Whether consuming freshly harvested gray whale food products would affect contaminant exposure in Makah tribal members would depend largely on the types and levels of contaminants present in an individual tribal member's existing diet relative to several factors: (1) what part(s) of the whale and how much of each would be consumed, (2) what currently consumed food items (and associated contaminants) would be replaced by gray whale food products, (3) the age and sex of the whale, (4) possibly the time of year and body condition of the whale, and (5) how each food item would be collected, stored, and prepared for consumption. None of this information is currently available or could reasonably be obtained.

4.16.2.3 Exposure to Food-Borne Pathogens

As described in Subsection 3.16.3.3, Exposure to Food-Borne Pathogens, exposure to food-borne pathogens might result from improperly handled food items. While exposure to pathogens associated with the consumption of whale products has been documented, it is not unique to consumption of whale food products. Pathogenic organisms (e.g., bacteria, viruses, and parasites) are common in other subsistence and store-purchased foods such as seafood, poultry products, meat products, dairy products, and vegetables. Any of these products could cause illness if they were improperly butchered, stored, or

prepared. Thus, under the No-action Alternative, there is some degree of risk to Makah tribal members of contracting food-borne illness from exposure to pathogens. Changes in the quantity of freshly harvested whale consumed would probably not appreciably change the potential for food-borne illness to occur in Makah tribal members, assuming they followed the same general food storage and preparation practices for whale products as for other food products.

4.16.3 Evaluation of Alternatives

The following subsections consider the potential for the alternatives to affect human health using the evaluation criteria described above.

4.16.3.1 Alternative 1, No Action

Under the No-action Alternative, no Makah gray whale hunt would be permitted. Thus, Makah tribal members would not have access to or consume freshly harvested whale products. Under this alternative, no change in the exposure to contaminants or food-borne pathogens or the nutritional composition of the diet from foods consumed by the Makah Tribe would be expected. The continued absence of freshly harvested gray whale food products from the diet of the Makah would continue to preclude tribal members from realizing the added nutritional benefits (e.g., minerals and omega-3 fatty acids) associated with consuming them, but there are no data to suggest that current diets of individual Makah members sufficiently lack these nutritional benefits. For example, the omega-3 fatty acid benefits of whale products (e.g., prevention of heart disease and glucose intolerance) may be adequately realized by tribal members from other food sources. Overall, there is insufficient information to conclude that the lack of fresh whale products under the No-action Alternative would be expected to negatively alter current dietary conditions for any tribal member.

4.16.3.2 Alternatives 2, 3, 4, 5, 6, and 7

Unlike conditions under the No-action Alternative, Alternatives 2, 3, 4, 5, 6, and 7 would allow the Makah Tribe to conduct gray whale hunts in the action area, and it is assumed that consumption of freshly harvested gray whale food products would occur. In household surveys conducted in 2001, 2006, 2011, and 2017, 80 to 90 percent of survey respondents expressed an interest in increased access to whale products (Subsection 3.10.3.5.1, Makah Whaling). Consumption could increase exposure to contaminants or food-borne pathogens and would depend in part on the number of whales likely to be harvested per year. This number would be greatest under Alternatives 2 and 3 (up to five whales), followed by Alternative 6 (up to 3.5 whales, on average), then Alternatives 4, 5, and 7 (zero to two whales per year). Whale products (meat, blubber, and other whale parts) consumed from the whale killed in 1999 amounted to approximately 2.4 pounds per person, but much of the whale was consumed at a community potlatch. The Tribe's most recent needs statement (Renker 2018) estimates that

harvesting an average of four gray whales per year would yield 8 to 20 pounds (4 to 9 kg) of meat per capita and 16 to 20 pounds (7 to 9 kg) of oil or blubber per capita (and a somewhat smaller amount of whale oil after rendering). Given these estimates, it is possible for a Makah tribal member to ingest up to 24 to 40 pounds (11 to 18 kg) of whale product per year under Alternatives 2 and 3. Harvesting an average of two gray whales per year under Alternative 7 would yield 4 to 10 pounds (2 to 10 kg) of meat per capita and 8 to 10 pounds (4 to 10 kg) of oil or blubber per capita, the second-lowest amount of the action alternatives. As described in Subsection 4.16.2, Evaluation Criteria, it is impossible to predict the precise changes in exposure to contaminants or food-borne pathogens or the nutritional composition of the Makah diet if they have the opportunity to consume freshly harvested whale products. However, it is reasonable to conclude that whale products—in particular blubber—would likely contain higher levels of certain contaminants (e.g., PCBs) than other foods consumed by Makah, such as Chinook salmon (Missildine et al. 2005).

Consumption of freshly harvested gray whale food products may temporarily increase the overall nutritional value of the Makah diet by raising the proportion of certain minerals and omega-3 fatty acids if diets currently lack this benefit. Omega-3 fatty acids have been shown to positively affect glucose tolerance and insulin sensitivity in Alaska Natives (Ebbesson et al. 2005b; Ebbesson et al. 2005c). This relative nutritional increase would occur only as long as whale products were available for consumption. The extent of the nutritional increase would depend in part on the number of whales likely to be harvested per year. This number would be greatest under Alternatives 2 and 3 (up to five whales), followed by Alternative 6 (up to 3.5 whales, on average), then Alternatives 4, 5, and 7 (zero to two whales per year, on average).

Implementing a low abundance threshold for the ENP stock may reduce the amount of edible gray whale products available to the Tribe under Alternative 7. To compare the relative impacts of Sub-alternatives 7(a), 7(b), and 7(c) on human health, we consider the relative likelihood of triggering the low-abundance threshold of each sub-alternative. Of the three sub-alternatives, (c) carries the highest likelihood of reducing the number of authorized hunting years and, therefore, the total number of whales harvested over the waiver period. Sub-alternative 7(a), on the other hand, is most likely to result in the harvest of the full amount permitted under the waiver (20 whales). As such, of the three sub-alternatives, 7(c) could have the lowest potential impact to human health while 7(a) could have the greatest potential impact.

Also, under Alternatives 6 and 7, the waiver and implementing regulations would lapse after 10 years, and it is not possible to predict whether they would be replaced with a new waiver and implementing

regulations or what the terms of any new waiver and regulations would be. Therefore, the analysis for Alternatives 6 and 7 consider effects only over a 10-year period.

4.17 Regulatory Environment Governing Harvest of Marine Mammals

4.17.1 Introduction

This subsection evaluates the potential for the seven alternatives to affect the future regulatory environment governing marine mammals in the United States (including whales) and whales worldwide. Any change in the regulatory environment may ultimately affect the harvest of marine mammals nationally and whales worldwide.

4.17.2 Evaluation Criteria

We used three criteria to determine the potential for the alternatives to affect the regulatory environment governing the harvest of marine mammals. The first is the potential change in requests for waiver of the MMPA take moratorium to allow harvest in the United States of marine mammals other than whales. The second is the potential change in requests for regulatory action to authorize harvest of whales in the United States, which would require application to the IWC for a catch limit, waiver of the MMPA take moratorium (with associated MMPA regulatory actions following NEPA review), and completion of a cooperative agreement under the Whaling Convention Act (WCA). The third is the potential change in IWC regulation of commercial, scientific, or aboriginal subsistence whaling.

Under the No-action Alternative, we would deny the Makah Tribe's request to hunt whales, and under Alternatives 2 through 7, we would authorize some level of whaling. The analysis in this subsection considers the potential precedential effect of authorizing a hunt—the possibility that authorizing a Makah gray whale hunt may lead to future regulatory changes that would in turn lead to increased hunts of whales or other marine mammals. Because such a precedent could result from any authorization of Makah whaling, even one whale per year, we anticipate that any authorization under the action alternatives (2 through 7) would have the same precedential effect. We therefore analyze Alternatives 2 through 7 together.

4.17.2.1 National Regulation of Marine Mammal Harvest

Section 101(a)(3)(A) of the MMPA directs the Secretary to determine whether and by what means it is compatible with the Act to waive the moratorium and allow taking of any marine mammal. In the history of the MMPA, there have been few requests to the Secretary of the Interior or the Secretary of Commerce to waive the MMPA take moratorium (Subsection 3.17.3.1, Waivers of the MMPA Take Moratorium). Currently, there are no active requests for waiver of the MMPA take moratorium aside from the Makah Tribe's request to hunt gray whales.

Under any of the action alternatives, we would waive the take moratorium, adopt regulations, and issue permits under the MMPA. This authorization and a subsequent hunt could lead other parties to seek similar authorizations to harvest marine mammals other than whales. Some Indian tribes traditionally harvested and used products from seals, sea otters, and other marine mammals. Northwest Indian tribes have, in the past, expressed an interest in harvesting marine mammals (Schmitten 1994). Authorization of a Makah gray whale hunt could revive the interest of the Makah or other tribes in hunting marine mammals. It could also lead to interest by non-Indians in sport or commercial hunting of marine mammals. Such interest could lead to additional requests for MMPA waivers from Indian tribes or non-Indians and could, ultimately, lead to the federally authorized harvest of additional marine mammals if such harvest is consistent with the MMPA.

4.17.2.2 National Regulation of Whaling

Section 102(f) of the MMPA prohibits commercial whaling in U.S. waters. Subsection 916c(a) of the WCA prohibits whaling except in accordance with IWC regulations. Thus, under current law, only aboriginal subsistence whaling authorized by the IWC is permitted in U.S. waters. Other Indian tribes historically hunted whales (Subsection 3.4.3.6.1, Aboriginal Subsistence Whaling), and the authorization of a Makah whale hunt under the action alternatives could lead other tribes to request a similar authorization. There are no active requests for national authorization of whale hunts under the WCA except from the Makah Tribe and Alaska Eskimo Whaling Commission (Alexander 2013).

4.17.2.3 International Regulation of Whaling

Public comments on our 2008 Draft Environmental Impact Statement (DEIS) expressed concern that NMFS' approval of Makah whaling could lead to increased whaling worldwide by creating a new category of cultural whaling, thus weakening U.S. leadership in whale conservation or strengthening the position or resolve of whaling proponents. This analysis addresses the potential for the alternatives to change the IWC regulatory environment with respect to commercial and scientific whaling and with respect to aboriginal subsistence whaling. Changes in these types of whaling might occur because of changes in the U.S. position or persuasive authority, changes in other countries' willingness to pursue whaling in response to U.S. actions, or changes in the interpretation of what constitutes aboriginal subsistence whaling.

4.17.3 Evaluation of Alternatives

For each alternative, the discussion first addresses the anticipated change in the number of requests for waivers of the MMPA take prohibition for marine mammals other than whales and the potential change in the number of marine mammals killed in the United States as a result. Historically, there have been few requests to waive the MMPA take moratorium, suggesting there would be few in the future under

current conditions. Under the No-action Alternative, such requests would be even less likely, as both Indian and non-Indian parties would be discouraged by the time and effort required to seek a waiver and by the negative results of the Makah request. Conversely, under Alternatives 2 through 7, we would authorize a Makah gray whale hunt, and that authorization would make it more likely for parties to seek an MMPA waiver compared to the No-action Alternative.

For each alternative, the analysis next considers potential changes in the number of requests for aboriginal subsistence whale hunt authorizations and the potential change in the number of whales killed in the United States as a result. There have been no requests for whale hunts historically, except by the Alaska Eskimo Whaling Commission and the Makah Tribe. The No-action Alternative would make it less likely that Indian tribes would seek authorization in the future compared to current conditions; any of the action alternatives could make it more likely, compared to the No-action Alternative. Whether such requests would result in a change in national regulations governing harvest of marine mammals is speculative because it would depend on variables associated with the specific request that are currently unknown.

Finally, for each alternative the analysis considers potential changes in IWC regulations governing any type of whaling and the potential change in the number of whales killed worldwide as a result. Changes could come about because of changes in the U.S. position at the IWC, changes in U.S. persuasive authority, or changes in the actions of other countries in response to U.S. action under one of the alternatives. It is speculative to predict how any of the alternatives would influence the regulatory landscape, given the legislative process of the IWC and the competing views and interests of the IWC parties. It is possible that denial of the Makah Tribe's request under the No-action Alternative would dampen efforts to set catch limits for whaling of any type, particularly aboriginal subsistence whaling. It is conversely possible that the approval of harvesting even a single whale per year under the action alternatives would encourage efforts to set catch limits for additional whaling, particularly aboriginal subsistence whaling.

4.17.3.1 Alternative 1, No Action

Under the No-action Alternative, we would not authorize a gray whale hunt by the Makah Tribe.

4.17.3.1.1 National Regulation of Marine Mammal Harvests

As described in Subsection 3.17.3.1, Waivers of the MMPA Take Moratorium, there have been very few requests for waiver of the take moratorium, and none since 1987 except the Makah Tribe's request. We would therefore predict very few requests in the future under current conditions. Denial of the Makah Tribe's request under the No-action Alternative would make it even less likely there would be future requests for a waiver, as both Indian and non-Indian parties would be discouraged by the time

and effort required to seek a waiver and by the negative results of the Makah request. Because of the negligible chance of future requests or authorizations under current conditions, the No-action Alternative would not measurably change the likelihood of future requests or the number of marine mammals killed in the United States as a result of such requests.

4.17.3.1.2 National Regulation of Whaling

Except for the Alaska Eskimo Whaling Commission and the Makah Tribe, there are no other groups in the United States that have requested authorization to pursue an aboriginal subsistence whale hunt. We would therefore predict very few requests in the future under current conditions. Denial of the Makah Tribe's request under the No-action Alternative would make it even less likely there would be future requests for authorization of aboriginal subsistence whaling, as any Indian tribes with a potential claim to aboriginal subsistence status would be discouraged by the time and effort required to seek a waiver and by the negative results of the Makah request. Because of the negligible chance of future requests or authorizations under current conditions, the No-action Alternative would not measurably change the number of whales killed in the United States by aboriginal subsistence whale hunters.

4.17.3.1.3 International Regulation of Whaling

Commercial and Scientific Whaling

Subsection 3.17.3.2.1, Commercial and Scientific Whaling, describes the current conditions regarding international regulation of commercial and scientific whaling. It is unlikely that denial of the Makah Tribe's request under the No-action Alternative would change the international regulatory environment for either type of whaling. The United States has consistently supported the ban on commercial whaling since 1972, and has consistently opposed the increases in scientific whaling. This position did not change with the U.S. request for a catch limit on behalf of the Alaska Eskimo Whaling Commission or the Makah Tribe, and there is no reason to expect it would change if we adopted the No-action Alternative and denied the Makah Tribe's request.

Similarly, there is no reason to expect that denial of the Makah Tribe's request would alter the persuasive authority of the United States or the actions of other countries in the IWC regarding commercial and scientific whaling. As described in Subsection 3.17.3.2.1, Commercial and Scientific Whaling, the debate over commercial whaling has dominated IWC interactions for many years, and past scientific whaling by Japan appears to have been a tool to gain leverage in that debate. Even if the Makah Tribe's request to hunt gray whales were denied under the No-action Alternative, the United States would likely still pursue aboriginal subsistence catch limits for the Alaska Eskimo Whaling Commission and support the requests of other countries for aboriginal subsistence catch limits. Thus, under the No-action Alternative, pro-whaling countries could still argue that the U.S. actions on

aboriginal subsistence whaling were inconsistent with its opposition to commercial and scientific whaling.

Aboriginal Subsistence Whaling

Denial of the Tribe's request under the No-action Alternative has the greatest potential to affect aboriginal subsistence whaling because that is the regulatory provision under which the IWC has set a catch limit for gray whales, which is shared by the Chukotkan Natives in Russia and the Makah Tribe in the United States. The IWC first set a catch limit on behalf of the Makah Tribe in 1998. We authorized a Makah whale hunt in 1999 and 2000 and have not authorized a hunt since 2000 because of litigation and administrative processes. There is no evidence to suggest that the current administrative process related to the Tribe's request (or the lack of authorization during that process) has changed any of the dynamics in the IWC or had an effect on the regulatory environment for aboriginal subsistence whaling within the IWC. We therefore consider it unlikely that denial of the Tribe's request under the No-action Alternative would have an effect on the regulation of aboriginal subsistence whaling that would represent a change from the current condition.

4.17.3.2 Alternatives 2, 3, 4, 5, 6, and 7

Under Alternatives 2 through 7, we would waive the MMPA take moratorium, promulgate hunt regulations that would allow the Tribe to apply for hunt permits, and complete the required processes under the WCA.

4.17.3.2.1 National Regulation of Marine Mammal Harvests

In contrast to the No-action Alternative, under which a denial of the Tribe's request would discourage future requests for marine mammal harvests, authorization of the Makah Tribe's request under Alternatives 2 through 7 could encourage others (including the Makah Tribe) to consider seeking a waiver of the MMPA take moratorium to allow harvest of gray whales or other marine mammals. Thus, there could be an increased likelihood of future requests. We consider the increased likelihood to be small. First, as described in Subsection 3.17.3.1, Waivers of the MMPA Take Moratorium, there have been very few requests for waiver of the take moratorium, and none since 1987 except the Makah Tribe's request. This is likely the result of the complexity of the waiver process, the length of time required to complete the process, and the lack of resulting harvest opportunities. These factors would continue to limit interest in seeking MMPA waivers, even if a Makah whale hunt were authorized under one of the action alternatives. The most likely increase in waiver applications would come from other treaty tribes, who might view the approval of the Makah's application as a precedent for approval of additional waiver applications to take marine mammals that they had harvested traditionally and that remained important to them for cultural or other reasons. If authorization of a hunt under one of the

action alternatives (Alternatives 2 through 7) did lead to additional waiver requests, the outcome of any process to consider them would depend on a number of facts specific to the requests that are not presently known, making it speculative to conclude that the harvest of marine mammals nationally would change as a result of implementing Alternatives 2 through 7. Any additional waiver requests for marine mammals would be subject to analyses under NEPA as well as the MMPA.

4.17.3.2.2 National Regulation of Whaling

Aside from Indian tribes and Alaska Natives, we are not aware of entities in the United States that could claim aboriginal status to pursue whaling under the WCA. Alaska Natives have received WCA allocations for bowhead whales since 1978. The Makah Tribe formally expressed interest in resuming a gray whale hunt starting in 1995 (Makah Tribal Council 1995). We first published a WCA quota for the Tribe's use in 1998 (63 FR 16701, April 6, 1998). The 1998 to 2002 gray whale catch limit in the Schedule was in response to a joint U.S.-Russian Federation request on behalf of the Makah Tribe and Chukotka Natives (Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling). Although it has been over 35 years since Alaska Natives first received a WCA allocation and over 25 years since the Makah Tribe received its allocation, no other Indian tribe or Alaska native group has requested an allocation or inquired about receiving an allocation for whales under the WCA. This history suggests that, beyond the Makah and the Alaska Eskimo Whaling Commission, there is little interest by other native groups to seek authorization to harvest whales. In addition, the complexity of the process and length of time required to complete it would probably limit the interest of most potential applicants. It therefore seems unlikely that implementation of Alternatives 2 through 7 would lead other Indian tribes to seek authorization to hunt whales.

Nevertheless, tribes other than the Makah traditionally hunted gray whales (Subsection 3.4.3.6.1, Aboriginal Subsistence Whaling), and authorization of a Makah gray whale hunt could encourage them to seek a similar authorization. If authorization of a hunt under Alternatives 2 through 7 did lead to additional requests to hunt gray whales, the outcome of any process would depend on a number of facts specific to those requests that are not presently known, making it speculative to conclude that the harvest of gray whales nationally would change as a result of implementing Alternatives 2 through 7.

Authorization of the Makah Tribe's request under Alternatives 2 through 7 could also lead the Makah Tribe or other tribes to request additional authorization to hunt other species of whale besides gray whales. Comments on our 2008 DEIS noted past interest by the Makah Tribe in hunting humpback whales, and tribes other than the Makah traditionally hunted humpback whales (Subsection 3.4.3.6.1, Aboriginal Subsistence Whaling). In the eastern North Pacific, the Central America DPS and the Mexico DPS of humpback whales are currently listed under the ESA and therefore a waiver of the

MMPA take moratorium is not possible (the western North Pacific DPS is also listed). Any future request to hunt gray whales, or humpback whales if they were delisted, would need to be authorized by the IWC and go through NEPA, MMPA, and WCA processes. The complexity of the process and length of time required to complete it would probably limit the interest of most potential applicants, including the Makah Tribe. If authorization of a hunt under Alternatives 2 through 7 did lead to an additional waiver request by the Makah Tribe or other tribes, the outcome of any process would depend on a number of facts specific to those requests that are not presently known, making it speculative to conclude that the harvest of whales nationally would change as a result of implementing Alternatives 2 through 7.

4.17.3.2.3 International Regulation of Whaling

Commercial and Scientific Whaling

Subsection 3.17.3.2.1, Commercial and Scientific Whaling, describes the current conditions regarding international regulation of commercial and scientific whaling. Since the early 1970s, the United States has consistently supported the moratorium on commercial whaling and insisted on safeguards before any such whaling can resume. The United States has also opposed lethal scientific whaling. In taking these positions, the United States has cited management concerns rather than a philosophy that all whaling of any kind should be banned. Throughout the period of time the United States has opposed commercial and lethal scientific whaling, it has supported aboriginal subsistence whaling, for example, by proposing and defending bowhead catch limits on behalf of Alaska Natives. Given the consistent U.S. position of opposing commercial and lethal scientific whaling while supporting aboriginal subsistence whaling, it is unlikely that NMFS' authorization of a Makah tribal hunt under Alternatives 2 through 7 would change the U.S. position on commercial and lethal scientific whaling or its ability to actively pursue its position.

It is also unlikely that other countries could use authorization of a Makah whale hunt under Alternatives 2 through 7 as leverage for increased commercial or scientific whaling. Though Japan attempted to use the bowhead catch limit by the United States request in 2002 in its pursuit of small-type coastal whaling, there is no evidence that this move led to a fundamental change in the U.S. position, in the positions of other countries, or in the international regulation of whaling. There is also no evidence that whaling proponents such as Japan could successfully use the U.S. authorization of a Makah hunt under domestic law as leverage to change the regulation of commercial or scientific whaling. It is more likely that the outcome of Japan's requests for small-type coastal whaling, or the pro-whaling nations' efforts to remove the moratorium on commercial whaling, depends on the balance of

power in the IWC rather than on strategic maneuvers such as those that took place in 2002 over the bowhead catch limit.

The support of Japan and the other pro-whaling countries for the ENP gray whale catch limit even as they were opposing the U.S. ASW bowhead catch limit in 2002 (Subsection 3.17.3.2.2 Aboriginal Subsistence Whaling) also suggests that pro-whaling countries do not view the Makah hunt as leverage to change the regulation of commercial or scientific whaling. In 2007, bowhead and ENP gray whale aboriginal subsistence catch limits were set by consensus at the annual meeting of the IWC (Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Eskimos; Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). The IWC has subsequently set these catch limits in a block vote with the humpback catch limit request of St. Vincent and the Grenadines (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah).

Pro-whaling nations have argued that all whaling should be treated equally, limited only by principles of sound science and management. These nations could argue that the resumption of whaling by the Makah Tribe justifies an increase in other types of whaling. They might also argue that the ability of the Makah Tribe to sell handicrafts made from inedible parts (which would be authorized under Alternatives 2 through 7) makes the hunt "commercial," although this is allowed under the IWC's definitions for "subsistence use" and "aboriginal subsistence whaling." We consider it unlikely, however, that pro-whaling nations would be able to use this argument as leverage to change the regulation of commercial or scientific whaling. The United States and several other countries have a long history of opposing commercial and scientific whaling while supporting aboriginal subsistence whaling; thus, authorization of a Makah hunt would not introduce a new element into the long-standing debate over whether there is a difference between commercial and subsistence hunts. Moreover, Alaska Natives have been authorized under domestic law to make and sell handicrafts made from bowhead whales.

Another piece of evidence suggests that aboriginal subsistence whaling generally, and authorization of a Makah hunt in particular, would not influence the debate over commercial and scientific whaling. The working group proposal presented at the 2010 IWC meeting included trade-offs between scientific and commercial whaling (Subsection 3.17.3.2.1, Commercial and Scientific Whaling). Aboriginal subsistence whaling appears not to have been a consideration in the proposed compromise between scientific and commercial whaling interests.

To further test the conclusion that authorization of a Makah hunt under Alternatives 2 through 7 would not alter international regulation of commercial or scientific whaling, we analyzed the trends both before and after the initial U.S. request for a catch limit on behalf of the Makah Tribe. If a Makah hunt

were to set a precedent that would affect whaling internationally, such effects would likely be revealed shortly after the United States made its request. Figure 4-1 shows trends in commercial whaling, which declined prior to 1993, increased from 1993 through 1997, then flattened after 1998. The decline in commercial harvest began in 1988, following adoption of the commercial whaling moratorium and the U.S. threat to withdraw fishing privileges for Japanese vessels in U.S. waters (Subsection 3.17.3.2.1, Commercial and Scientific Whaling). Commercial whaling resumed in 1993, before the first U.S. request at the IWC on behalf of the Makah Tribe, and increased until 1998, at which point the trend leveled off. This record indicates that the U.S. request for an aboriginal subsistence catch limit of gray whales for the Makah Tribe did not lead to a change in the regulation of commercial whaling or a change in the level of whales harvested commercially. In more recent years, commercial harvest rates have remained constant since 2013; see Figure 3-18 for commercial harvest rates across the entire time series until 2021.

Figure 4-2 shows the data for scientific whaling, which increased steadily from 1986 through 1996, and continued to increase after 1997, though there is no statistically detectable trend from 1997 to the present. This record also indicates that the U.S. request for an aboriginal subsistence catch limit of gray whales for the Makah Tribe did not lead to a change in the regulation of scientific whaling or a change in the level of whales harvested in scientific studies. In more recent years, scientific harvest rates have remained constant since 2013; see Figure 3-19 for scientific harvest rates across the entire time series until 2019.

Aboriginal Subsistence Whaling

Compared to the No-action Alternative, there is a potential that NMFS' authorization of a Makah whale hunt under Alternatives 2 through 7 would be viewed as an expansion of the definition of aboriginal subsistence whaling, leading to increased requests at the IWC for aboriginal subsistence catch limits, changes in the regulation of aboriginal subsistence whaling, and ultimately an increase in whaling within that category. One distinction between Makah whale hunting and other aboriginal subsistence hunts approved by the IWC is the Tribe's 70-year hiatus in whaling. There is the possibility that pro-whaling nations would use a perceived expansion of the definition to bolster their requests for whaling operations that have characteristics similar to aboriginal subsistence whaling but differ in some way. Japan's argument that small-type coastal whaling is similar to aboriginal subsistence whaling is an example of how an IWC party might use Makah whaling to support its desired whaling operations.

Such an argument has been made, however, even in the absence of a Makah hunt. While there is evidence that pro-whaling parties within the IWC will use the authorization of any whaling activities, including a Makah hunt for gray whales, to support their efforts to receive approval for their proposed whaling operations, it is speculative whether such maneuvers would lead to a change in the regulation of aboriginal subsistence whaling or an increase in such whaling. Language adopted by the IWC when the

joint United States-Russian Federation request was first approved referred to "aborigines whose traditional aboriginal subsistence and cultural needs have been recognized," suggesting the possibility that each IWC party was free to recognize the subsistence and cultural needs of its aborigines (IWC 1998). This language, which was subsequently deleted from the schedule, appears not to have influenced subsequent discussion in the IWC about the definition of aboriginal subsistence whaling or the determination of need.

As noted above, if a Makah whale hunt were to have a precedential effect on whaling regulations, it is likely such an effect would have been manifested following approval of the initial U.S. request for a catch limit on the Makah Tribe's behalf. Figure 4-3 shows the trend in aboriginal subsistence harvests from 1984 through 2013. The trend prior to 1998 is confounded by the fact that the hunt by the Chukotka Natives ceased altogether in 1992 and 1993 following the dissolution of the Soviet Union and state support for the hunt. It began to rebuild slowly and did not recover to the point that the full catch limit was harvested until 1998.

Looking just at the trend since 1997 when the Makah catch limit was approved, there has been a slight increasing trend in aboriginal subsistence harvests. The trend is weakly defined; only 27 percent of the harvest variability is explained by the trend line. The trend becomes much slighter if 1997 is dropped out. The rationale for dropping 1997 is that it is unlikely there would have been any effect on harvests in 1997 from the U.S. request made and approved in October 1997. Thus, it appears that any correlation (which does not imply causation) with the U.S. request for a Makah hunt is weak. In more recent years, aboriginal subsistence harvest rates have remained relatively constant since 2013; see Figure 3-20 for ASW harvest rates across the entire time series until 2021.

We also examined the history of requests in the IWC for aboriginal subsistence catch limits since the initial U.S. request for a Makah gray whale catch limit in 1997. Since then, there have been no requests from additional countries for an aboriginal subsistence catch limit and no requests on behalf of additional aboriginal groups. Denmark/Greenland and St. Vincent and the Grenadines have requested increases to their catch limits, but these were made on the basis of aboriginal needs and there is no indication the requests were in response to the U.S. request for gray whales. From 1998 to 2013, aboriginal subsistence strike and catch limits (i.e., annual not-to-exceed levels reported in the IWC annual reports) for all species have fluctuated between 403 and 432 animals. There is no apparent correlation between these limits and the actual numbers of whales harvested by aboriginal subsistence hunters globally, as evidenced by some of the lowest harvests occurring during a period with the highest overall aboriginal catch limits (Figure 4-3).

For these reasons, we consider it unlikely that authorization of a Makah whale hunt under Alternatives 2 through 7 would change the international regulatory landscape for aboriginal subsistence whaling or lead to the increased harvest of whales in aboriginal subsistence whale hunts (relative to the No-action Alternative).

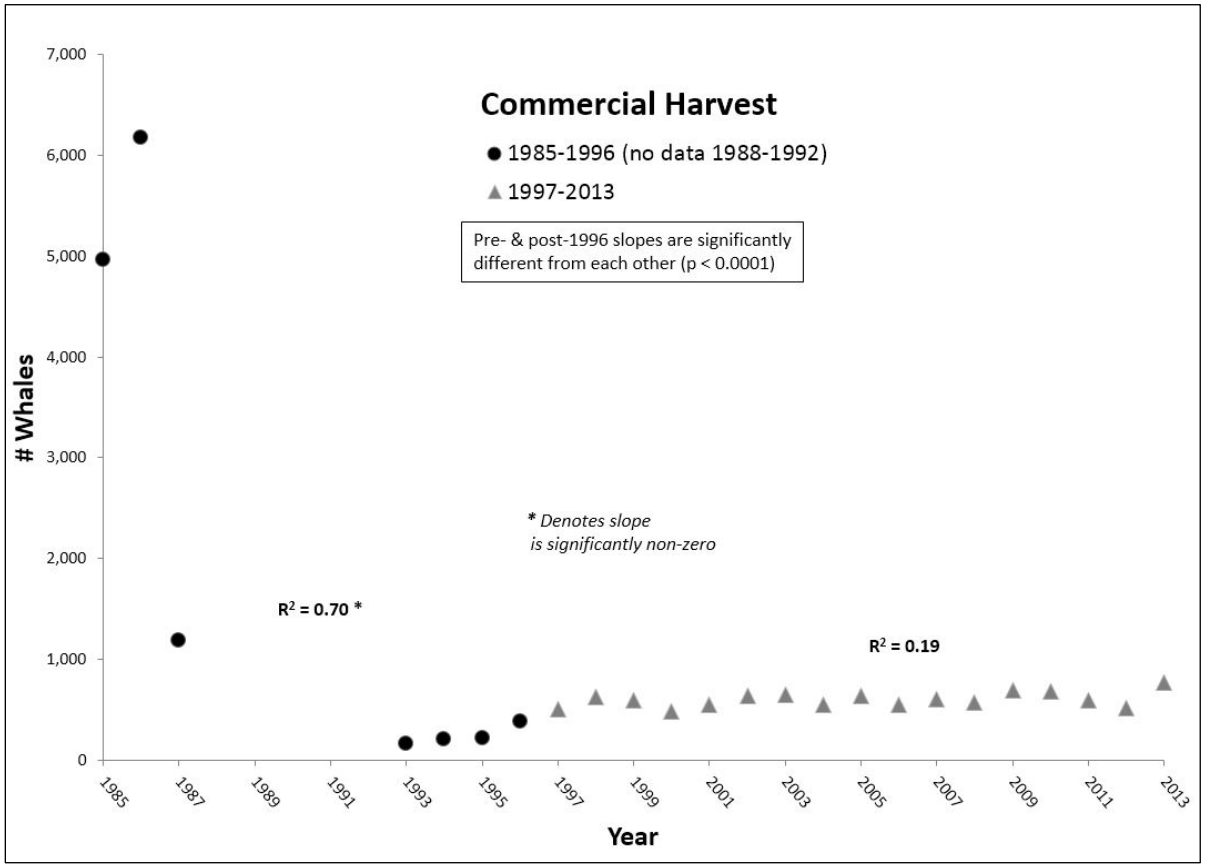


Figure 4-1. Trend analysis for commercial harvest before and after 1996. See Figure 3-18 for commercial harvest rates across the entire time series until 2021.

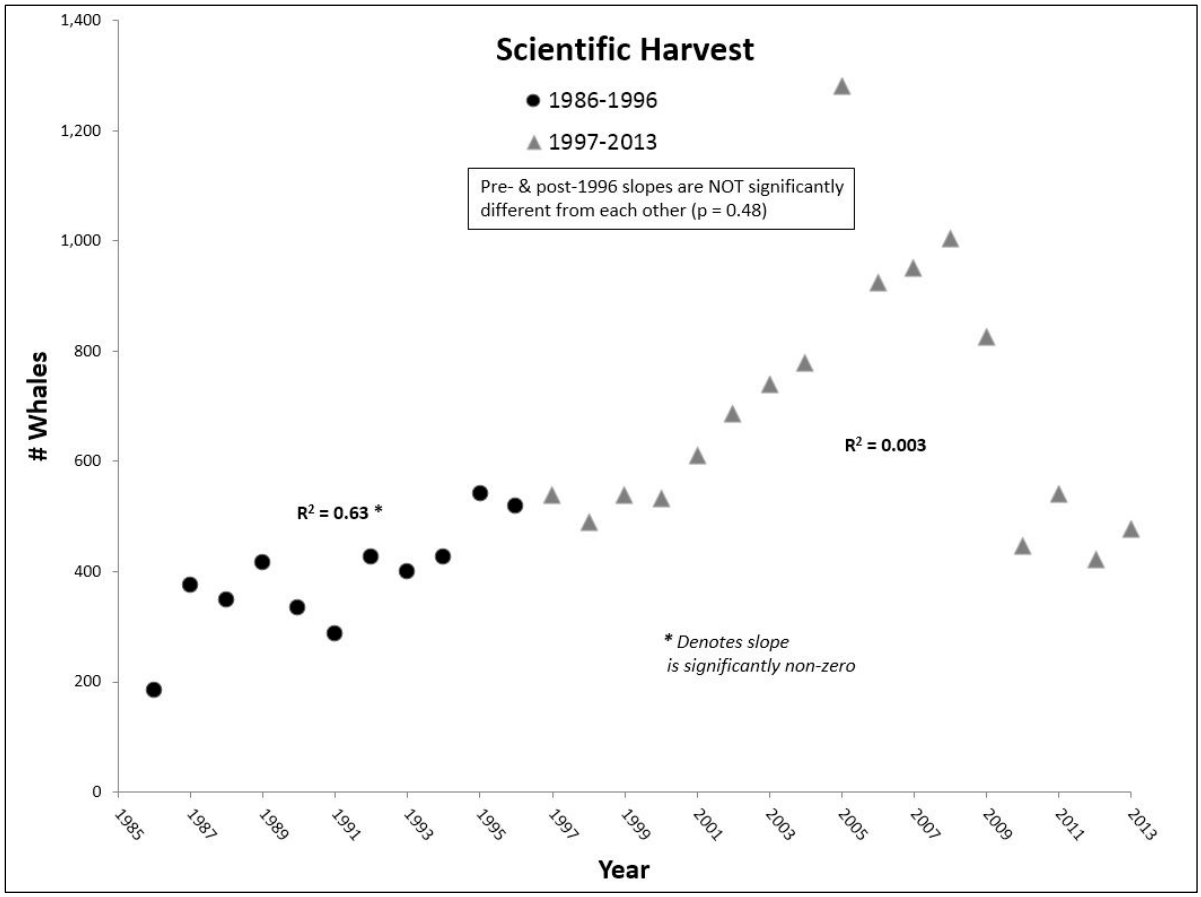


Figure 4-2.Trend analysis for scientific whaling before and after 1996. See Figure 3-19 for scientific harvest rates across the entire time series until 2019.

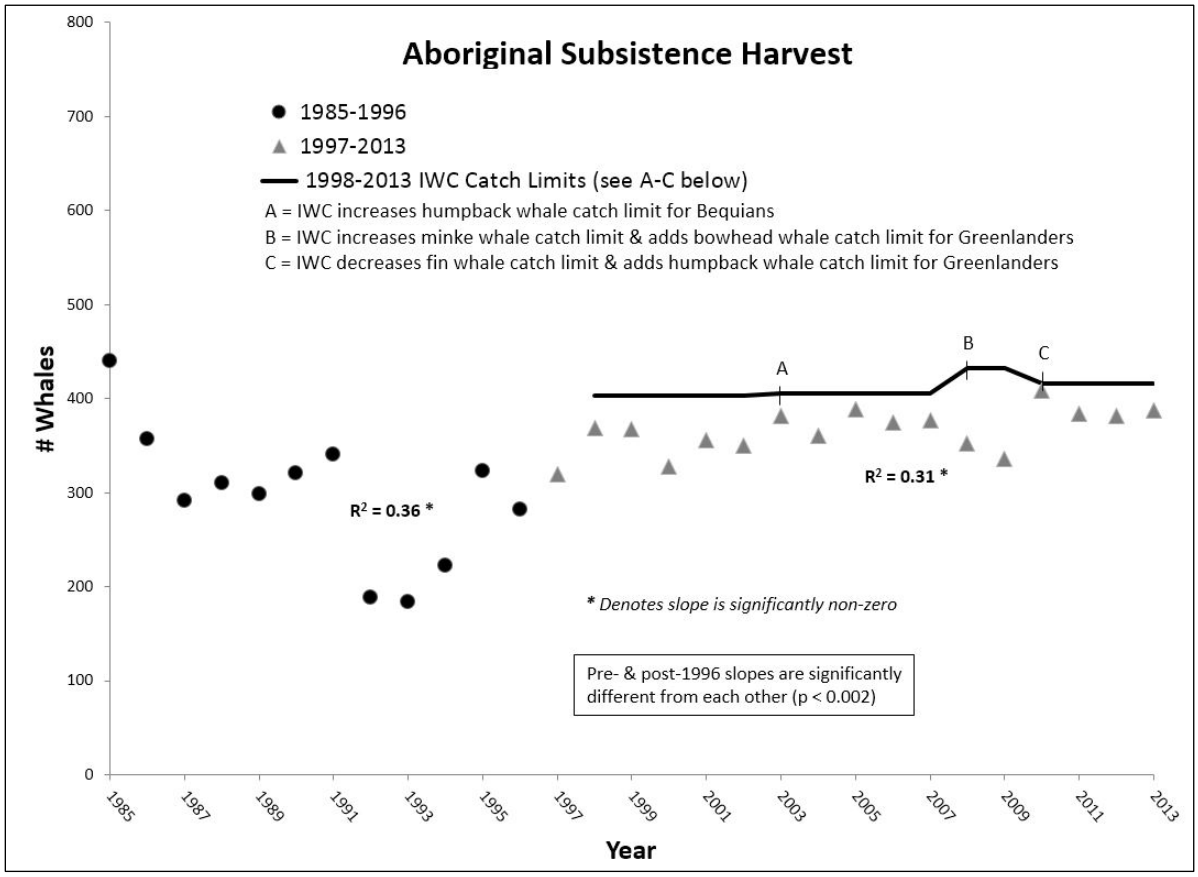


Figure 4-3. Trend analysis for aboriginal subsistence whaling before and after 1996. See Figure 3-20 for aboriginal subsistence harvest rates across the entire time series until 2021.

4.18 Alternative Comparison by Resource

Table 4-17 draws together the conclusions from the information and discussion presented above in the "Evaluation of Alternatives" subsections and summarizes the results of our analyses for each of the resources. This table is provided as an aid for the reader but is not intended to replace the more detailed discussion in the subsections above. Alternative 1 is the No-action Alternative and is the baseline for comparing the action alternatives.

Table 4-17. Summary of Effects of the Various Alternatives.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
WATER QUALITY	**Groundwater**	Current risk levels would continue.	No expected effect.	Similar to Alternative 2.	Similar to Alternatives 2 and 3.	Similar to Alternatives 2-4.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	None of the action alternatives are likely to increase the risk of adverse impacts on groundwater.
	Marine Waters	Current risk levels would continue (includes occasional disposal of drift whale carcasses).	Increased vessel traffic creates increased risk of fuel spills, but spills would be small scale, localized, and rapidly diluted. Spills could also be mitigated by modifying existing spill response plans. Negligible increased risks from disposal/leakage of whale carcasses.	Similar to Alternative 2, although restricting the hunt to offshore marine waters and the reliance on motorized vessels could increase the risk of spills in offshore marine waters. Negligible increased risks from disposal/leakage of whale carcasses.	Lower than Alternatives 2 and 3; fewer hunt-related trips and better weather conditions would reduce the risk of vessels capsizing in unanticipated storms. Negligible increased risks from disposal/leakage of whale carcasses. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Lower than Alternatives 2 and 3, but greater than Alternative 4 (based on number of hunt-related trips). Negligible increased risks from disposal/leakage of whale carcasses. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2 and 3.	Lower than Alternatives 2, 3, and 6 due to fewer days with hunt-related trips and better weather conditions in summer/fall hunt years, but greater than Alternatives 4 and 5 with more days with hunt-related trips. Negligible increased risks from disposal/leakage of whale carcasses.	All action alternatives are likely to increase the risk of adverse impacts on marine water quality. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
MARINE HABITAT AND DEPENDENT SPECIES	**Pelagic Species and Communities**	Current levels of disturbance would continue.	Increased vessel traffic and carcass hauling could result in local, short-lived disturbance of fish, zooplankton, and other pelagic species. No appreciable ecological effects.	Similar to Alternative 2, although the potential for disturbance would be largely restricted to offshore areas.	Lower than Alternatives 2 and 3 because of reduced hunt-related traffic. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Lower than Alternatives 2 and 3, but greater than Alternative 4 because of increased hunt-related traffic. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2 and 3, but greater than Alternatives 4 and 5 because of increased hunt-related traffic.	Lower than Alternatives 2, 3, and 6 due to fewer days with hunt-related activities (hunt-related traffic) and fewer harvested whales, but greater than Alternatives 4 and 5.	All action alternatives are likely to increase the risk of adverse impacts on pelagic species and communities. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.
	Benthic Species and Communities	Current levels of disturbance would continue.	Increased vessel traffic and carcass hauling could result in local, short-lived disturbance of marine plant, macroalgal, shellfish, and other benthic species. No appreciable ecological effects.	Similar to Alternative 2.	Similar to Alternatives 2 and 3. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2-4. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	All action alternatives could increase the risk of adverse impacts on benthic species and communities. Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
GRAY WHALES	**ENP Gray Whale Stock**	Current IWC-set catch limits would continue. ENP gray whale stock is likely to remain at or near carrying capacity.	No discernable impacts because overall harvest would remain at IWC-set levels.	Similar to Alternative 2.	Similar to Alternatives 2 and 3.	Similar to Alternatives 2-4.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	None of the action alternatives are likely to increase the risk of adverse impacts on the ENP gray whale stock.
	WNP Gray Whale Stock	The IWC has not set a catch limit for WNP gray whales.	A small likelihood (median probability = 0.056 to 0.084) of striking a WNP gray whale each year if the maximum number of strikes occur.	Smaller likelihood (median probability = 0.048 to 0.072) of striking a WNP gray whale compared to Alternative 2.	No impacts expected based on hunt timing.	Smaller likelihood (median probability = 0.04 to 0.06) of striking a WNP gray whale compared to Alternatives 2 and 3.	Smaller likelihood (median probability = 0.028 to 0.042) of striking a WNP gray whale compared to Alternatives 2, 3, and 5.	Smaller likelihood (median probability = 0.024 to 0.035) of striking a WNP gray whale in winter/spring hunt years compared to Alternatives 2, 3, 5, and 6; No impacts in summer/fall hunt years based on hunt timing.	All action alternatives (except perhaps Alternative 4) are likely to increase the risk of adverse impacts on the WNP gray whale stock. Alternative 2 would have the most risk while Alternative 4 would have the least risk.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
GRAY WHALES (CONTINUED)	**PCFG Gray Whales**	No hunting would occur in the PCFG seasonal range.	Under current conditions, 1.9 (maximum of 6) PCFG whales are likely to be killed per year. If more than 3.0 whales are killed, they may not be replaced in a subsequent year and would exceed current estimates of PBR. It is unclear whether the intensity of unsuccessful harpoon attempts (17 per year) or approaches (142 per year) would result in more than a temporary disturbance of PCFG whales and cause them to avoid this portion of their range.	Compared to Alternative 2, approximately 1.6 (maximum of 3) PCFG whales are likely to be killed per year, and fewer PCFG whales would be subjected to unsuccessful harpoon attempts (9.8 per year). The number of PCFG whales approached per year would be the same as Alternative 2.	Compared to Alternative 2, the hunt would focus on known males in the PCFG seasonal range. The maximum and likely number of PCFG whales killed per year is 0.5 (1 every other year). Also, fewer PCFG whales would be subjected to unsuccessful harpoon attempts (6 every other year) and approaches (58 every other year).	Compared to Alternative 2, approximately 0.25 (i.e., one PCFG whale every 4 years) and a maximum of one PCFG whale is likely to be killed per year. Far fewer PCFG whales would be subjected to unsuccessful harpoon attempts (1.5 per year) and approaches (33 per year). Effects would be the same as the No-action Alternative during years of hunt hiatus.	Compared to Alternative 2, approximately 0.96 (maximum of 3.5) PCFG whales are likely to be killed per year, and less than half the PCFG whales would be subjected to unsuccessful harpoon attempts (5.5 per year). The number of PCFG whales approached per year would be the same as under Alternative 2.	Compared to Alternative 2, Approximately 1.4 (maximum of 3 in winter/spring hunt years, 2 in summer/fall hunt years) PCFG whales are likely to be killed per year, and half the PCFG whales would be subjected to unsuccessful harpoon attempts, on average (8.5 per year). The number of PCFG whales approached would be up to 142, if the Tribe utilizes all allowable approaches each year and if each approach is made on a unique individual.	All action alternatives are likely to increase the risk of adverse impacts on PCFG gray whales. Alternative 2 would likely have the most impact, while Alternative 5 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
GRAY WHALES (CONTINUED)	**Gray Whales Using the Makah U&A and OR-SVI Areas**	No hunting would occur in local survey areas.	Under current conditions, 1.6 Makah U&A whales or 1.8 OR-SVI whales might be killed per year. It is unclear whether killed whales would be replaced in the same year in which they were killed or in subsequent years because of the uncertainties regarding PCFG recruitment. It is also unclear whether the intensity of unsuccessful harpoon attempts (11 to 12 per year) or approaches (82 to 92 per year) would result in more than a temporary disturbance of whales using local survey areas.	Compared to Alternative 2, slightly fewer Makah U&A or OR-SVI whales might be killed (1.4 to 1.6 per year, respectively). The number of such whales subjected to unsuccessful harpoon attempts would also be lower (8 to 9 per year); however, the number approached per year would be the same as under Alternative 2.	Compared to Alternative 2, the hunt would focus on known males in the PCFG seasonal range. The maximum and likely number of Makah U&A or OR-SVI whales killed per year is 0.5 (1 every other year). Also, fewer whales would be subjected to unsuccessful harpoon attempts (6 every other year) and approaches (58 every other year).	Compared to Alternative 2, far fewer Makah U&A or OR-SVI whales might be killed (0.21 to 0.24 per year, or roughly 1 whale every 4-5 years). The number of such whales subjected to unsuccessful harpoon attempts (approximately 1.2 to 1.4 per year) and approaches (28 to 32 per year) would also be much lower than under Alternative 2. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Compared to Alternative 2, fewer Makah U&A or OR-SVI whales might be killed (0.82 to 0.92 per year). The number of such whales subjected to unsuccessful harpoon attempts would also be lower (5 to 6 per year); however, the number approached per year would be the same as under Alternative 2.	Compared to Alternative 2, fewer Makah U&A and OR-SVI whales might be killed (1.4 per year, on average). The number of such whales subjected to unsuccessful harpoon attempts would also be lower (8.1 to 8.3 per year, on average); however we assume that the number approached under Alternative 7 would be 142 if the Tribe utilizes all allowable approaches every year and that each approach is made on a unique individual.	All action alternatives are likely to increase the risk of adverse impacts on gray whales using local survey areas. Alternative 2 would likely have the most impact, while Alternative 5 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
GRAY WHALES (CONTINUED)	**Individual Whales**	On average, 124 whales could be harvested in the Chukotkan hunt annually, experiencing manner and time to death particular to that hunt. Approximately 3 percent would be struck and lost.	On average, four whales annually could be harvested in a Makah hunt rather than a Chukotkan hunt. Manner and time to death would be similar to the Chukotkan hunt (if Makah use grenades) or shorter (if Makah use a .50 caliber rifle). As many as 43 percent (i.e., 3 out of 7 whales) could be struck and lost in a Makah hunt, compared to approximately 3 percent under Alternative 1. It is likely that non-lethal takes would not result in more than a temporary disturbance of whales.	Similar to Alternative 2 except that motorized hunts may result in quicker kills and fewer struck-and-lost whales. The number of whales subjected to disturbance from unsuccessful harpoon attempts would also be lower (36 per year); however, the number approached per year would be the same as under Alternative 2. Approaches by non-hunt-related vessels might also be lower because of the offshore nature of this hunt.	Similar to Alternative 2 except that summer/fall hunts would have better ocean and weather conditions that may result in quicker kills and fewer struck-and-lost whales. Also, fewer whales would be subjected to disturbance from unsuccessful harpoon attempts (6 every other year) and approaches (58 every other year).	Similar to Alternative 2 except that the number of whales subjected to disturbance from unsuccessful harpoon attempts (30 per year) and approaches (122 per year) would be lower. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2 except that the number of whales subjected to disturbance from unsuccessful harpoon attempts would be lower (21 per year), while the number approached would be the same.	Similar to Alternative 2 except the average annual harvest in the Makah hunt would be lower (2 per year, on average), and fewer whales would be subjected to unsuccessful harpoon attempts per year (16 on average), while the number approached would be the same. An alternating hunt season would allow the Tribe to hunt in summer/fall months every other year when better ocean and weather conditions may result in quicker kills and fewer struck-and-lost whales.	All action alternatives are likely to increase the risk of adverse impacts on individual gray whales. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
OTHER WILDLIFE SPECIES	**Marine Mammals**	Current levels of disturbance would continue.	Hunt-related activities would increase the number of vessels and aircraft and the amount of noise in the action area over approximately 60 days. Chance of disturbance is low because the action area is large, most hunting would occur well offshore of pinniped haulouts, and most marine mammals do not associate with gray whales (except killer whales). Any disturbance would be temporary and localized. Injury from vessel collisions or projectiles is unlikely.	Similar to Alternative 2, although limiting hunt to offshore marine areas would likely reduce any disturbances and risks to marine mammals (e.g., all pinniped haulouts are within 5 miles of shore).	Similar to Alternatives 2 and 3, but fewer hunt-related trips. There is a greater potential for hunt-related activities to disturb seals and sea lions because hunted whales would likely be feeding closer to shore and in close proximity to islands, rocks, and pinniped haulouts. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Lower than Alternative 2 (because of fewer hunt-related trips) and Alternative 4 (because of seasonal restrictions), but potentially higher than Alternative 3 because hunting would be closer to shore. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Lower than Alternatives 2, 3, and 6 due to fewer days with hunt-related activities as well as fewer gunshots and grenade explosions, however the summer/fall hunt activities could have a great potential for disturbance to pinnipeds, as described under Alternative 4. Greater potential for disturbance than Alternative 4 and 5 due to larger number of days with hunt-related activities.	All action alternatives could increase the risk of adverse impacts on marine mammals. Alternative 2 would likely have the most impact, while Alternative 5 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
OTHER WILDLIFE SPECIES (CONTINUED)	**Other Marine Wildlife**	Current levels of disturbance would continue.	Hunt-related activities would increase the number of vessels and aircraft and the amount of noise in the action area over approximately 60 days. Disturbance would vary among species and habitat associations and in most cases would be localized and temporary. Most serious impact would be nest abandonment. Tatoosh and White Rock Islands would have buffers. Concerns about nest abandonment could be addressed by including buffers around other rocks and islands.	Similar to Alternative 2, although limiting the hunt to offshore marine areas would likely reduce any risks to other marine wildlife (e.g., all rocks and islands used for nesting are within 5 miles of shore).	Although hunting would occur on fewer days than under Alternatives 2 and 3, disturbance of seabirds, bald eagles, and murrelets could be higher given the overlap with nesting, fledging, and foraging periods. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Lower than Alternative 2 (because of fewer hunt-related trips) and Alternative 4 (because of seasonal restrictions), but potentially higher than Alternative 3 because hunting would be closer to shore. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Lower than Alternatives 2, 3, and 6 due to fewer days with hunt-related activities as well as fewer gunshots and grenade explosions, however summer/fall hunt periods overlap with nesting, fledging, and foraging periods of seabirds, eagles, and murrelets. Greater potential for disturbance than Alternative 4 and 5 due to larger number of days with hunt-related activities.	All action alternatives could increase the risk of adverse impacts on other marine wildlife. Alternative 2 would likely have the most impact while Alternative 5 would likely have the least impact due to seasonal restrictions and limited days with hunt-related activities.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
Environmental Justice	**Economics**	Current levels of tourism would continue. Current occasional household use of products from drift whales and whales incidentally caught in fishing operations (potentially one whale every 10 years).	Potential for short-term increase in visitors to Neah Bay during 7 to 30 days of hunting. Other visitors might avoid Neah Bay because of a hunt. Long-term effects on number of visitors are uncertain. Household use of products from up to four whales.	Similar to Alternative 2, but possibly fewer whale products available when hunts are curtailed because of the mortality limit on PCFG whales.	Fewer hunt days and whales would result in a smaller increase in economic benefits than under all other Alternatives. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar or lower economic benefits than Alternatives 2 and 3 because of fewer hunt days and number of whales likely harvested. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar or lower economic benefits than Alternatives 2 and 3 (but higher than Alternatives 4 and 5) because of number of whales likely harvested.	Similar to lower economic benefits than Alternatives 2, 3, and 6 but higher than Alternatives 4 and 5 because of the number of whales likely harvested (2 per year, on average).	All action alternatives are likely to have a mix of beneficial and adverse impacts on economics. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.
	Ceremonial and Subsistence Resources	Current limited availability of drift whales and whales incidentally caught in fishing operations (potentially one whale every 10 years). Lack of access to resource has disproportionate impact on Tribe.	Consistent with Makah's stated need for access to ceremonial and subsistence resources.	Similar to Alternative 2, but possibly fewer whale products available when hunts are curtailed by the mortality limit on PCFG whales.	Fewer hunt days and whales would result in a smaller increase in ceremonial and subsistence effects than under all other Alternatives. Stored whale products may still be available during years of hunt hiatus.	Similar or lower ceremonial and subsistence effects than Alternatives 2 and 3 because of fewer hunt days and number of whales likely harvested. Stored whale products may still be available during years of hunt hiatus.	Similar or lower ceremonial and subsistence effects than Alternatives 2 and 35 (but higher than Alternatives 4 and 5) because of number of whales likely harvested.	Similar or lower ceremonial and subsistence effects than Alternative 2, 3, and 6, but higher than Alternative 4 and 5 because of the number of whales likely harvested.	All action alternatives are likely to have beneficial impacts on ceremonial and subsistence resources. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
ENVIRONMENTAL JUSTICE (CONTINUED)	**Social Environment**	Potential for tension between Makah Tribe and others, including federal government.	Potential for tension between Makah Tribe and others. Potential for social bonding among some tribal members and tension among others. Native Americans generally might be reassured by U.S. support for traditional tribal activity.	Similar to Alternative 2.	Similar to Alternatives 2 and 3, although limits on maximum number of whales struck/harvested would result in fewer occasions for hunt-related social interactions compared to Alternatives 2 and 3, and tension may be reduced during years of a hunt hiatus.	Similar to Alternatives 2-4, although tension may be reduced during years of a hunt hiatus.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	All action alternatives are likely to have a mix of beneficial and adverse impacts on the social environment. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.

	Resources	Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
SOCIAL ENVIRONMENT	**Makah Tribal Members, Other Tribes, and Other Individuals and Organizations**	Likely no protests and related social tensions. No change from current level of tension between members opposed to the hunt and those supporting it. The latter may feel continued frustration with U.S. government.	Tension could increase between hunt opponents and supporters, with opponents likely to protest. Supporters are likely to feel reassured by U.S. government support for traditional tribal activity.	Some hunt opponents may feel less tension if there is a reduced likelihood of the Tribe killing a PCFG whale in nearshore waters. Tension may increase for some hunt supporters and opponents if there is an emphasis on hunting without the traditional use of canoes. The degree of tension by hunt opponents could be affected by the number of whales killed. The maximum number of whales killed would be 3, predicted at 1.2, resulting in lower potential of social tension in comparison to Alternative 2.	Similar to Alternatives 2 and 3, although the decrease in hunting days would result in fewer opportunities for expression of social tension than other alternatives with sustained hunt times. Degree of tension expressed by hunt opponents could be affected by whales killed. Maximum number of whales hunted under Alternative 4 is one every other year, potentially resulting in a lesser degree of social tension than all other alternatives.	Similar to Alternatives 2-4, although the decrease in hunting days (as well as the hunt hiatus) would result in fewer opportunities for expression of social tension than other alternatives with sustained hunt times. The maximum of one whale being killed would decrease the potential for social tension in comparison to other alternatives.	Similar to Alternatives 2-5, although having a lower potential for expression of social tension than Alternative 2 but a greater potential than Alternatives 4 and 5 based on the likely number of whales killed.	Similar to Alternatives 2-6, although having a lower potential for expression of social tension than Alternatives 2, 3, and 6 but a greater potential than Alternatives 4 and 5 based on the likely number of whales killed.	All action alternatives are likely to have a mix of beneficial and adverse impacts on Makah tribal members, other tribes, and other individuals and organizations. Alternative 2 would have the greatest likelihood of mixed impacts while Alternative 4 would have the least.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
CULTURAL RESOURCES	**Sites with Cultural Significance**	No change from current conditions.	It is possible, but improbable, that activities related to a whale hunt would damage or disturb (e.g., encroachment by observers) existing, listed archaeological or historic sites. Unlisted sites traditionally used by Makah whalers would be enhanced by their use for whale hunting-related ceremonies.	Similar to Alternative 2.	Similar to Alternatives 2 and 3. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2-4. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	All action alternatives are likely to have a mix of beneficial and adverse impacts on sites with cultural significance. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
CEREMONIAL AND SUBSISTENCE RESOURCES	**Access to Whale Hunting Opportunities**	No change from current conditions, i.e., no access to whale hunting opportunities.	Compared to No-action Alternative, increased access to hunting opportunities associated with harvesting an average of four whales per year.	Similar to or less than Alternative 2 because hunts would be restricted to offshore marine waters and could be curtailed by the mortality limit on PCFG whales.	Fewer hunt days and whales would result in less access to hunting opportunities than under other Alternatives. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Fewer hunt days and whales would result in less access to hunting opportunities than under Alternatives 2 and 3. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar or lower access to hunting opportunities than Alternatives 2, and 3 but higher than Alternatives 4 and 5 because of number of hunt days and whales likely harvested.	Similar or lower access to hunting opportunities than Alternative 2, 3, and 6, but higher than Alternatives 4 and 5 because of the number of hunt days and whales likely harvested.	All action alternatives are likely to have beneficial impacts on access to whale hunting opportunities. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.
	Subsistence Use	The Tribe could pursue some subsistence uses of whales (such as using drift whales or whales incidentally caught in fishing operations), but they would have limited cultural value if not practiced in connection with actual whale hunts.	Compared to the No-action Alternative, increased subsistence use of whales because of opportunity to hunt (up to 33 estimated days of hunting) and opportunity to process, share, and consume up to an average of four whales per year (maximum of five).	Similar to Alternative 2, except motorized hunts may increase the opportunity for subsistence use of whales in more seasons (including southbound whales in the winter). The Tribe's subsistence use would be less than Alternative 2 because no hunting would be allowed within 5 miles of the shore and restrictions on the mortality of whales could result in curtailment of hunting activities in some years, potentially before any whales are harvested.	The maximum harvest limit would satisfy less than 15% of the number of whales requested by the Makah Tribe. Stored whale products may still be available during years of hunt hiatus.	The Tribe's subsistence use of whales would be less under Alternative 5 than Alternatives 2 and 3 because fewer whales would likely be harvested. Compared to Alternative 4, subsistence use could be greater because of the increase in the maximum number of whales harvested per year. Stored whale products may still be available during years of hunt hiatus.	Alternative 6 would impose an additional requirement on the Tribe requiring them to submit a new request for waiver and invest resources in the pursuit of a waiver if they desired to continue hunting after the initial 10-year waiver and regulation lapse. The average of 3.5 whales per year would be slightly lower than the amount requested by the Tribe to satisfy their needs (four whales). The Tribe's subsistence use of whales would be greater under Alternatives 2 and 3 and less under Alternatives 4 and 5 in comparison to Alternative 6 on the basis of allowance of harvested whales per year.	Alternative 7 would impose an additional requirement on the Tribe requiring them to submit a new request for waiver and invest resources in the pursuit of a waiver if they desired to continue hunting after the initial 10-year waiver and regulation lapse. The average of 2 whales per year would be half the amount requested by the Tribe to satisfy their needs (four whales). The Tribe's subsistence use of whales would be greater under Alternatives 2, 3, and 6and less under Alternatives 4 and 5 in comparison to Alternative 7 on the basis of allowance of harvested whales per year.	All action alternatives are likely to have beneficial impacts on subsistence use of whale products. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
CEREMONIAL AND SUBSISTENCE RESOURCES (CONTINUED)	**Cultural Identity**	Tribal identity could erode in the absence of opportunities to participate in an activity central to Makah cultural identity.	Makah whale-hunting rituals, spiritual training, songs, dances, and ceremonial activities could increase over current conditions and regularly recur, reinforcing Makah cultural identity. The opportunity to regularly harvest, process, share, and consume whale products could increase tribal members' sense of community. The whale-hunting ceremonies could provide an additional social framework, which could contribute to community social and spiritual stability.	Similar to Alternative 2.	Similar to Alternatives 2 and 3.	Similar to Alternatives 2-4.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	All action alternatives are likely to have beneficial impacts on the Tribe's cultural identity.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
NOISE	**Noise Levels at Receiving Properties**	No change from current conditions.	Increased noise levels from vessels and aircraft at receiving properties in Neah Bay and possibly along State Route 112 east of Neah Bay during an estimated 33 days of hunting and 60 days of hunt-related activity. Increased noise levels from 64 rifle shots or 12 grenade explosions. Noise may also be audible to recreational users in the hunt vicinity. Limited number of recreational visitors may be affected because hunting would occur in winter and early spring when visitation is lower.	Similar to Alternative 2 except that limiting hunt activity to offshore marine waters could reduce noise levels (especially from weapons discharge) at receiving properties because of increased distance.	Similar increased noise levels as in Alternative 2, occurring on fewer days compared to all other action alternatives. Fewer rifle shots (16 every other year) and grenade explosions (3 every other year) compared to Alternative 2. This alternative has a greater potential than any others to disturb recreational users in the action area on any given day of hunting or hunt-related activities because of hunt time being in peak usage during summer months and the targeting of nearshore feeding whales. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar increased noise levels as in Alternative 2. Disturbance would occur on fewer days than Alternatives 2 and 3 but more days than Alternative 4. Same number of rifle shots and grenade explosions as Alternative 4. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar increased noise levels as in Alternative 2 (but a larger increase in noise levels than Alternatives 4 and 5 because of more hunting days and weapons discharges). Similar number of rifle shots (56) and grenade explosions (11) as Alternatives 2 and 3 (with 64 rifle shots and 12 grenade explosions).	Similar increased noise levels as Alternative 2, occurring on fewer days than Alternatives 2, 3, and 6 but more days than Alternatives 4 and 5. Fewer rifled shots (40) and grenade explosions (8), on average, than Alternatives 2, 3, and 6 but more than Alternatives 4 and 5. Hunt activities during the summer/fall hunt seasons have a greater potential to disturb recreational users in the action area on any given day because of peak usage during the summer months and targeting of nearshore feeding whales.	All action alternatives are likely to increase the risk of adverse impacts on noise levels at receiving properties. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
AESTHETICS	**On-scene Observers**	Current lack of opportunity to view an authorized whale hunt would continue.	Harvest of four whales during an estimated 33 days of hunting would be visible to observers at beaches and vantage points along coastal portion of action area. Hunting during winter/spring period when visitation is lower would reduce number of unintentional observers.	Compared to Alternative 2, there would be about the same number of days of hunting (20 versus 7 to 30), but because hunting would be limited to offshore marine waters, fewer on-scene observers would unintentionally observe a whale being hunted.	Compared to Alternatives 2 and 3, there would be fewer days with hunt-related trips and opportunities for on-scene observers. However, the number of potential casual observers present in the action area on any given day of hunting would be greater under Alternative 4 than under the other action alternatives because hunting would occur during the summer months when recreational use of the action area is higher. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Compared to Alternatives 2 and 3, there would likely be fewer days of hunt-related trips and opportunities for on-scene observers. Alternative 5 would result in more days of hunt-related trips than Alternative 4, but those days would occur during the winter and spring months when recreational use of the action area is comparatively low. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Compared to Alternatives 2, 3, and 6, there would be fewer days of hunting, on average, per year, however the number of potential casual observers present in the action area on any given day during the summer/fall hunts would be greater than during the winter hunt seasons of those alternatives. Compared to Alternatives 4 and 5, Alternative 7 would present greater opportunities for on-scene observers due to the number of hunting days.	All action alternatives are likely to have a mix of beneficial and adverse impacts on on-scene observers. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.

	Resources	Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
	Media Observers	Current lack of opportunity to view an authorized whale hunt would continue.	Any whale hunts would receive media coverage. However, inclement weather during the hunt period could limit media coverage.	Similar to Alternative 2 except that offshore hunting may reduce the ability of media outlets to directly observe hunt activity.	Similar to Alternatives 2 and 3, although having fewer hunt days would likely result in a smaller increase in media attention than other alternatives. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Compared to Alternatives 2 and 3, there would likely be fewer days of hunt-related trips and presence of media observers. Alternative 5 would result in more days of hunt-related trips than Alternative 4. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Compared to Alternative 2, 3, and 6, there would likely be fewer days of hunt0related trips and presence of media observers, but more than Alternatives 4 and 5.	All action alternatives are likely to have a mix of beneficial and adverse impacts on media observers. Alternative 2 would have the greatest likelihood of mixed impacts while Alternative 4 would have the least.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
TRANSPORTATION	**Highway, Marine, and Air Traffic**	No change from current conditions.	Increased hunt-related traffic could increase potential for interference with highway, marine, or air traffic in the action area and could increase the risk of traffic accidents. However, hunts would be limited to the winter and early spring months and would not overlap with peak periods for highway or air traffic.	Similar to Alternative 2, although hunting would take place further offshore.	Fewer days of hunting (but in the summer) would likely result in fewer occasions for interference with highway, vessel, and air traffic, but a greater potential for each occasion to result in interference. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternatives 2 and 3, although the increased potential for interference, accidents, or impediments would be limited to the months of December and May (more likely during May), outside of the peak periods for highway and air traffic. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Fewer days of hunting per year (on average) than Alternative 2, 3, and 6 would likely result in fewer occasions to interference with highway, vessel, and air traffic, but a greater potential for each occasion to result in interference in summer/fall hunt seasons.	All action alternatives are likely to increase the risk of adverse impacts on highway, marine, and air traffic. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
PUBLIC SERVICES	**Law Enforcement and Medical Facilities**	No change from current conditions.	Hunt-related protests could increase law enforcement needs, possibly diverting such resources from other missions. Persons suffering hunt-related injuries that exceed the capacities of local health facilities could be transported to other facilities in the region.	Similar to Alternative 2, except that potential motorized vessel hunts offshore in the winter and early spring could result in fewer hunt-related protest activities but could also increase the need for search/rescue and medical attention because of boating accidents associated with rough seas.	The potential for conflict between hunt-related law enforcement needs and other law enforcement needs would be higher during the summer; however, there is less potential for boating accidents because of better sea conditions. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Less than Alternatives 2 and 3 because of fewer hunt-related trips but greater than alternative 4. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2.	Less than Alternatives 2, 3, and 6 because of fewer hunt-related trips but greater than Alternatives 4 and 5. The potential for conflict between hunt-related law enforcement needs and other law enforcement needs would be higher during the summer/fall hunt seasons; however, there is less potential for boating accidents because of better sea conditions.	All action alternatives could increase the risk of adverse impacts on law enforcement and medical facilities. Alternative 2 would likely have the most impact, while Alternative 4 would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
PUBLIC SAFETY	**Injury from Weapons, Boating Accidents, and Land-based Protest Activities**	No change from current conditions.	Makah hunters, other participants, protesters, and bystanders would be at risk of injury from weapons, protest activities, or boating accidents during the winter and spring. Increased potential for hunt-related injury falls disproportionately on tribal members (but risk is voluntarily assumed by the Tribe).	The risk of injury from protest activities would be similar to Alternative 2. Limiting hunting to offshore marine waters would result in less risk of weapon-related injuries to bystanders on shore. However, boating accidents and weapon-related injuries for persons associated with the hunt could increase given the less favorable weather and sea conditions off shore.	Less than Alternatives 2 and 3 because of fewer hunting days and weapons discharges plus the ability to hunt during summer months (with more favorable weather and ocean conditions) would decrease the potential of injury from weapons and boating accidents. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Less than Alternatives 2 and 3 because of fewer hunting days and weapons discharges. Effects would be the same as the No-action Alternative during years of hunt hiatus.	Similar to Alternative 2, although slightly less risk because of fewer weapons discharges.	Less than Alternatives 2, 3, and 6 because of fewer hunting days and weapons discharges, but greater than Alternatives 4 and 5. Hunts during the summer/fall hunt seasons with more favorable weather and ocean conditions would further decrease the potential from weapons and boating accidents on those days.	All action alternatives are likely to increase the risk of adverse impacts because of injury from weapons, boating accidents, and land-based protest activities. Alternative 2 would likely have the most impact, while Alternative 4would likely have the least impact.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
HUMAN HEALTH	**Nutritional Benefits, Environmental Contaminants, and Exposure to Food-borne Pathogens**	No change from current conditions.	Insufficient information about nutritional value and contaminant levels in current Makah diet to predict the precise changes in exposure to contaminants or food-borne pathogens or the nutritional composition of the Makah diet if tribal members have the opportunity to consume freshly harvested whale. However, whale products, in particular blubber, could contain higher levels of certain contaminants.	Same lack of information as noted for Alternative 2. Nutritional benefits and contaminant exposure would be similar to Alternative 2 given the similar number of whales likely to be harvested each year.	Same lack of information as noted for Alternative 2. Nutritional benefits and contaminant exposure would be less than Alternatives 2 and 3 given the lower number of whales likely to be harvested each year.	Similar to Alternative 4 given the potentially lower number of whales likely to be harvested each year.	Similar to Alternative 2.	Same lack of information as noted for Alternative 2. Nutritional benefits and contaminant exposure would be less than Alternatives 2, 3, and 6 but greater than Alternatives 4 and 5 given the expected number of whales harvested each year.	All action alternatives are likely to have a mix of beneficial and adverse impacts associated with nutritional benefits, environmental contaminants, and exposure to food-borne pathogens. Alternative 2 would have the greatest likelihood of mixed impacts, while Alternative 4 would have the least.

Resources		Alternative 1 No-action	Alternative 2 Tribe's Proposed Action	Alternative 3 Offshore Hunt	Alternative 4 Summer/Fall Hunt	Alternative 5 Split-season Hunt	Alternative 6 Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits	Alternative 7 Composite Alternative (Preferred)	Impact Relative to No-action Alternative
NATIONAL AND INTERNATIONAL REGULATORY ENVIRONMENT	**Marine Mammals Nationally**	It is uncertain, but possible, that a decision not to authorize a Makah whale hunt could discourage future requests for a waiver of the MMPA.	Authorizing a Makah hunt may prompt other requests by Indian tribes for a similar waiver of the MMPA. The outcome of future requests would depend on the specific facts presented.	Similar to Alternative 2.	Similar to Alternatives 2 and 3.	Similar to Alternatives 2-4.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	It is uncertain what, if any, impacts the action alternatives are likely to have on the national regulatory environment for marine mammals.
	Worldwide Whaling	A U.S. decision not to authorize a Makah whale hunt is unlikely to influence the position of the United States or other countries regarding IWC issues.	It is unlikely that authorizing a Makah hunt would increase whaling worldwide by emboldening pro-whaling countries.	Similar to Alternative 2.	Similar to Alternatives 2 and 3.	Similar to Alternatives 2-4.	Similar to Alternatives 2-5.	Similar to Alternatives 2-6.	It is uncertain what, if any, impacts the action alternatives are likely to have on worldwide whaling.

Section 5

Cumulative Effects

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

5.0 CUMULATIVE EFFECTS

5.1 Background

5.1.1 Context for Analysis

NEPA defines cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Section 3, Affected Environment, describes the current status of each resource, which reflects the effects of past and current actions. Section 4, Environmental Consequences, evaluates the effects of the Makah Tribe's proposed hunt and the alternative actions on the current status of each resource. This section now considers the cumulative effects of each alternative on each resource in the context of the effects of past actions, current conditions, and reasonably foreseeable future actions and conditions.

5.1.2 Geographical Area and Temporal Scope for Analysis

The Environmental Protection Agency (EPA 1999) makes the following recommendations regarding the geographical area of cumulative impact analyses:

- Geographic boundaries used in cumulative impact analysis should be based on all resources of concern and all of the actions that may contribute, along with the project effects, to cumulative impacts.
- Generally, the scope of analysis will be broader than the scope of analysis used in assessing direct or indirect effects.
- The proper spatial scope of the analysis should include geographic areas that sustain the resources of concern. Importantly, the geographical boundaries should not be extended to the point that the analysis becomes unwieldy and useless for decision-making.
- In many cases, the analysis should use an ecological region boundary that focuses on the natural units that constitute the resources of concern.

Separate guidance by the Council on Environmental Quality (CEQ 1997) notes the following steps for determining the appropriate area for the analysis of cumulative impacts:

1. Determine the area that will be affected by the proposed action; CEQ refers to this area as a "project impact zone."
2. Identify the resources within that zone that could be affected by the proposed action.

3. Determine the geographic areas occupied by those resources outside of the project impact zone. In most cases, the largest of these areas will be the appropriate area for the analysis of cumulative impacts.

4. Determine the affected institutional jurisdictions, both for the proposing agency and other agencies or groups.

The CEQ guidance also suggests that for migratory wildlife (e.g., gray whales), possible areas that could be used in a cumulative impact analysis could include breeding grounds, migration routes, wintering areas, or the total range of affected population units.

As described in Section 1, Purpose and Need, and Section 2, Alternatives, the action alternatives would restrict gray whale hunts to the coastal portion of the Makah Tribe's U&A situated within the larger action area defined as the entire U&A and adjacent marine waters and land areas (refer to Figure 1-1). In accordance with CEQ guidance, we consider this larger area to be the project impact zone (referred to in this FEIS as "action area"). The resources within the action area that could be affected by the proposed action are those addressed in Section 3, Affected Environment. Most are found within the action area, but some resources (e.g., gray whales and ships) are highly mobile and occupy areas outside of that area. After reviewing guidance by the CEQ (1997) and EPA (1999) and the alternatives and resources addressed in this FEIS, we believe that the geographic area best suited for analyzing cumulative impacts consists of the entire range of the ENP stock, from the Arctic to Mexico. This area contains essential breeding, feeding, and migration habitats for the ENP stock of gray whales (which the Tribe proposes to hunt), as well as the PCFG whales that are a key resource of interest in this FEIS. Within this area, there are a wide range of activities that affect gray whales, ranging from site-specific impacts like ship strikes to large-scale impacts like climate change. In our analysis of cumulative impacts, we discuss possible effects on WNP whales where appropriate; however, we did not include the Western North Pacific in our analysis area because it is not within the primary range of ENP whales that are the focus of the proposed action and action alternatives.

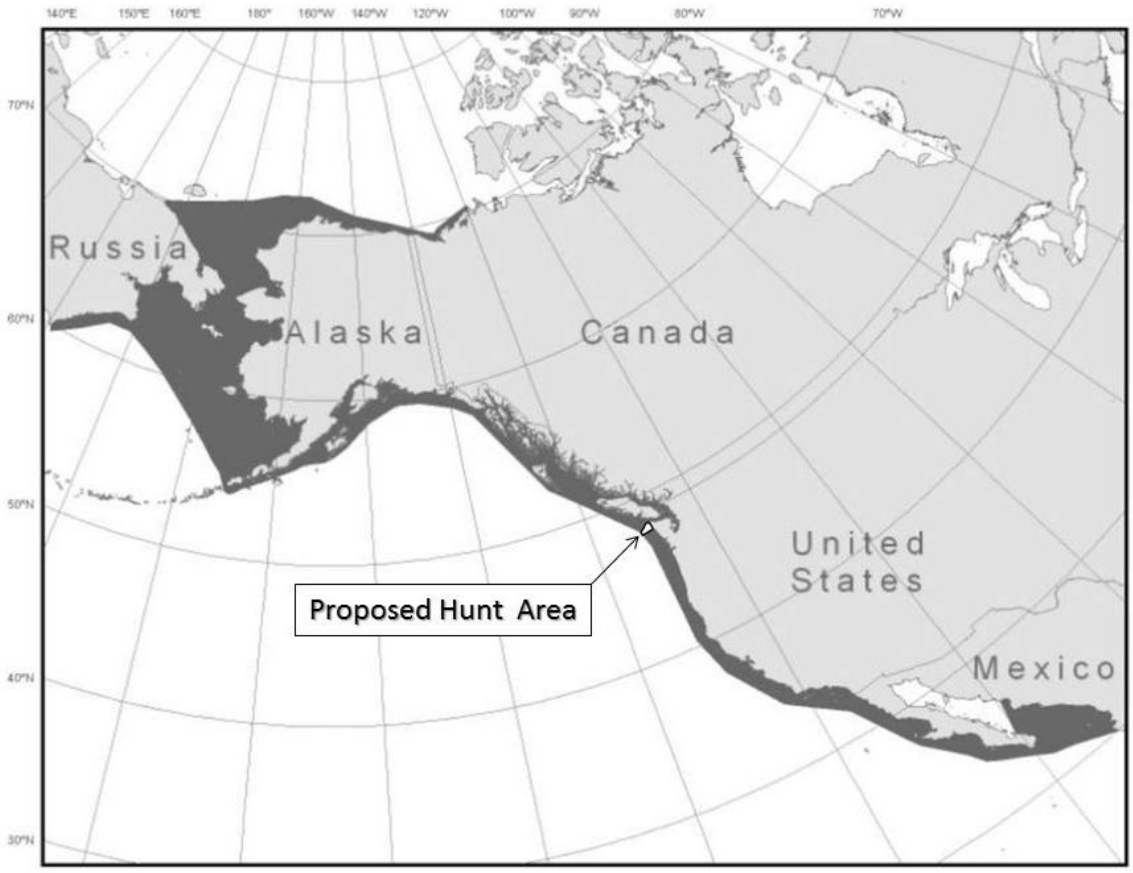


Figure 5-1. Analysis area (dark shading) for cumulative impacts relative to the proposed hunt area/project area. Adapted from Carretta et al. (2014).

To determine the temporal scope of our cumulative impact analysis, we reviewed guidance by the CEQ (1997) that notes the appropriate time frame should account for how far into the future the effects of the proposed action are projected to last. Similarly, guidance by the EPA (1999) notes that the most common temporal scope is the life of the project and that the analysis "should extend until the resource has recovered from the impact of the proposed action." We believe that it is not appropriate to limit our cumulative impact analysis to a specific time frame because the proposed action (and all but one of the other action alternatives) would have impacts for an indefinite period of time. Gray whales are long-lived animals and take 6 to 12 years to mature (Subsection 3.4.3.1.5, Reproduction and Calf Production), so it may take a long time to detect if the proposed action or action alternatives are affecting gray whales as expected under current harvest models (Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates, IWC Implementation Review of PCFG Gray Whales). Thus, we believe it is important to consider whether removing even a few animals per year (especially over an extended period of time) from the relatively small PCFG could have long-lasting impacts, therefore, we recognize

the long-term nature of the proposed action and its potential effects by acknowledging and considering them into the future.

5.1.3 Past, Present, and Reasonably Foreseeable Future Actions

Relevant past and present actions are those that have influenced the current condition of the resource. For the purposes of this FEIS, past and present actions include both human-controlled events (such as subsistence harvest and commercial fisheries) and natural events (such as climate change) that also can be influenced by human activity. The cumulative impact analysis relies on the descriptions of current conditions (based on past and present actions) presented in Section 3, Affected Environment.

Reasonably foreseeable future actions are those that (1) have already been or are in the process of being funded or permitted, (2) are described or included as priorities in government planning documents, or (3) are likely to occur or continue based on traditional or past patterns of activity. Our analysis considers both human and natural actions that are occurring in the affected environment and affecting the same resources as the proposed action and alternatives. Reasonably foreseeable future actions considered must also fall into the temporal and geographic scope described in Subsection 5.1.2, Geographical Area and Temporal Scope for Analysis.

Reasonably foreseeable future actions were identified from scoping for this EIS and the large body of information used to develop Section, 3 Affected Environment, with particular attention given to those actions likely to affect gray whales. We determined that the following actions should be addressed in our cumulative impact analysis: harvest of gray whales, shipping, military exercises, fisheries, tourism, marine energy and mining projects, scientific research, natural mortality, climate change, and U.S. government policy. Table 5-1 compares those actions with past and present actions, Subsections 5.1.3.1 through 5.1.3.10 describe each action's impacts and its relevance to our analysis, and Figures 5-2 and 5-3 show the location of several of these actions (i.e., those with available geographic data) relative to the analysis area and the proposed hunt area/action area.

Table 5-1. Past, present, and reasonably foreseeable future actions considered in the cumulative impact analysis.

Action	Past and Present	Reasonably Foreseeable Future
Harvest	Subsistence and commercial harvest	Subsistence harvest
Shipping	Shipping and liquefied natural gas terminals	Shipping and liquefied natural gas terminals

Military Exercises	Naval testing and training	Naval testing and training
Fisheries	Pot and net fisheries	Pot and net fisheries
Tourism	Whale watching	Whale watching
Marine Energy and Mining Projects	Oil and gas exploration and extraction, and mineral and salt mining	Oil and gas exploration and extraction, mineral and salt mining, and wave and tidal energy projects, offshore wind energy
Scientific Research	Biological and oceanographic surveys	Biological and oceanographic surveys
Natural Mortality	Predation, disease, and starvation	Predation, disease, and starvation
Climate Change and Ocean Acidification	Global warming and ocean acidification	Global warming and ocean acidification
U.S. Government Policy	Past government policies discouraging or forbidding some cultural practices, including those related to whaling	Maintenance of Treaty between the U.S. and Makah Tribe

5.1.3.1 Harvest

Aboriginal hunters in the North Pacific have harvested gray whales for more than a thousand years (Krupnik 1984; O'Leary 1984). Details and issues related to past and present aboriginal harvest of gray whales can be found in the following subsections of this FEIS:

- 1.2.4.1.3, IWC Aboriginal Subsistence Whaling
- 1.4.1, Summary of Aboriginal Subsistence Whaling Catch Limits
- 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates
- 3.4.3.6.1, Aboriginal Subsistence Whaling
- 4.1.1.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested
- 4.17, Regulatory Environment Governing Harvest of Marine Mammals

Since 2004, the IWC Schedule has read as follows for the ENP gray whale stock catch limit:

> [T]he taking of gray whales from the Eastern stock in the North Pacific is permitted, but only by aborigines or a Contracting Government on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines (IWC Schedule 2005 and subsequent years, paragraph 13(b)(2)).

Paragraph 13(b) of the current Schedule (IWC 2022a) sets catch limits for 2018 through 2025. Paragraph 13(b)(2) sets a catch limit of 980 ENP gray whales that is limited to 140 whales per year (reviewable annually by the IWC and its Scientific Committee). The annual catch limit (as

conveyed in the Schedule) has stayed the same since 1998. During the past three Schedule cycles when the Makah Tribe has not been able to harvest whales, the Chukotkans have harvested them instead (Subsection 4.1.1.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested). Given these considerations, we conclude that gray whales will continue to be harvested in aboriginal subsistence hunts at current or very similar levels with oversight by the IWC. We conclude that subsistence harvest of ENP gray whales at current levels, with close oversight by the IWC, is a reasonably foreseeable future action in the Chukotkan region (and possibly in the coastal portion of the Makah U&A if NMFS were to complete the actions described in Subsection 1.1.1, Summary of the Proposed Action) (Figure 5-2) that will continue to impact gray whales. Under Alternatives 6 and 7, the waiver would expire after 10 years. It is likely that the Makah Tribe would pursue another waiver, and possible that NMFS may issue such a waiver if the Tribe were to request it. In that case, the IWC and its Scientific Committee would continue to set and review the catch limit and oversee the humaneness of the hunt.

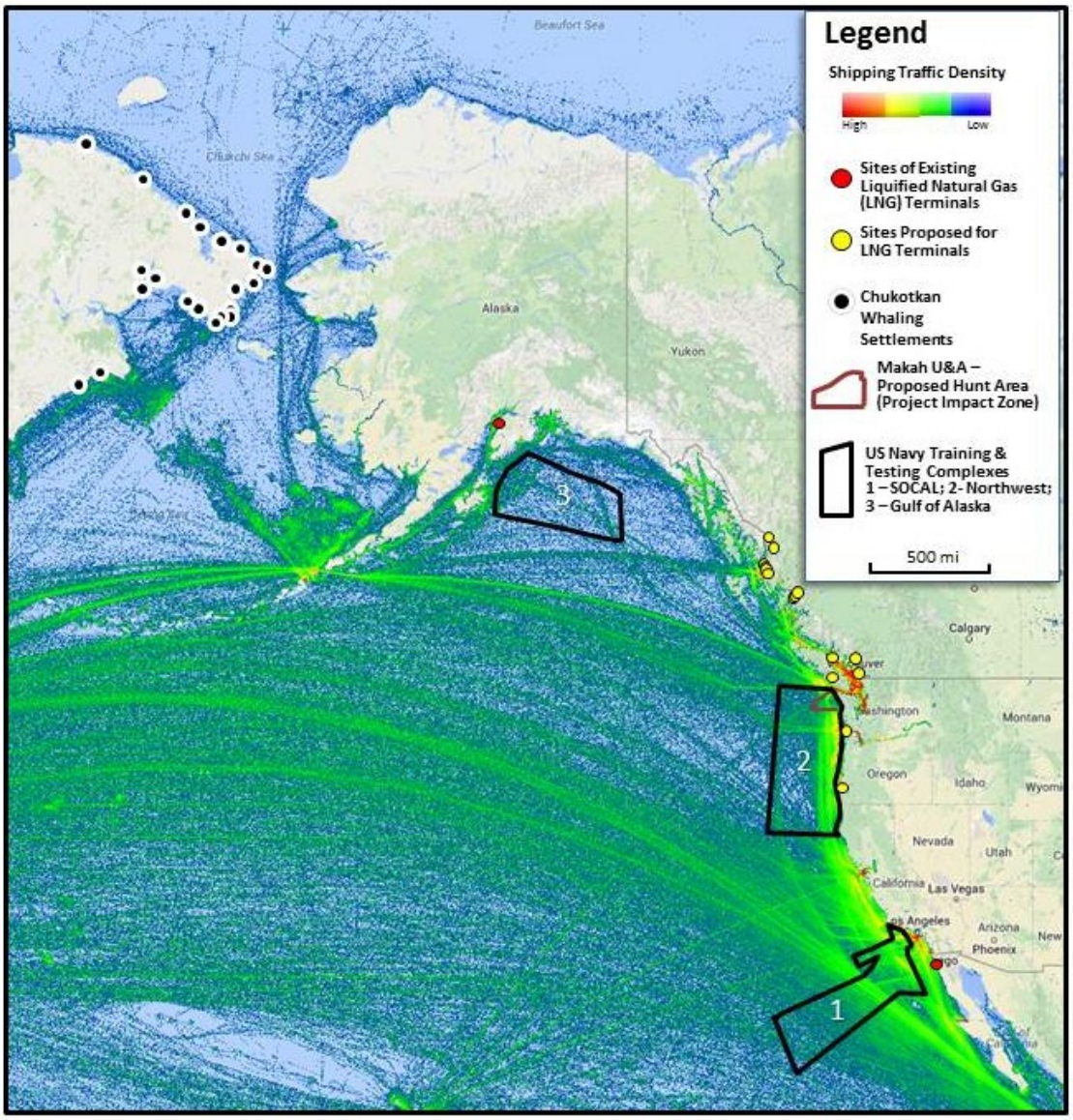


Figure 5-2. Location of the proposed hunt area relative to shipping traffic, LNG terminals, Chukotkan whaling settlements, and U.S. Navy training and testing complexes. [1]

5.1.3.2 Shipping

Details and issues related to past and present shipping effects can be found in the following subsections of this FEIS:

- 3.2.6, Spill Prevention
- 3.4.3.6.4, Oil Spills and Discharges
- 3.4.3.6.11, Climate Change and Ocean Acidification
- 3.6.3.1.4, Commercial Shipping

[1] Data layer sources: Shipping (https://www.marinetraffic.com/); LNG terminals (LNG in BC 2014; US Department of Energy 2014); Chukotkan whaling settlements (Borodin et al. 2012); US Navy Training and Testing Area (U.S. Navy 2013, 2014a, 2014b).

- 3.11.3.2.2, Marine Noise

Figure 5-2 displays the tracks of recent shipping traffic in the analysis area. Shipping traffic is concentrated in the nearshore zone used by migrating and traveling gray whales. The highest traffic densities are associated with the following coastal ports and interior waters (south to north): Guerrero Negro (Baja Mexico); Long Beach and San Francisco Bay ports (California); Columbia River and inland ports (Oregon and Washington); Strait of Juan de Fuca and Puget Sound ports (Washington); Georgia Basin ports including Vancouver and Victoria, as well as Port Hardy and Prince Rupert (British Columbia, Canada); and Anchorage/Nikiski, Akutan/Dutch Harbor, and Nome (Alaska). Effects on gray whales from shipping include ship strikes, noise, and spills. In our most recent stock assessment report (Carretta et al. 2023), we determined that, from 2014 to 2018, the total serious injury and mortality of ENP gray whales attributed to ship strikes is nine animals (including seven deaths) or 1.8 whales per year; For whales in the PCFG range and season during this same period, it is three animals, or 0.6 whale per year. Additional mortality from ship strikes probably goes unreported because stranded whales may not have obvious signs of trauma or struck whales do not strand or strand where they are not observed.

The number of containers moving through major North American ports was up over 4 percent in the first half of 2014 (Journal of Commerce 2014). The projected growth of shipping into Puget Sound will increase the number of container ships traversing the Makah U&A, including the Strait of Juan de Fuca. Approximately 4,400 to 4,800 vessels annually traversed the Strait of Juan de Fuca from 2010 to 2021 (Subsection 3.13.3.2.2, Offshore Vessel Transits). The Washington Ports Association projects a 4 percent annual growth rate of container shipping into Puget Sound through 2025 (BST Associates 2004). A recent vessel traffic study for Puget Sound and the Washington coast projects a similar steady rise in shipping through 2030, with much of that traffic attributed to large, dry bulk freighters and container ships transiting the Strait of Juan de Fuca.[2] Container ships in the Strait are controlled by the Coast Guard's vessel separation scheme (Subsection 3.6.3.1.4, Commercial Shipping). Although none of the alternatives would allow the Makah Tribe to hunt in the Strait of Juan de Fuca portion of their U&A, some hunt-related vessel activity can be expected in that area (Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007) and it would, therefore, be added to a volume of vessel traffic that is projected to increase in the future.

While most shipping routes are well established, it is difficult to project the future of shipping coast wide because of uncertain future fuel prices and the limits on future capacity of west coast

[2] This study was prepared in support of a May 2014 draft EIS addressing the operation of the North Wing of the BP Cherry Point Marine Terminal dock located in northern Puget Sound (U.S. Army Corps of Engineers 2014).

ports to accommodate increased volumes (White 2008). New shipping routes could be established in the Arctic if the extent and duration of ice cover continues to decrease. However, sea ice conditions are highly variable, and major uncertainties regarding the predictability and safety of navigational pathways (Wilson et al. 2004) suggest that significant investments would be needed before a trans-Arctic passage could reliably be used (Ho 2010).

Future shipping levels could also be affected by an increase in liquefied natural gas (LNG) facilities within or adjacent to areas inhabited by gray whales along the west coast. Presently, there is one LNG export (liquefaction) terminal located near Kenai, Alaska and one import (regasification) terminal near Ensenada, Mexico. Information compiled by the California Energy Commission (2010) indicates that at least ten LNG terminals were being considered for construction in California, Oregon, Washington, and British Columbia in recent years. The operation of such terminals would increase large tanker shipping in the analysis area, and LNG tankers could encounter gray whales while transiting to and from terminals. The Federal Energy Regulatory Commission (FERC) is responsible for authorizing the siting and construction of onshore and nearshore LNG import or export facilities. As of February 2022, the U.S. Department of Energy (2022) had identified one approved LNG terminal that has yet to be built (an export terminal in Nikiski, Alaska) in the U.S. portion of the analysis area. There is also one proposed export terminal in Baja, Mexico. In British Columbia, there are currently 16 proposed LNG projects primarily near Vancouver and Prince Rupert (LNG in BC 2014) (Figure 5-2).

It is difficult to predict the number and location of LNG facilities that will actually be built within the cumulative effects analysis area. In addition to a rigorous review process, many LNG projects (e.g., Oregon's Bradwood Landing and California's Clearwater Port projects) face significant local opposition as has been witnessed in the Pacific Northwest and California or are abandoned during the development stages for various reasons. Market forces will likely continue to dictate the number of facilities constructed in North America, and a shift to renewable energy resources may reduce dependence on LNG over time.

We conclude that shipping is a reasonably foreseeable future action that will likely increase, leading to increased impacts to gray whales (most likely resulting from vessel strikes and pollution from spills), especially from southern Alaska to Mexico, but potentially in the Arctic if shipping traffic expands into those waters.

5.1.3.3 Military Exercises

The cumulative effects analysis area includes waters from Russia to Mexico (Figure 5-1), which are traversed by naval vessels from many countries. Naval vessels represent a minute fraction of all vessel traffic in the analysis area and are unlikely to have more than a negligible effect on ENP

gray whales when transiting (Subsection 5.1.3.2, Shipping). Military training and testing exercises, however, could affect ENP gray whales because of whales being exposed to explosions, projectiles, and underwater noises. Countries that may regularly engage in training and testing activities in the analysis area include the United States, Canada, Mexico, and Russia.

The U.S. Navy has operated regularly in the ENP since 1841. Most naval facilities within or adjacent to the analysis area are located in San Diego (main homeport of the Pacific Fleet) and Puget Sound (home to the third largest fleet concentration in the United States). The analysis area encompasses naval operations off the coasts of California, Oregon, Washington, and Alaska. Training and testing in the coastal waters of the ENP currently occurs primarily in three complexes that overlap with the gray whale range (Figure 5-2): Southern California Range (SOCAL) Complex,[3] Northwest Training Range Complex (Washington), and Gulf of Alaska Training Area. In addition, the Navy may conduct training and testing exercises in the coastal waters of other countries through "Rim of the Pacific" (RIMPAC) military exercises (Sorenson 2014).

Effects of past and current naval activities on gray whales are reflected in the current condition of the whales, which is described in Subsection 3.4.3, Gray Whales – Existing Conditions. Where naval exercises are expected to continue as they have in the past, we expect there would be no new or additional effects on gray whales. Although the Navy frequently modifies its testing and training activities as needed to evaluate new technologies or emerging threats, such modifications do not necessarily result in substantive changes in effects on gray whales. Regardless, NMFS actively consults with the Navy on military exercises throughout the ENP and provides biological analyses, mitigation measures, and permits, as warranted, to minimize take of marine mammals and ESA-listed species. The discussion below addresses the three Navy complexes within our analysis area for cumulative impact analysis.

SOCAL Range Complex: The Navy's SOCAL Range Complex is situated between Dana Point and San Diego, California, and extends more than 600 nm (1,111 km) southwest into the Pacific Ocean (Figure 5-2), encompassing 120,000 square nm (412,000 square km) of sea space. This area overlaps with the southern portion of the gray whale migration corridor.

Pursuant to a final EIS issued in December 2018 (U.S. Navy 2018), the Navy is currently conducting training and testing in the SOCAL Range Complex for the following activities: anti-air warfare, amphibious warfare, strike warfare, anti-surface warfare, anti-submarine warfare, electronic warfare, mine warfare, and naval special warfare. Details regarding each activity can

[3] The SOCAL Range Complex is one of three complexes in the larger Hawaii-Southern California Training and Testing Study Area.

be found in the Navy's final EIS. In a 2018 Biological Opinion (NMFS 2018b), we reviewed the Navy's activities and determined that takes of marine mammals would likely result from exposure to sound or pressure waves in the water. There is also a chance that bottom feeders like gray whales could ingest small fragments of expended ordnance used in certain training exercises; however, they typically feed in waters shallower than those used in naval exercises. We further concluded that we do not expect any stress responses for gray whales, due to Navy activities, to continue long enough to have fitness consequences for individual animals because these whales are likely to have energy reserves sufficient to meet the demands of their normal behavioral patterns and the additional demands of any stress responses. Therefore, we would not expect gray whales to experience reductions in their annual or lifetime reproductive success as a result of their response to being exposed to active sonar during the training and testing the U.S. Navy plans to conduct in the SOCAL Complex.

In our Biological Opinion (NMFS 2018b), we also noted that the estimates of WNP gray whale exposures to training and testing activities are probably an over-estimate of the actual exposures even if they represent the best estimate available. The few WNP gray whales that may be exposed to naval activities in the SOCAL Complex would only be exposed periodically or episodically, if at all (especially during the summer months when they would be expected to be foraging in WNP waters). We concluded that the Navy's training and testing activities are not likely to adversely affect the population dynamics, behavioral ecology, and social dynamics of individual WNP gray whales in ways or to a degree that would reduce their fitness. We also noted that an action that is not likely to reduce the fitness of individual whales would not be likely to reduce the viability of the populations those individual whales represent (that is, we would not expect reductions in the reproduction, numbers, or distribution of those populations). As a result, the activities the U.S. Navy plans to conduct in the SOCAL Complex would not appreciably reduce the WNP gray whales' likelihood of surviving and recovering in the wild.

In July 2020, we issued an extension of the MMPA letters of authorization (85 FR 41780, July 10, 2020) to the Navy for training and testing activities in the SOCAL Complex during the 5-year period from 2018 to 2023 that allow for the following amounts of harassment[4] to be allowable for an additional two years, through 2025:

[4] Under the 1994 Amendments to the MMPA, harassment is statutorily defined for military readiness activities as any act of pursuit, torment, or annoyance which — (Level A Harassment) injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild, or (Level B Harassment) disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering to the point where such behavioral patterns are abandoned or significantly altered.

- ENP gray whales = 27 Level A harassments and 16,703 Level B harassments
- WNP gray whales = 0 Level A harassments and 19 Level B harassments

As part of our authorization, the Navy is also required to invoke various mitigation measures, including lookouts, mitigation zones, and a stranding response plan.

Northwest Training Range Complex (NWTR Complex): The Navy's NWTR Complex includes an area extending 250 nm (463 km) westward from the coasts of Washington, Oregon, and Northern California and encompassing 122,440 square nm (420 square km) (Figure 5-2) (U.S. Navy 2014a). This area overlaps with portions of the ENP migration corridor, the PCFG range, and the coastal portion of the Makah U&A where the Tribe proposes to hunt ENP gray whales.

Pursuant to a final Supplemental EIS issued in September 2020 (U.S. Navy 2020), the Navy is currently conducting training and testing in the NWTR Range Complex for an indefinite period of time but will review its compliance with NEPA and other laws approximately every 5 years for substantive changes and to update/renew permits from regulatory agencies as necessary. The Navy EIS evaluates a number of activities related to training, testing, research, development, and evaluation. Details regarding each activity can be found in the Navy's final Supplemental EIS.

Navy acoustic modeling predicts there would be a highly variable number of events per year (from a few to several thousand) where gray whales could be exposed to sound that may result in a short-term (temporary) change in hearing because of stress on auditory tissues from exposure to high-intensity sound. Recovery may occur within minutes, hours, or days and is not considered injurious. Therefore, the Navy concludes that long-term consequences would not be expected on individual gray whales or the ENP and WNP stocks overall. The Navy also notes that it does not anticipate encountering WNP gray whales during training or testing activities, as their presence is very rare in the study area.

In our 2020 Biological Opinion related to the naval activities in the NWTR Complex (NMFS 2020a), we determined that takes of marine mammals would likely result from exposure to sound or pressure waves in the water or interactions with vessels, projectiles, or expended materials. However, due the small population size and limited number of sightings off the U.S. west coast, we concluded that the potential for any stressor to cause an effect to WNP gray whales was extremely unlikely and that the proposed action was therefore not likely to adversely affect WNP gray whales. Our analysis also did not identify situations where the proposed training activities are likely to indirectly affect other ESA-listed baleen whales, including humpback, fin, blue, and sei whales by disrupting marine food chains or by adversely affecting the predators, competitors, or forage base of endangered or threatened species. In addition, we concluded that endangered or

threatened individuals that are likely to be exposed to the Navy's activities in the NWTR Complex are not likely to experience reductions in fitness.

In light of the expected impacts on other whale species analyzed in that Biological Opinion, it is reasonable to conclude that any stress responses or disruptions of normal behavior patterns of ENP gray whales would not continue long enough to have fitness consequences for individual animals because these whales are likely to have energy reserves sufficient to meet the demands of their normal behavioral patterns and the additional demands of any stress responses. Therefore, we would not expect gray whales to experience reductions in their annual or lifetime reproductive success as a result of their response to being exposed to naval training activities in the NWTR Complex. Also, given the offshore location of most of the naval activities, we do not expect bottom feeders like gray whales to ingest small fragments of expended ordnance used in certain training exercises because they would typically feed in waters shallower than those used in naval exercises. The few WNP gray whales that may be exposed to naval activities in the NWTR Complex would only be exposed periodically or episodically, if at all (especially during the summer months when they would be expected to be foraging in WNP waters).

In November 2020, we issued an MMPA letter of authorization (85 FR 72312, November 12, 2020) to the Navy for training activities in the NWTR Complex during the 7-year period November 9, 2020 to November 8, 2027. This authorized:

- ENP gray whales = 0 Level A harassments and 10 Level B harassments
- No Level A or B harassments for WNP gray whales.

As part of our authorization, the Navy is also required to invoke various mitigation measures, including personnel training and lookouts/surveillance (including visual and aural monitoring).

Gulf of Alaska Range Complex (GOA Complex): The Navy's GOA Complex includes a Temporary Maritime Activities Area (TMAA) that is established in conjunction with the Federal Aviation Administration (FAA) for up to 14 days per year to support the Navy's "Northern Edge" training exercise. The TMAA is a surface, undersea space, and airspace maneuver area within the GOA for ships, submarines, and aircraft to conduct required training activities. As depicted in Figure 5-2, the TMAA is a roughly rectangular area oriented from northwest to southeast, approximately 300 nm (556 km) in length by 150 nm (278 km) in width, located south of Prince William Sound and east of Kodiak Island. With the exception of Cape Cleare on Montague Island located over 12 nm (22 km) from the northern point of the TMAA, the nearest shoreline (Kenai Peninsula) is located approximately 24 nm (44 km) north of the TMAA's northern boundary. This area overlaps with the northern portion of the gray whale migration corridor and is near

areas where some gray whales are known to feed during the summer (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem).

The Navy issued a final Supplemental EIS in September 2022 (U.S. Navy 2022) that analyzes the potential environmental effects that may result from (1) ongoing naval training activities (one joint force exercise occurring over a maximum time period of 14 days during summer months [April through October]) and (2) proposed naval training activities associated with conducting two large-scale joint force exercises, including anti-submarine warfare activities and the use of active sonar. These exercises would each last up to 21 days during a focused exercise period; outside of that activity period (i.e., during the other 46 to 49 weeks of the year), the Navy does not train within the TMAA or other areas of the GOA Complex. Activities associated with these exercises include: anti-air warfare, strike warfare, anti-surface warfare, anti-submarine warfare, electronic warfare, mine warfare, and naval special warfare. Details regarding each activity can be found in the Navy's final Supplemental EIS.

In our Biological Opinion related to the Navy's activities in the GOA Complex (NMFS 2022b), we determined that takes of marine mammals would likely result from exposure to sound or pressure waves in the water. Due to the very rare occurrence of WNP gray whales in Alaska and the extremely unlikely overlap of Navy activities with the DPS in the action area, we concluded that the effects of the proposed action were discountable and the action is, therefore, not likely to adversely affect WNP gray whales. Even so, in light of the expected impacts on other whale species analyzed in that Biological Opinion, it is reasonable to conclude that any stress responses or disruptions of normal behavior patterns of ENP gray whales would not continue long enough to have fitness consequences for individual animals because these whales are likely to have energy reserves sufficient to meet the demands of their normal behavioral patterns and the additional demands of any stress responses. Therefore, we would not expect gray whales to experience reductions in their annual or lifetime reproductive success as a result of their response to being exposed to naval training activities in the GOA Complex. Given the offshore location of the GOA Complex, we do not expect bottom feeders like gray whales to ingest small fragments of expended ordnance used in certain training exercises because they would typically feed in waters shallower than those used during naval exercises. The few WNP gray whales that may be exposed to naval activities in the GOA Complex would only be exposed periodically or episodically, if at all (especially during the summer months when they would be expected to be foraging in the WNP).

In January 2023, we issued a finale rule to issue an MMPA letter of authorization (88 FR 604 January 4, 2023) to the Navy for training activities in the GOA Complex during a 7-year period that allows for:

- ENP gray whales = 0 Level A harassments and 28 Level B harassments

No authorization was issued for WNP gray whales. As part of our authorization, the Navy would also be required to invoke various mitigation measures, including personnel training and lookouts/surveillance (including visual and aural monitoring).

In Canada, Maritime Forces Pacific (MARPAC) is responsible for the fleet training and operational readiness of the Royal Canadian Navy in the Pacific Ocean. The MARPAC headquarters and homeport is located in Esquimalt at the southern tip of Vancouver Island on the Strait of Juan de Fuca. We could not find information detailing the types of training or testing that MARPAC conducts in our analysis area. However, news accounts in 2012 reported that the Royal Canadian Navy had been conducting sonar and small underwater explosive activities off southern Vancouver Island. Statements from the Royal Canadian Navy in 2014 underscored that all vessels are to follow a Marine Mammal Mitigation Policy when using sonar and detonating charges, "which includes (but is not limited to) a visual surveillance of the area by watch officers and lookouts, monitoring of passive systems as a means to detect marine mammals as well as the use of a mitigation zone which will cease operations if marine mammals come within a certain range" (Vancouver Sun 2012). A review of marine mammal mitigation measures used by various countries when conducting naval exercises noted that the Royal Canadian Navy designates a 1 nautical mile (1.85 km) 'safety zone' within which real-time mitigation measures are implemented if baleen whales are detected (Dolman et al. 2009).

In part because of rapidly changing Arctic ice conditions, the U.S. Navy produced an "Arctic Roadmap" report for 2014 to 2030 (U.S. Navy 2014c) that forecasts the following:

> In the coming decades, the Arctic Ocean will be increasingly accessible and more broadly used by Arctic and non-Arctic nations seeking the Region's abundant resources and trade routes. Due to the significant retreat of sea ice, previously unreachable areas have started to open for maritime use several weeks each year. The predicted rise in oil and gas development, fishing, tourism, and mineral mining could alter the Region's strategic importance as Arctic and non-Arctic nations make investments.

Although this report does not identify specific areas and training or testing exercises, it does acknowledge that the Navy will need to conduct such exercises in harsh Arctic conditions, likely in conjunction with other countries such as Canada. The report also underscores that at-sea

training and testing activities will need to comply with environmental laws such as the MMPA, ESA, and NEPA. In January 2019, the Navy produced a Strategic Outlook for the Arctic (U.S. Navy 2019) which supersedes the 2014 Roadmap but remains consistent in the stated mission, challenges, and changing environmental conditions in the Arctic region.

Other portions of the analysis area in the Arctic are under the jurisdiction of the Russian Federation. While we were not able to obtain details on that country's military-related plans in waters occupied by gray whales, a recent "Foundations of the State Policy of the Russian Federation in the Arctic for the Period Until 2020 and Beyond" (2009) notes that two of the strategic priorities in the Arctic are:

- Military security—defense and protection of the state border lying in the Arctic zone of the Russian Federation, including maintenance of a necessary fighting potential of the Armed Forces of the Russian Federation.
- Environmental security—preservation and maintenance of the Arctic environment, especially with respect to ecological consequences of increasing economic activities and global changes of climate.

We were also not able to obtain information about specific military training activities or plans by the Mexican Navy. However, the United States has recently been expanding assistance to training the Mexican Navy and other armed forces, and Mexico regularly participates in "Rim of the Pacific" (RIMPAC) military exercises with the United States and other countries' Navies (Sorenson 2014). Recently, ships from Canada, Mexico, and the United States conducted joint operations off the coast of Southern California in support of the North American Maritime Security Initiative (U.S. Indo-Pacific Command 2021). Most Mexican Navy exercises in the range of gray whales seem to focus on using small naval ships for search and rescue operations or drug interdiction (Young 2011).

We conclude that military exercises are a reasonably foreseeable future action that will continue to impact gray whales (most likely the result of vessel strikes and noise impacts), especially in the localized but large testing and training complexes in the ENP. Most military exercises are likely to continue as they have in the past, with some unknown but usually minimal variation in intensity and equipment/technology. Activities may increase in the Arctic, but the extent of this increase is unknown.

5.1.3.4 Fisheries

Details and issues related to past and present fisheries effects can be found in the following subsections of this DEIS:

- 3.4.3.1.7, Strandings
- 3.4.3.6.9, Incidental Catch in Commercial Fisheries

Commercial fisheries have been harvesting a variety of finfish and shellfish along the west coast since the 1800s (e.g., Alaska Marine Conservation Council 2005; Dahlstrom and Wild 1983). Most gray whale entanglements seem to be associated with west coast crab and shrimp fisheries that typically employ a cage-like "pot" set on the ocean bottom and tethered by rope to a floating buoy on the surface. Dungeness crab are the primary species targeted in the Pacific Northwest and commercial crab fishing areas occupy a nearly continuous band of nearshore waters from Eureka, California north to Destruction Island off the central Washington coast (Johnson et al. 1986). Over 1,200 persons engage in this fishery in Washington, Oregon, and California. Canadian fishermen also harvest Dungeness crab and the Canadian Department of Fisheries and Oceans (DFO Canada 2013) reports that 27 licenses were issued and 350 traps deployed in 2010 to 2012 off the west coast of Vancouver Island (Area E) (DFO Canada 2012b). In Alaska, there are seven crab species of commercial importance, with fisheries extending from the Northern Bering Sea to Southeast Alaska (Alaska Department of Fish and Game 2014). King and snow crab are the primary species harvested, with the latter making up nearly 75 percent of the Alaska crab landings in 2021 (NMFS 2021b). In the most recent ENP gray whale stock assessment report (Carretta et al. 2023), gray whales were reported with rope and crab pot gear wrapped around or cutting into their body (often the caudal peduncle, flipper, or mouth). Some animals were free swimming while others were dead or in a poor, emaciated condition.

In addition to encounters with crab fisheries, other fisheries known to entangle gray whales include longline, gillnet, and seine fisheries, with the latter two net fisheries accounting for most mortality from these gear types (Baird et al. 2002). Some employ long nets (e.g., drift gillnets) that hang for hours in the water column and can ensnare gray whales. The most recent ENP gray whale stock assessment report (Carretta et al. 2023) records five reported entanglements of gray whales in the California drift gillnet fishery for swordfish and thresher shark from 1990 to 2018. The estimated bycatch for this fishery is 0.52 gray whales per year (Carretta et al. 2023). Alaska gillnet fisheries also interact with gray whales; however, those fisheries have lower observer coverage, making it more difficult to estimate a bycatch rate. As described in Subsection 3.4.3.6.9, Incidental Catch in Commercial Fisheries, NMFS observers monitoring the Makah tribal set gillnet fishery from 1990 to 1998 and in 2000, reported one gray whale taken in 1990 and one in 1995. One gray whale was entangled in a set gillnet during the 1995 fishery and was used by the Tribe after it died (NMFS 1995); a whale entangled in the 1996 fishery was released alive (Hill and DeMaster 1998). Another gray whale was found entangled in a tribal set gillnet in 2009 and swam away during disentanglement attempts (Scordino and Mate 2011). In recent

years, this set gillnet fishery has been reduced considerably and is currently restricted to the Strait of Juan de Fuca (Makah Fisheries Management 2012). NMFS observers monitoring the California set gillnet halibut fishery have not observed any entangled gray whales, but there have been recent sightings of free-swimming gray whales entangled in gillnets (Carretta et al. 2023).

On March 21, 2023, we published an updated "List of Fisheries" (88 FR 16899, March 21, 2023) which reviews and classifies commercial fisheries into one of three categories under the MMPA based on the level of mortality and serious injury of marine mammals that occurs incidental to each fishery:

- Category I = frequent incidental mortality and serious injury of marine mammals;
- Category II = occasional incidental mortality and serious injury of marine mammals;
- Category III = a remote likelihood or no known incidental mortality and serious injury of marine mammals.

Gray whales are not identified as an affected species in any Category I fisheries but are identified in the following 14 Category II fisheries:

- California: Dungeness crab pot; spot prawn pot; thresher shark and swordfish drift gillnet; halibut, white seabass and other species set gillnet; coonstripe shrimp pot; spiny lobster; and rock crab pot.
- Oregon: Dungeness crab pot.
- Washington: Coastal Dungeness crab pot.
- Alaska: Yakutat salmon set gillnet; Bristol Bay drift gillnet; Bristol Bay set gillnet; Bering Sea, Aleutian Islands flatfish trawl; and Prince William Sound salmon drift gillnet.

Within the cumulative effects analysis area, research aimed at reducing fisheries impacts on large whales has had notable success in identifying and removing derelict pot gear, especially buoy lines (NMFS 2014b).

In Mexico, the coastal waters off Baja California and the Gulf of California account for 50 to 70 percent of annual fisheries production (Organization for Economic Cooperation and Development 2008). Urban-Ramirez et al. (2003) reported six incidents of gray whale entanglements in Mexico involving passive fishing gear, including gillnet and pot gear. In 2014, a gray whale calf was found entangled in lobster fishing gear in Laguna San Ignacio and a successful disentanglement effort was launched (Martinez-Aguilar 2014). In 2022, a gray whale calf was successfully disentangled from unidentified line and an attached buoy in the same region (Martinez-Aguilar 2022c). These authors noted that data on gray whale entanglements in Russia are not available,

and we were not able to find information regarding such entanglements in the Russian portion of the ENP range.

We conclude that fisheries are a reasonably foreseeable future action that will continue to affect gray whales (most likely the result of vessel strikes and gear entanglements) throughout their range in the ENP.

5.1.3.5 Tourism

Tourism, in particular whale-watching, can have a wide range of effects on gray whales, including increased public awareness, commercial revenues, and vessel and noise related impacts. Details and issues related to past and present whale-watching/tourism effects can be found in the following subsections of this FEIS:

- 3.4.3.5.2, Whale Response to Being Pursued,
- 3.4.3.6.5, Offshore Activities and Underwater Noise,
- 3.4.3.6.6, Vessel Interactions,
- 3.4.3.6.7, Activities Occurring in the Mexican Portion of the Range,
- 3.5.3.3.4, Marine Mammals and Underwater Noise,
- 3.6.3.3.2, Commercial Value of Whales.

As described in Subsection 3.6.3.3.2, Commercial Value of Whales, whale watching is an important tourist activity throughout much of the range of gray whales, especially in the southern/winter portion of the ENP stock. In a study of worldwide whale watching trends, O'Connor et al. (2009) found that, in the ENP, the number of whale watchers had increased from roughly 2.8 million watchers in 1998 to over 3.3 million in 2008. That study also reported that the number of whale watch operators in the ENP (excluding Mexico, for which 1998 data were lacking) had increased from 214 to 233 during the same period. Summarized below is the average annual growth rate (AAGR) of whale watchers reported in that study for each country/state in the ENP, as well as major ports/locales that we could identify with boat-based operations for watching gray whales:

- Mexico: +5.8 percent AAGR (Bahia Magdalena Lagoon complex, Laguna San Ignacio, and Laguna Ojo de Liebre).
- California: -2.5 percent AAGR (Bodega Bay, Crescent City, Eureka, Fort Bragg, Half Moon Bay, Los Angeles vicinity, Monterey, Morro Bay, San Diego, San Francisco, and Santa Barbara).
- Oregon: +7.1 percent AAGR (Brookings, Charleston, Depoe Bay, Garibaldi, and Newport).

- Washington: +3.0 percent AAGR (Anacortes, Bellingham, Friday Harbor, La Push, Neah Bay, Port Angeles, Port Townsend, Seattle, Vashon Island, and Westport).
- British Columbia: +4.2 percent AAGR (Campbell River, Duncan, Port Hardy, Port Renfrew, Prince Rupert, Sidney, Sooke, Tofino, Ucluelet, Vancouver, and Victoria.
- Alaska: +21 percent AAGR (Homer, Kenai, Ketchikan, Kodiak, Seward, Sitka, and Whittier).

Whale watching in Mexico began in the 1970s and has turned into an active and diverse industry, spreading from the lagoons to southern and eastern Baja and the mainland coast (Hoyt and Iñíguez 2008). The majority of whale watching tours in Mexico take place using small boats in the winter, when gray whales congregate in and near lagoons to breed and give birth. Operators in the northern portion of the cumulative effects analysis area (especially the interior waters of the Georgia basin) typically focus on trips to view killer whales, but they also advertise opportunities for viewing other wildlife, including gray whales. Charters focusing on migrating gray whales typically are offered in the spring, while tours to see locally feeding gray whales during the summer feeding period are available from California to Alaska.

We found very little information regarding active whale-watching tours in eastern Russia. O'Connor et al. (2009) noted that there are a few operators offering general nature/ecotour cruises, but data are very limited in this remote region and operations seem to be focused near Kamchatka and the Kuril and Commander Islands in the WNP. Hoyt (2006) recently prepared a guide for companies, conservation groups, and individuals wanting to promote or set up marine ecotours in Russia. That report identifies gray whales as the most common large whale in the Arctic waters of eastern Russian during the summer and autumn. It also goes on to note that there are currently no official marine mammal or whale watch regulations in Russian legislation.

Although whale watching has grown within the analysis area during the past two decades and may continue to grow, some regions have seen a decline or been characterized as "mature" (e.g., California and Oregon), with operators competing for a fixed number of whale watching tourists (O'Connor et al. 2009). If interest in whale watching continues to grow then the number of whale watch operators may also increase. However, the number of operators (in contrast to whale watcher trends reported above) in some regions in the analysis area did not grow (British Columbia) or declined in number (Oregon) between 1998 and 2008 (O'Connor et al. 2009), so it is difficult to predict how much whale watching might grow in the future. Climate change may also affect regional whale watching opportunities (Salvadeo et al. 2013).

As described previously, gray whales are known to change their behavior when pursued by whale-watching boats, including changing course and altering their swimming speed and

respiratory patterns (Subsections 3.4.3.5.2, Whale Response to Being Pursued, and 3.4.3.6.6, Vessel Interactions). Mother-calf pairs of gray whales are considered more sensitive to disturbance by whale-watching vessels than other age or sex classes. In general, scientists remain cautious about drawing conclusions regarding the magnitude of the effects of whale watching on gray whales (Subsection 3.4.3.6.6, Vessel Interactions). Nonetheless, the activity of commercial whale-watching vessels and private recreational boats has raised concerns about its effect on gray whales. In response to these concerns, regulations or guidelines are in place to minimize disturbance by vessels in Mexico, the United States, and Canada. For example, the Mexican government has applied whale-watching regulations to commercial operators since 1997, and there are currently regulations governing the numbers of boats and methods of approach for specific whale-watching areas in the Baja lagoons. In Washington and British Columbia, NMFS and conservation organizations in the United States have teamed up with the Canadian government and conservation organizations to adopt 'Be Whale Wise' guidelines for vessels, kayaks, and other crafts used for watching whales. The guidelines, among other things, recommend that vessels keep a 100-yard buffer between the vessel and the whale and recommend a slow approach speed of 7 knots within 1000 yards of whales (refer to Subsection 3.4.3.6.6, Vessel Interactions). The IWC has compiled a Whale Watching Handbook with a comprehensive list of regulations governing whale watching around the world, as well as a database of scientific literature related to the impacts of whale watching.

We conclude that whale-based tourism is a reasonably foreseeable future action that will continue to impact gray whales (most likely resulting from vessel strikes and behavioral changes) throughout their range in the ENP.

5.1.3.6 Marine Energy and Coastal Development Projects

Past, present, and reasonably foreseeable future oil and gas exploration and development occur near the southern and northern extremes of the range of ENP gray whales. Potential effects include vessel strikes, noise, and pollution. Past and present effects on ENP gray whales are described in Subsection 3.4.3.6.4, Oil Spills and Discharges, Subsection 3.4.3.6.5, Offshore Activities and Underwater Noise, and Subsection 3.4.3.6.7, Activities Occurring in the Mexican Portion of the Range. The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEM; formerly the Minerals Management Service) leases mineral rights to submerged lands on the Outer Continental Shelf (OCS). These rights are conveyed by contracts referred to as leases. Each lease is generally a square measuring 3 miles by 3 miles (4.8 km by 4.8 km) and covers an area that is no more than 5,760 acres. Under a lease, a company has the right to apply for permits to explore and develop the mineral resources within that area. Before approving the permits, BOEM reviews all applications to ensure that the activities will be conducted in a safe

and environmentally-sound manner and that the interests of key stakeholders are effectively addressed. The BOEM regularly updates its leasing plans via a Five-Year Program that consists of a schedule of oil and gas lease sales indicating the size, timing, and location of proposed leasing activity the Secretary determines will best meet the country's national energy needs for the 5-year period following its approval. The upcoming leasing program covers the period of 2023 to 2028, and a Draft Programmatic EIS was published in July 2022 (87 FR 40859, July 8, 2022).

The proposed 2023-2028 lease sale schedule does not list any activity in the Pacific OCS Region but does list activity in the Cook Inlet Program Area of the Alaska OCS Region. Active leases are expected to result in continued development of offshore production facilities and pipeline, drilling activities, and seismic programs, as well as transportation and barging. While the disposition of leases purchased in recent sales is highly speculative at this time, it is probable that at least some seismic exploration and possibly some exploratory drilling could take place during the next few years.

Large areas in the ENP are not eligible for oil and gas development. In March 2010, President Obama withdrew the North Aleutian Basin from consideration for oil and gas development through 2017, noting that Alaska's Bristol Bay was an area "too special to drill" (U.S. Department of Interior 2010). Accordingly, the area around Bristol Bay, used regularly by gray whales during their migration and often used in the summer for feeding, will be protected for the foreseeable future. In addition, the president announced a strategy that excludes oil and gas exploration or development in areas near California, Oregon, and Washington. In February 2021, Representative Jared Huffman along with 47 cosponsors introduce the West Coast Ocean Protection Act of 2021 to the House Natural Resources Committee which sought to amend the Outer Continental Shelf Lands Act (43 U.S.C. § 1331 *et seq.*) to prohibit the Department of the Interior from issuing leases for the exploration, development, or production of oil and gas on the outer continental shelf off the coasts of California, Oregon and Washington (H.R. 653). Off the Pacific coast of Canada, a federal moratorium on offshore oil activities in the Pacific Ocean has precluded any oil and gas production activities, and we found no evidence of offshore oil and gas development off the Pacific coast of Mexico. Recent legislation regarding Mexican energy reform (Reuters 2014) could allow foreign and private companies to compete for offshore oil and gas fields; however, production fields are currently concentrated in the Gulf of Mexico (U.S. Energy Information Administration 2014).

NMFS has conducted extensive ESA section 7 consultations with BOEM regarding oil and gas leasing action on the Alaska OCS, none of which has resulted in a determination that OCS oil and

gas activities were likely to jeopardize the continued existence of any listed species, including baleen whales, or destroy or adversely modify critical habitat. Since the delisting of ENP gray whales in 1994, gray whales (including endangered WNP gray whales) have not been included in ESA section 7 consultations (and WNP gray whales have only recently been included as a result of scientists detecting animals moving between the WNP and ENP) (Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements). It is likely, however, that the effects on gray whales would be similar to those on ESA-listed baleen whales. Accidental spills can be expected to have minor to moderate impacts that would depend on the location, timing, and volume of spills.

In the Mexican portion of the analysis area, mining for minerals (such as copper, manganese, gypsum, cobalt, silica, and phosphorus) peaked in the last century in places like Santa Rosalia, creating soil erosion, contamination, pollution, and litter in the ocean. Large mining companies have since abandoned these sites, and the town is in economic decline (ParksWatch 2004). The largest saltworks in the world is still operating at Guerrero Negro, where approximately 8 million tons (7.26 million metric tons) per year is extracted from the ocean through evaporation (ParksWatch 2004). The main threat posed by salt mining is the byproducts created by high salt concentrations (Geo-Mexico 2012). Plans to expand industrial salt extraction by establishing a plant on the shores of San Ignacio Lagoon met with strong international and national protest, and in March 2000, the government of Mexico cancelled the project. Conservation agreements negotiated between the Laguna San Ignacio Conservation Alliance and communal landowners have since placed 120,000 acres of land around the lagoon in a private land trust, and more agreements are anticipated (Sullivan 2006). Thus, it is reasonable to assume that the area will remain a sanctuary for wintering gray whales, while the local people fish and provide ecotourism and whale watching within the land trust (Sullivan 2006). Given that, as well as the continued use of Guerrero Negro and adjacent lagoons by gray whales and the lack of any evidence indicating that gray whales are affected by the existing saltworks, we do not expect this mining operation to have effects that would inform our cumulative impact analysis.

There had been growing interest in developing sites to explore wave and tidal energy technologies along the West Coast, especially along Oregon and Washington where wave energy potential is the highest in the lower 48 states (Bedard 2005). Potential effects to marine mammals include entanglements, collisions with equipment, and obstruction of migration routes. Past and present effects on gray whales are described in Subsection 3.4.3.6.10, Marine Energy Projects. Although a wave energy project that was proposed for Makah Bay (i.e., within the proposed hunt area) has been withdrawn, there are continuing efforts to develop marine energy projects elsewhere along the Pacific coast. As of January 2023, there is only one FERC-licensed

hydrokinetic project on the U.S. West Coast (FERC 2023). PacWave South Hydrokinetic (formerly known as Pacific Marine Energy Test Center South Energy Test Site Wave Test Center) is located on the Outer Continental Shelf of the Pacific Ocean, approximately 6 nautical miles off the coast of Newport, Oregon. In 2021, the Bureau of Ocean Energy Management (BOEM) issued a lease of the site to Oregon State University for marine hydrokinetic research activities at a proposed open ocean wave energy test center (86 FR 40620, July 28, 2021). FERC issued a license to Oregon State University for the construction, operation, and maintenance of the proposed test facility that would have a capacity of 20 megawatts. The PacWave South license is valid through February 2046. A second site, PacWave North, also operated by Oregon State University off the coast of Newport, Oregon, serves as a test site for small-scale, prototype technologies and is not grid-connected[5]. While there are several active preliminary permits under FERC for hydrokinetic projects in inland waters of Alaska (which allow developers to study the feasibility of proposed projects), there are no active or pending preliminary permits for projects on the coasts of Washington, Oregon, or California (FERC 2023) where gray whales could potentially travel.

Offshore wind energy projects have accelerated in recent years as a result of Executive Order 14008 issued on January 27, 2021. Among other things, the Executive Order prioritized climate-resilient development, including clean energy, with a goal of doubling offshore wind capacity by 2030. As the lead federal agency for offshore wind, BOEM has identified several possible Wind Energy Areas (WEAs) along the West Coast and is currently proposing to issue commercial leases for development in several sites on the coasts of Oregon and California. In 2022, BOEM announced the availability of a final EA and finding of no significant impact (FONSI) for the Morro Bay and Humboldt WEAs in northern and central California[6]. NMFS conducted an ESA Section 7(a)(2) consultation for issuance of leases at these sites (including assumptions about possible forthcoming site characterizations and site assessments), concurring with BOEM that activities associated with WEA development may affect, but not likely adversely affect, ESA-listed fish, turtles, and marine mammals (including WNP gray whales). Notably, this action does not include construction and operation of a wind energy facility, which would be a separate action assessed under NEPA and ESA. This assessment would likely provide insight into the anticipated level of increased vessel traffic associated with constructing and maintaining such a facility. In

[5] See https://pacwaveenergy.org/ for more information.

[6] For a summary and documents related to the NEPA processes for the Morro Bay and Humboldt, California sites, please see https://www.boem.gov/renewable-energy/state-activities/morro-bay-wind-energy-area for and https://www.boem.gov/renewable-energy/state-activities/humboldt-wind-energy-area.

December of 2022, BOEM held an online auction for five sites in the California WEAs, conducting the first-ever sale of its type on the Pacific Coast.

BOEM announced a call for information and nominations for possible sites off the Oregon coast (Coos Bay and Brookings) and is currently reviewing the nominations (87 FR 25529, April 29, 2022). NMFS provided public comment with recommendations to avoid and minimize impacts to marine resources and uses. With respect to gray whales, although the proposed sites are not in typical gray whale feeding areas (but they do overlap with typical migratory routes), NMFS recommended that lines and cables be buried to minimize interference with seafloor foraging.

In addition to the above activities, there has been growing interest in developing LNG terminals in coastal areas within the ENP. Several issues regarding impacts on whales have been identified with the construction and operation of LNG terminals (impacts resulting from LNG shipping traffic are addressed in Subsection 5.1.3.2, Shipping). Leaks, spills, explosions, and release of contaminants could impair water quality or cause physical harm to whales. Dredging and filling associated with terminal construction and maintenance could have impacts on benthic habitat and prey. Additionally, noise associated with terminal construction and operation could disturb whales near the terminal. Recent assessments identify an array of mitigation measures available to address such impacts, including limiting construction to times when species are absent from the area, re-contouring bottom sediments so that benthic communities can re-establish quickly, monitoring acoustic impacts for several years (to determine if terminal areas are being avoided by whales), and frequent reporting (NMFS 2008c). As noted in Subsection 5.1.3.2, Shipping, it is difficult to predict the number and location of LNG facilities that will actually be built within the analysis area, and we conclude that impacts from the development of LNG terminals are too speculative to inform a cumulative impact analysis.

In summary, we conclude that marine energy and coastal development projects are reasonably foreseeable future actions that could impact gray whales in localized areas of their range in the ENP. However, it is speculative to predict the likely extent or impacts from most of these types of projects. Oil and gas exploration and development as well as offshore wind development are the most likely activities, but impacts would depend on the location, timing, and magnitude of disturbances (e.g., construction noise or accidental oil spills).

5.1.3.7 Scientific Research

Explorers have studied the oceans since ancient times, and modern scientific studies of the ocean and marine life are common, ongoing, and expected to continue throughout the analysis area. Research on gray whales in particular has been a scientific pursuit since the 1800s and has helped make the species one of the most well-studied animals—and conservation success stories—in the

world (Jones and Swartz 1984). Researchers often use ships and boats to investigate a wide range of scientific issues, from large-scale programs monitoring marine productivity to site-specific studies cataloging marine mammal use of particular habitats. Studies are conducted by numerous federal, state, tribal, academic, and private researchers and can vary considerably in terms of location and duration in the analysis area depending on available funding and research priorities. Some studies target gray whales and other marine mammals and use sophisticated research vessels to explore large expanses of the analysis area on a regular basis. For example, the NMFS Southwest Fisheries Science Center (SWFSC) is responsible for monitoring and estimating abundance of all cetacean species (whales, dolphins, and porpoises) in the California Current Ecosystem off the U.S. west coast and has been conducting cetacean assessment cruises in this area since 1979 (NMFS 2014c). Surveys of California waters were conducted in 1979, 1980, 1991, and 1993, and surveys of the entire U.S. west coast were conducted in 1996, 2001, 2005, 2008, 2012, and 2018 (Moore 2021). These cruises often involve large NOAA research vessels (over 200 feet [61 m] long) that can stay at sea for several weeks. A Supplemental Programmatic Environmental Assessment for NMFS research in the California Current research area concluded that gray whales may be present when surveys occur, however it does not provide an estimate for how many gray whales may be subjected to harassment as a result of acoustic devices used during surveys (NMFS 2020b). The Biological Opinion associated with this action concluded that while there was potential for overlap between research activities and WNP gray whales, it is unlikely that WNP gray whales would be present and/or detect acoustic sources during the course of research (NMFS 2020c).

As recently as the late 1960s, some gray whale research involved the killing and sampling of over 300 hundred individual whales (Rice and Wolman 1971). However, gray whale research today generally relies on non-lethal forms of data collection (e.g., photographs and biopsies). Some methods of tagging and sampling can injure whales, but there has been significant progress in developing more effective tags and attachment methods that reduce adverse effects on whales while improving the quality of the resulting data (Weller 2008).

Growing interest in the Arctic Ocean system will likely see expanded research activities in northern portions of the gray whale range. For example, one of the most advanced research vessels ever built, the 261-foot (80-m) *R/V Sikuliaq*, was launched in 2012, was scheduled to begin research cruises in 2014, and will be homeported in Seward, Alaska (National Science Foundation 2012). In 2004, Russian and U.S. researchers initiated a Russian-American Long-term Census of the Arctic (RUSALCA) aboard the 235-foot (72-m) Russian research ship *Professor Khromov* (RUSALCA 2014). These cruises have been conducted annually and typically include surveys (including marine mammal observations) in areas used by gray whales

in the Bering Sea. While unlikely, due to the small number of research vessels that operate on the West Coast and their frequent use of observers to detect marine mammals nearby, it is conceivable that larger research vessels, such as those noted above, could strike and injure or kill a gray whale. For example, in 2009, a 50-foot NOAA research vessel struck a North Atlantic right whale off the coast of Massachusetts, leaving visible lacerations from the ship's propeller on the whale's fluke (Fraser 2009).

Research studies also employ small vessels that may intentionally or unintentionally encounter gray whales. Surveys focused on gray whale identification and biology typically involve small boats in close proximity to whales so that researchers can affix tags, take high-quality pictures for photo-identification, or obtain biopsy samples for genetic and toxicological studies. Pursuit by small research vessels would likely elicit responses comparable to whale-watching vessels. Also, as described in Subsection 3.4.3.6.6, Vessel Interactions, gray whales have been observed to respond to tagging by slapping their fluke and swimming rapidly but usually return to pre-tagging behavior shortly after the event. The response of gray whales to biopsy has not been described in the scientific literature, but studies of other mysticetes have reported a range of responses from little or no reaction to brief, sometimes dramatic, changes in behavior (Brown et al. 1991; Weinrich et al. 1991; Clapham and Mattila 1993; Gauthier and Sears 1999; Cantor et al. 2010).

We conclude that scientific research is a reasonably foreseeable future action that will continue to impact gray whales (most likely resulting from vessel strikes or disturbance) at the same rate as in the recent past (i.e., since the lethal research conducted in the 1960s by Rice and Wolman [1971]) throughout their range in the ENP, with the possibility that such impacts could increase in the Arctic as that region is explored for climate research, shipping, and oil and gas development.

5.1.3.8 Natural Mortality

As described in Subsection 3.4.3.1.6, Natural Mortality, sources of natural mortality for gray whales include predation, disease, and starvation. When we proposed to delist gray whales in 1991 (56 FR 58869, November 22, 1991) we reviewed factors affecting the species, including disease and predation. We noted that gray whales have a low natural mortality rate and that there is no information indicating that disease or predation constitutes a threat to the continued welfare of the species.

In 1999/2000, the mass stranding of ENP gray whales along the west coast led us to declare a UME. Population numbers declined perhaps as much as 25 percent between the 1997/1998 count and the 2001/2002 count (Table 3-3). NMFS works in coordination with external partners through the Marine Mammal Health and Stranding Network in California, Oregon, Washington, and Alaska to document and respond to stranded gray whales. This network was

established under the MMPA in the early 1980s. Members of the network include, among others, scientific institutions, volunteer groups, animal care institutions, veterinarians, wildlife agencies and state and federal law enforcement. Under the MMPA, the declaration of a UME authorizes a federal investigation led by a new Working Group on Marine Mammal Unusual Mortality Events into the cause of the event. NMFS has assembled an independent team of scientists to coordinate with the Working Group to collect samples from the stranded whales, review the data collected, and determine the next steps for the investigation.

We convened a Working Group (Gulland et al. 2005) to assess the 1999/2000 event because stranding rates had increased dramatically, animals were emaciated, and strandings occurred throughout the species' range, including areas where such events had not been historically noted. The Working Group concluded that the causes of this large-scale event were unknown and probably a result of both density dependence and environmental variability, noting that populations that are at or near carrying capacity may be more vulnerable to environmental variability because of nutritional stress (Gulland et al. 2005). Such nutritional stress was implicated in 2007 when researchers investigating one of the main calving-breeding lagoons in Mexico noted large numbers of whales that seemed malnourished and "skinny" in appearance (Subsection 3.4.3.1.7, Strandings). However, those conditions did not result in a UME. Moreover, we concluded in our stock assessment report that several factors since 2000 indicate the mass stranding was a short-term acute event and not a chronic situation or trend (Carretta et al. 2014).

Elevated strandings of ENP gray whales beginning in January 2019 prompted NMFS to declare another UME for the stock on May 29, 2019. As of September 26, 2023, the UME declared in 2019 is ongoing with 688 gray whales stranded along the coast of Mexico, the United States, and Canada, with the greatest number of strandings concentrated in the United States and Mexico (Table 3-4). The full extent of the mortality from this event is unknown. Although some carcasses have been recovered, it is likely that many carcasses either sank or washed out to sea rather than stranding, or became stranded in remote locations unobserved by humans. However, it is possible to estimate mortality resulting from this UME through ongoing population surveys conducted by NMFS, and noted above in Subsection 3.2.1.2. The current UME coincides with a recent 46% decline in abundance observed in the 2019/2020 survey (Stewart and Weller 2021a, Eguchi et al. 2023a).

So far, full or partial necropsies have been performed on just a few of the stranded animals. Samples can be difficult or impossible to collect if the whale has become too decomposed or has stranded in an inaccessible location. NMFS does not mandate what necropsy data to collect. However, stranding network partners often record as much basic data as possible (referred to as

Level A data), such as the state of decomposition and condition of the animal, the location of the stranding, and a list of samples that were collected, if any. Some, but not all, of the stranded whales have shown evidence of emaciation, but more research is needed to determine the cause(s) of the UME. It is not possible to predict how long the UME will continue. NMFS regularly posts updates regarding this UME on its website at https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2020-gray-whale-unusual-mortality-event-along-west-coast-and.

Subsection 3.4.3.1.6, Natural Mortality, also notes that killer whales are the primary natural predators of gray whales, but it is difficult to quantify how many gray whales are killed or approached by killer whales each year. Nonetheless, NMFS scientists have noted evidence that predation by mammal-eating "transient" killer whales may be a significant mortality factor (especially on gray whale calves) and could increase if those killer whale populations continue to increase in the ENP (Murphy 2014; NMFS 2014d). It is unclear how natural mortality may be influencing the WNP stock of gray whales, although Bradford et al. (2009) noted a high incidence of killer whale tooth scars. The WNP stock has been increasing in abundance in recent years (Cooke et al. 2013); however, its small size, limited number of reproductive females, and relatively low calf survival are likely to be key factors limiting potential population growth (Burdin et al. 2012).

We conclude that natural mortality is a reasonably foreseeable future event that will continue to impact North Pacific gray whales and that the ENP gray whale stock will continue to fluctuate as it adjusts to natural and human-caused factors affecting the carrying capacity of the environment (Carretta et al. 2023). While the WNP stock has increased over the past 10 years, it remains small and likely more susceptible to changes in mortality (natural or human-caused).

5.1.3.9 Climate Change and Ocean Acidification

Climate change is underway and the scientific evidence indicates that average temperatures in the air, land, and sea are increasing at an accelerating rate. Long-term negative environmental impacts associated with climate change include rising sea levels as a result of melting glaciers and sea ice and seawater expansion, altered weather patterns and extremes, and ecosystem changes affecting species distributions and dynamics. A report on ecological impacts of climate change by the National Academy of Sciences (2008) states that most of the observed global and regional warming over the past 50 years is the result of increased greenhouse gases generated by human activities (e.g., burning of fossil fuels by vehicles such as ships and boats). The report goes on to note that there is only a very limited understanding of how global climate change might affect whole ocean ecosystems.

Although climate changes have been documented over large areas of the world, the changes are not uniform and affect different areas in different ways and at different intensities. For example, while gently sloping beaches in the action area could be most vulnerable to sea-level rise (e.g., Pendleton et al.'s [2004] assessment for Olympic National Park), Mote et al. (2008) estimate that the northwest Olympic Peninsula will experience very little relative sea-level rise because of rates of local tectonic uplift that currently exceed projected rates of sea level rise. In contrast, Arctic regions have experienced some of the largest changes (e.g., reduced ice cover and loss of multi-year ice), with major implications for the marine environment as well as for coastal communities (Arctic Climate Impact Assessment 2004; Larsen et al. 2014; Huntington et al. 2020). Global climate change is also likely to increase human activity in the Arctic, including oil and gas exploration and shipping, as sea ice decreases (Hovelsrud et al. 2008).

In addition to affecting air and water temperatures, carbon dioxide (CO_2) created by human activities is absorbed into the oceans, resulting in an increase in acidity of surface ocean waters (up to a depth of 328 feet [100m]). Scientists predict that by 2100 the acidity (pH) of surface ocean waters will be at a level not experienced for at least the past 420,000 years and that the rate of change will be 100 times the maximum rate detected during that period (Royal Society 2005). As noted in Subsection 3.4.3.6.11, Climate Change and Ocean Acidification, ocean acidification will likely affect calcifying organisms (many of which are important in the gray whales' diet) and may alter entire ecosystems if organisms are unable to adapt to the projected changes. There is considerable uncertainty about the degree to which these organisms will be affected by increased ocean acidity. Higher trophic species are also affected by climate change; a recent review identified several impacts of climate change on marine mammals in U.S. waters, including those related to fitness, ecological, and health impacts (Gulland et al. 2022). Although Gulland et al. (2022) did not identify studies that observed climate effects on gray whales, they did note two other Arctic cetacean species (bowhead and killer whales) that appear thus far to have benefited from increased access to prey or seasonal range expansions due to climate change. Other marine mammal species experienced increased mortality directly and indirectly associated with climate change. The authors conclude that more research is required to fully understand the effects of climate change on the demography and health of marine mammals more broadly (Gulland et al. 2022).

Bluhm and Gradinger (2008) examined the availability of pelagic and benthic prey in the Arctic and concluded that pelagic prey is likely to increase while benthic prey is likely to decrease in response to climate change. They noted that marine mammal species that exhibit trophic plasticity (such as gray whales that feed on both benthic and pelagic prey) will adapt better than trophic specialists. Moore (2008) characterized gray whales as useful "sentinels" of climate change,

citing various lines of evidence that the health and habits of gray whales seem to be tracking changes in the North Pacific and western Arctic ecosystems. Recent research has affirmed this characterization and documented climate-related impacts to gray whale distribution, abundance, phenology, mortality, and calf production in the Pacific Arctic feeding grounds (see Subsection 3.4.3.6.11, Climate Change and Ocean Acidification) (Gailey et al. 2020; Perryman et al. 2021; Moore et al. 2022; Joyce et al. 2023; Stewart et al. 2023).

We conclude that climate change is a reasonably foreseeable future event, with predictable impacts on the physical environment. For example, sea ice is likely to recede, sea levels are likely to rise, and acidity levels are likely to increase. Some biological impacts are also predictable, such as a decreased ability for some organisms to form shells. However, it is currently speculative to predict how those changes will affect marine food webs and gray whale population dynamics.

5.1.3.10 U.S. Government Policy

Subsection 3.8, Social Environment, and Subsection 3.10, Ceremonial and Subsistence Resources, describe some aspects of the U.S. government's legacy of diminishing and discouraging Makah subsistence and ceremonial practices. The Tribe's waiver application (Makah Tribe 2005) and its recent needs statement submitted to the IWC (Renker 2018) also detail the impacts of federal policies that have had major and lasting influences on Makah culture. Examples of such policies included banning potlatches and traditional secret societies, replacing a hereditary leadership system with an egalitarian election-based system, forcing children to attend boarding schools and abandon the Makah language, and promoting agricultural practices ill-suited to the landscape over traditional reliance on harvesting marine resources. As evidence of the latter, Renker (2018) noted:

> While the Treaty of Neah Bay preserved the Makah right to hunt whales and seals, and to fish in usual and accustomed grounds, the United States aggressively pursued policies that were intended to transform Makahs and other Indian communities into "civilized" people. Assistance sent to the Makahs contained agricultural tools, rather than items which supported any of the active components of the Makahs' maritime way of life. Instead of tools and materials which would help to procure, process, or preserve whale, seal, or fish products, Makahs received pitchforks, scythes, hoes, and sickles.

Although some of these policies have changed in the past century (e.g., the school system no longer separates Makah children from their families), their legacy affects the same cultural values that are likely to be affected by a denial of the Tribe's request under Alternative 1: tribal identity,

individual and community pride and self-esteem associated with pursuing cultural activities, a sense of autonomy and control of the Tribe's destiny, and confidence in the federal government (Subsection 4.10.3.1, Alternative 1, No Action). In the future, it is likely that the U.S. government would continue to honor the 1855 Treaty of Neah Bay (refer to Subsection 1.2.2.4, The Federal Trust Responsibility). Other future government policies are difficult to predict as are future trends in the values of the dominant culture that may affect Makah ceremonial and subsistence practices.

5.2 Water Quality

As described in Subsection 3.2.3, Water Quality, Existing Conditions, the Washington State Department of Ecology has not listed any of the waters in the action area as impaired (in other words, no past or current actions are negatively affecting the quality of waters in the action area to the point that they are impaired). Oil and gas exploration is expected to continue to be focused in Arctic regions outside the action area. Some accidental spills from a variety of ocean-going vessels (including commercial, charter, and research vessels) could increase in the future as shipping increases and can be expected to have localized adverse effects on water quality. Effects on water quality associated with potential LNG, offshore wind, and wave energy facilities cannot be predicted given the uncertainties about whether and where any facilities will actually be built.[7] The Navy's Supplemental EIS for the Northwest Training Range Complex (U.S. Navy 2020) found that chemical, physical, or biological changes in sediment or water quality would not be detectable and would be below or within existing conditions or designated uses. The basis for this conclusion includes the following reasons:

- Expended materials and activities are widely dispersed in space and time. When multiple stressors occur at the same time, it is usually for a brief period. Potential areas of negative impacts would be limited to small zones adjacent to the explosive, metals, or chemicals other than explosives. The failure rate is low for explosives and materials with propellant systems, limiting the potential impacts from the chemicals other than explosives involved.
- Many components of expended materials are relatively nonreactive, corrode slowly, and most components are subject to a variety of physical, chemical, and biological processes that render them benign.

[7] The Environmental Assessment for the Makah Bay wave energy project (now abandoned) concluded that it would have had only localized and short-term impacts on water resources (FERC 2007).

- Several studies at sites used frequently for training and testing activities in the Puget Sound found traces of metals, but all concentrations were well below background levels for both sediment and water quality.

Therefore, activities in the U.S. Navy Training Complexes are not expected to adversely affect water quality.

Along the Oregon and Washington coasts, the occurrence of a "dead zone"—an area of seawater with insufficient oxygen to support most marine life—has been linked to climate change (National Academy of Sciences 2008; NOAA Research 2021). Suggested causes include climate-related changes in coastal winds and ocean circulation as well as the possibility that warmer ocean waters have directly affected the water column's ability to hold oxygen. Marine heatwaves (MHWs) also contribute to the occurrence of dead zones and other short-term changes in water quality, such as increased stratification and the deepening of the nutricline (Cavole et al. 2016). MHWs have been increasing in frequency globally since 1985, a trend that is expected to continue as a result of climate change (Oliver et al. 2018). In a recent report by the U.S. Global Change Research Program (May et al. 2018), climate variability in the Northwest is expected to contribute to continued coastal erosion, ocean acidification, harmful algal blooms, warmer ocean waters, altered marine chemistry, sea level rise, and shifts in the marine ecosystem that are expected to impact coastal communities, including Tribal nations. A number of federal, state, and local actions are being planned or implemented to mitigate effects of climate change (e.g., energy efficiency measures, clean technologies, and alternative fuels), but there is not always broad acceptance of such actions (Melillo et al. 2014).

Increased vessel traffic because of a gray whale hunt could increase the risk of oil spills and generation of greenhouse gases in the analysis area above existing levels associated with vessels involved in shipping, fisheries, tourism, or scientific research. It is likely, however, that the amount of oil from a potential spill or greenhouse gas emissions associated with a hunt would be small (because of the size and number of vessels involved) and would quickly disperse (Subsection 4.2.3, [Water Quality] Evaluation of Alternatives).

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on water quality.

5.3 Marine Habitat and Species

As described in Subsection 3.3.3, Marine Habitat and Species (Existing Conditions), the marine habitat and species in the action area are situated in the larger California Current system and are shaped by large-scale physical processes that would not be affected by any hunting or associated activities under any of the alternatives. In addition, hunting activities under any of the alternatives would have only minor, short-term, and localized impacts on the marine habitat or species in the project area. Oil and gas exploration is expected to continue to be focused in Arctic regions where disturbance from development and accidental spills can be expected. However, impacts to gray whales would depend on the location and timing of exploration and development activities, and the location, timing, and volume of spills. Effects on habitat and species associated with potential LNG and marine energy facilities (see Subsection 5.1.3.6, Marine Energy and Coastal Development) cannot be predicted given the uncertainties about whether and where any facilities will actually be built. Although the Makah Bay wave energy project has been halted, the FERC assessment (FERC 2007) associated with it provides useful insights into the types of mitigation that could be pursued for similar types of projects. It included a variety of protective measures to reduce any potential impacts to marine habitats and species, including developing a fuel and oil spill control, prevention, and countermeasures plan; developing and implementing a plan to conduct a baseline and post-installation hard substrate benthic community survey along the proposed submarine transmission line route; and removing existing marine debris and derelict fishing gear from the immediate project area prior to project construction and installation. Offshore wind energy development is expected to take place in the coming years off the coast of Oregon and/or California. Potential impacts to the marine habitat and species, including gray whales, are being discussed and assessed through NEPA and ESA consultations, as the currently proposed sites may overlap with migration routes (see Subsection 3.4.3.6.10, Marine Energy projects.

Subsection 5.1.3.3, Military Exercises, and Subsection 5.2, Water Quality, summarize the impacts of military exercises in the analysis area, and that information is equally relevant to our assessment of marine habitat and species. Activities in the U.S. Navy training complexes that may affect marine communities include explosions and materials expended during training and testing activities. Marine habitat subjected to underwater detonations would primarily be soft-bottom sediment. These disturbance events would be spread out over time, allowing recovery of the area by natural processes. The Navy's Supplemental EIS for the Northwest Training Range Complex (U.S. Navy 2020) found that any impacts from training and testing exercises are negligible and not expected to result in detectable changes to marine vegetation growth, survival, or propagation and are not expected to result in population-level impacts. Potential impacts on marine invertebrates are largely qualitative and speculative and are not expected to decrease the

overall fitness or result in long-term population level impacts on any given population. Likewise, the Navy determined that proposed military exercises would not diminish the ability of soft shores, soft bottoms, hard shores, hard bottoms, or artificial substrates to function as habitat.

Subsection 3.4.3.6.11, Climate Change and Ocean Acidification, Subsection 5.1.3.9, Climate Change, and Subsection 5.2, Water Quality, summarize the impacts of climate change, and that information is equally relevant to our assessment of marine habitat and species. The climate change report by the National Academy of Sciences (2008) notes that, along the Pacific coast, there has already been an observed shift in the types of species that are found in certain locations. For example, formerly "southern" species have become more abundant along the Pacific coast, while many "northern" species have declined. The U.S. Global Change Research Program (Mote et al. 2014) also notes that rising sea levels are expected to negatively impact species such as shorebirds and forage fish that rely on coastal wetlands, tidal flats, and beaches, especially in areas where habitats cannot shift inland because of topography or physical barriers created by human development. It also projects that anadromous species such as salmon will face adverse freshwater conditions (e.g., warmer streams with reduced flows) once they leave the ocean. That report goes on to underscore that "as species respond to climate change in diverse ways, there is potential for ecological mismatches to occur—such as in the timing of the emergence of predators and their prey." In the analysis area, one group of species that seems likely to be adversely affected—shell-forming invertebrates—is an important prey base for gray whales. Many of the observed and projected climate change impacts can take many decades to detect. In the analysis area, it is reasonable to conclude that changes will occur, but it remains unclear and largely speculative how marine species and habitats will respond and adapt to such changes. As noted in Subsection 5.1.3.9, Climate Change and Ocean Acidification, sea level rise could impact gently sloping beaches in the action area, but the northwest Olympic Peninsula overall is expected to experience very little sea-level rise.

Increased vessel traffic as a result of a gray whale hunt could increase the risk of oil spills and the generation of greenhouse gases in the analysis area above existing levels associated with vessels involved in shipping, fisheries, tourism, and scientific research. It is likely, however, that the amount of oil from a potential spill or greenhouse gas emissions associated with a hunt would be small (because of the size and small number of vessels involved), quickly disperse, and have only short-term and localized effects on marine species and habitats in a the analysis area.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from

the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on marine habitat and species.

5.4 Gray Whales

Subsection 3.4, Gray Whales (Affected Environment), provides a comprehensive review of the North Pacific gray whale stocks (both WNP and ENP) and the PCFG feeding aggregation inhabiting the action area. Subsection 4.4, Gray Whales (Environmental Consequences), considers the potential impacts of the seven alternatives on the welfare of individual gray whales as well as impacts at the stock level and to the PCFG (including whales in local survey areas within the PCFG range). The PCFG is presently not considered a population stock under the MMPA, but we have included the PCFG in recent stock assessment reports because it appears to be a distinct feeding aggregation and may warrant consideration as a separate stock in the future (Carretta et al. 2023).

For the ENP gray whale stock as a whole, past over-harvesting led to its listing in the United States as an endangered species. With the moratorium on commercial harvest, the stock recovered to the point where it was de-listed. All seven alternatives are likely to have the same effect on the ENP gray whale stock as a whole, which is the removal of an average of 140 whales per year (zero to five whales on average struck by Makah hunters with the remainder struck in the Chukotkan hunt). Although some of the alternatives are of limited duration (e.g., under Alternative 7, the waiver would expire after 10 years), for purposes of this cumulative effects analysis, we consider that effects to ENP gray whales would continue at the same rate into the future, assuming the United States continues to transfer any unused portion of the catch limit to the Chukotkans. This level of mortality would be added to other sources of human-caused mortality that include whales that are killed by ship strike, whales that are killed incidental to fishing operations, and whales that are struck and lost during a hunt and that may die as a result of their injuries.

The WNP stock remains listed as an endangered species under the ESA and is a depleted stock under the MMPA. Recent information from tagging, photo-identification, and genetic studies shows that some whales identified in the WNP off Russia have been observed in the ENP, including the project area. Given this interchange and the occurrence of whales in U.S. waters, a 2012 NMFS task force agreed that a stand-alone WNP gray whale population stock assessment report was warranted (Weller et al. 2013), and they have been included in NMFS' annual stock assessments since. Studies to date have recorded a total of 60 gray whales observed in both the WNP and ENP (the earliest record in 1995) (Lang 2010; Mate et al. 2011; Weller et al. 2012; Urbán et al. 2013; Mate et al. 2015; Urbán-Ramirez et al. 2019; Martinez-Aguilar et al. 2022a),

which is a small fraction of the roughly 14,000 whales in the ENP stock. As described in Subsection 3.4.3.2.4, WNP Status, Carrying Capacity, and Related Estimates, and Subsection 4.4.3.2.2, Change in Abundance and Viability of the WNP Gray Whale Stock, modeling based on Moore et al. (2023) indicates that under the Tribe's proposed action hunters might strike a WNP whale approximately once every 61 to 90 years, equating to a 7 to 10 percent chance of hunters actually striking at least one WNP whale in 6 years. However, the analysis by Moore et al. (2023) relies on several assumptions regarding the proposed hunt that are not likely to occur (NMFS 2023a). Given the small size of the WNP stock and the very limited data on the occurrence of whales observed in the WNP in the analysis area, it is speculative to predict whether appreciable effects would be expected from any of the activities assessed in Subsection 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions.

Increased vessel traffic as a result of a gray whale hunt could increase the risk of oil spills and generation of greenhouse gases in the analysis area above existing levels associated with vessels involved in shipping, fisheries, marine energy and mining, tourism, and scientific research. It is likely, however, that the amount of oil from a potential spill or greenhouse gas emissions associated with a hunt would be small (because of the small size and number of vessels involved), would quickly disperse, and have only short-term and localized effects on marine species and habitats in the analysis area. The most recent stock assessment report (Carretta et al. 2023) evaluates the status of the ENP stock and the PCFG and summarizes recent data on human-caused mortality and serious injury because of fisheries, ship strikes, and aboriginal harvest in Russia. Based on 2014 to 2018 data, the estimated annual level of human-caused mortality and serious injury for ENP gray whales includes Russian harvest (119), mortality from commercial fisheries (9.3), and ship strikes (1.8), totaling 130 whales per year. Estimates for human-caused mortality for whales observed in the PCFG range and season include annual average mortality from commercial fisheries (1.1) and ship strikes (0.6), totaling 1.7 whales per year. These values are well below the calculated annual levels of potential biological removal of ~409 ENP whales (or less) and 3.1 PCFG whales (see Table 3-11).

Data on gray whale mortality in Canadian waters is more limited. A past assessment by Scordino et al. (2014b) identified six gray whales killed or injured by ship strikes or in fisheries interactions in Canadian waters during 2008 to 2012. Even if all of these whales were classified as killed PCFG whales (an annual average mortality of 1.2 PCFG whales) and added to the values reported by Carretta et al. (2023), the annual average human-caused mortality would be 2.9 whales observed in the PCFG range and season, which is still lower than the 3.1 PCFG whales reported as the potential biological removal level in our stock assessment report. Overall, fisheries-related mortalities in Canada are thought to be small and the large stock size of the ENP

population and rate of increase in the past makes it unlikely that unreported mortalities from those fisheries would be a significant source of mortality for this stock (Angliss and Outlaw 2008). Finally, the IWC's modeling of the Tribe's proposed hunt (IWC 2013c) (refer to Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates – IWC Implementation Review of PCFG Gray Whales) included an even more precautionary estimate of non-hunting human-caused mortality[8] (2.0 PCFG whales), which is higher than the 1.7 whales in the PCFG range and season reported in the most recent stock assessment report (Carretta et al. 2023). The 2020 Implementation Review incorporated updated PCFG abundance estimates, which did not alter their previous advice.

Data regarding gray whale mortalities in Mexico and Russia as a result of interactions with shipping and fisheries are not readily available. However, the number of strandings from Alaska to California[9], as well as Mexico, has been higher in recent years (2019 to present) since the onset of the current UME (Subsection 3.4.3.1.7, Strandings). The number of whales struck and lost in the Chukotka hunt has varied annually, with nine reported in 2005 as the highest recent reported number. Assuming all struck and lost whales die, the average number of whales potentially lost from all sources of human-caused mortality would be approximately 139 animals per year. That number is slightly more than one-quarter of the calculated PBR for the ENP gray whale stock. The effects of human-caused mortality would not affect the ability of the ENP gray whale stock as a whole to maintain at, or reach, its OSP level.

As described in Subsection 5.1.3.5, Tourism, although whale watching has grown in recent years within the overall analysis area, some regions within this area have remained relatively stable (or even declined) so it is not possible to predict how much this industry might grow in the future and what, if any, appreciable effects might accrue beyond those assessed in Subsection 4.4, Gray Whales.

Oil and gas exploration is expected to continue to be focused in Arctic regions where disturbance from development and accidental spills can be expected. However, impacts to gray whales would depend on the location and timing of exploration and development activities, and the location, timing, and volume of spills. Appreciable effects on gray whales from potential LNG and marine energy facilities (including potential wind energy sites) cannot be predicted given the uncertainties about whether and where any facilities will actually be built. If these facilities are developed in the analysis area they could affect migrating or feeding gray whales. Such projects could have a greater impact on summer-feeding PCFG whales than on the ENP gray whale stock

[8] The IWC model assumed this value would vary directly with changes in abundance.
[9] We were unable to obtain Mexico stranding data for 2003, 2006 to 2014, and 2016.

as a whole because the summer-feeding whales spend more time in waters near potential LNG and other marine energy facilities. If marine energy or LNG projects negatively affect the abundance of gray whales identified in the PCFG or the OR-SVI survey area, the number of identified whales that could be harvested would be reduced accordingly (i.e., via the formulas used to place additional limits on the harvest or mortality of PCFG whales).

As discussed above in Subsection 5.1.3.3, Military Exercises, impacts to gray whales in the Navy's complexes would mostly stem from the use of sonar and other active acoustic sources during training and testing activities. However, these are not expected to injure gray whales and long-term consequences would not be expected on individual gray whales or the WNP and ENP stocks overall. In addition, the Navy does not anticipate vessel strikes on gray whales but has taken the precautionary step of requesting authorization from NMFS to incidentally take a total of one to four large whales annually by injury or mortality in the NWTR and SOCAL complexes. Further north, training activities in the GOA Complex normally occur during April and October, and most gray whales would have moved through the area by mid-June to feed north of the Aleutian Islands (Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements) (U.S. Navy 2011). The Navy's most recent Supplemental EIS for this complex (U.S. Navy 2022) projects a large reduction in the number of predicted acoustic stressor impacts compared to the previous EIS (U.S. Navy 2011) and, therefore, it is even less likely that there would be any long-term impacts on individuals or populations of marine mammals.

As described in Subsection 5.1.3.7, Scientific Research, we expect that impacts from research vessels and activities will likely continue to affect gray whales (most likely from vessel strikes or disturbance) at the same rate as in the past throughout their range. It is possible that such impacts could increase in the Arctic as that region is explored for climate research, shipping, and oil and gas development. However, there is no evidence to indicate that disturbance or mortalities of whales from scientific research would result in any appreciable effects beyond those assessed in Subsection 4.4, Gray Whales. Additionally, any increase in shipping and development is speculative.

Increased killer whale predation could be a concern for ENP gray whales, but it is unlikely that an increase in predation would result in appreciable effects when combined with mortality from a tribal hunt because none of the alternatives are likely to result in increased mortality of ENP gray whales overall. Increased killer whale predation could also be a concern for PCFG whales, although it is not possible to predict how much such predation could increase. If killer whale predation did result in a decrease in PCFG abundance, allowable harvest levels would go down under action alternatives 2 through 6, because the limits on harvest levels under those alternatives

are based on the population abundance. This would also be the case if a UME causes a decline in the PCFG population. Under Alternative 7, a hunt would be prohibited if the PCFG low abundance threshold was met. Because such adjustments account for a change in abundance, we would not expect the impacts of a hunt under any of the alternatives to have cumulative effects with killer whale predation when taken into consideration with past, present, and reasonably foreseeable future actions. As noted in Subsection 5.1.3.8, Natural Mortality, it is unclear how natural mortality may be influencing the WNP stock of gray whales, though as a small population the stock may be more susceptible to changes in mortality.

Global climate change may also affect abundance, viability, and distribution of gray whales in the future. Gray whales feed on a variety of prey, both benthic and pelagic, and the whales will switch feeding areas and strategies in response to changes in prey availability (Subsection 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements). Changes in Arctic conditions may cause many seasonal migrant species to range farther north in search of prey, and it seems that gray whales may already be doing so (Moore et al. 2007, Moore and Huntington 2008). Moore and Huntington (2008) observed that "gray whales are perhaps the most adaptable and versatile of the mysticete species," are opportunistic foragers, and have documented feeding year-round off Kodiak, Alaska. In a rangewide workshop on gray whales (IWC 2014e), it was noted that the loss of Arctic sea ice now allows gray and other baleen whales a month or more longer to feed in the Arctic, and changes in the primary production there may result in more prey for these whales. Bluhm and Gradinger (2008) examined likely trends in the availability of pelagic and benthic prey in the Arctic and concluded that pelagic prey is likely to increase while benthic prey is likely to decrease. They noted that marine mammal species that feed both pelagically and benthically (such as gray whales) will fare better than those that only feed benthically. For gray whales, they observed that the composition of gray whale prey may be less important than the energy density at feeding sites. In their review of reported climate change impacts on gray whales, Salvadeo et al. (2013) cited the following as likely gray whale responses to global warming:

- Fewer whales in the Gulf of California
- Increased numbers of mothers with calves along the California coast
- Winter occurrence of whales in their feeding areas
- Recolonization of the Atlantic Ocean by gray whales
- Decrease in whale numbers in the breeding lagoons

Several of these predictions have been realized in recent years coinciding with the current UME, including fewer whales in the Gulf of California, reduced number of whales in the breeding

lagoons (LSIESP 2023), and shifting occurrence in feeding areas (Moore et al. 2022; Joyce et al. 2023).

As described in Subsection 3.4.3.6.11, Climate Change and Ocean Acidification, recent work has characterized gray whale distribution, abundance, and phenology in the Pacific Arctic northern feeding grounds as a function of sea ice cover (Gailey et al. 2020; Perryman et al. 2021; Moore et al. 2022; Joyce et al. 2023) and prey distribution (Moore et al. 2022). As described in Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates, gray whale population dynamics and major mortality events have been linked to both sea ice cover and prey biomass (Stewart et al. 2023). Calf production has also been tied to climate variables and sea ice cover (Gailey et al. 2020; Perryman et al. 2021). While it is still unclear the exact impacts, and mechanisms of impact, that climate change has on gray whales, it is likely that impacts are occurring and will continue into the future.

Ocean acidification is another future development that could affect gray whales by affecting their prey. Increased acidity in the ocean will reduce the abundance of shell-forming organisms (Fabry et al. 2008; Hall-Spencer et al. 2008), some of which are important in the gray whales' diet (Moore and Huntington 2008). Although there is considerable uncertainty about the degree to which these organisms will be affected by increased ocean acidity, modeling analyses by NMFS' scientists indicate that the flexible foraging strategies of gray whales may mitigate the effects of ocean acidification on the species. The Atlantis model predicts no change in the biomass of the baleen whale group, 62 percent of which is made up of gray whales, even under the most extreme scenario for future acidification (Dufault et al. 2009; Kaplan et al. 2010). We conclude that any climate-induced impacts on gray whales will likely manifest over the long term, but these impacts are too speculative to predict at this time.

For gray whales in the PCFG range and local survey areas within this range (e.g., the OR-SVI and Makah U&A), there are no other appreciable effects that are unique from those that affect the ENP stock as a whole. Because PCFG whales are a small subset of the larger ENP stock (numerically and geographically), it is possible that future activities might have disproportionately greater effects on PCFG whales and whales using local survey areas. However, such impacts are not foreseen at this time and would depend on the location, timing, and magnitude of activities/disturbances. Therefore, adding the potential disturbance and mortalities associated with a gray whale hunt under Alternatives 2 through 7 to existing levels of disturbance and mortality of past, present, and reasonably foreseeable future actions would not be expected to have cumulative effects on gray whales in the PCFG, local survey areas within the PCFG range, and individual gray whales. For individual whales, it is possible that the stress associated with

hunting, when added to existing sources of stress such as those described in Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts, could lead to the mortality of some individual whales. This possibility is explored in Subsection 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock.

While the current UME has resulted in a 46% decline in the ENP population abundance in the last 7 years (Eguchi et al. 2023a), it is unclear how or if the PCFG population has been affected by the UME, given that the PCFG abundance numbers have remained relatively stable. If the current or a future UME equally affected PCFG whales, it could magnify the effects on the PCFG of mortality associated with a tribal hunt because the hunt-related death of up to four animals per year would have a bigger impact on a smaller population. However, measures included in the action alternatives, e.g., low abundance thresholds, would mitigate this impact.

As described above, the ENP population has experienced large fluctuations in its population and has recovered from previous declines in abundance. It is difficult to predict the timing and likelihood of another significant decline in ENP abundance; however, it would be possible to mitigate for such an event by including measures in hunting regulations that would constrain hunting in that scenario. The Scientific Committee of the IWC annually monitors the status of ENP gray whales. In the event that gray whale abundance declines as a result of human activities or other unforeseen causes, the IWC has a process in place to adjust catch limits for aboriginal subsistence hunting (Subsection 1.2.4.1.3, IWC Aboriginal Subsistence Whaling). Such adjustments to catch limits could in turn affect the issuance of hunt permits under the proposed hunt regulations. Further, the three Sub-alternatives to the Preferred Alternative could implement an abundance threshold for the ENP stock below which hunting would cease. Such a threshold, if implemented, could serve as an additional precaution to protect the ENP stock.

5.5 Other Wildlife

Subsection 4.5.3, [Other Wildlife] Evaluation of Alternatives, analyzes the effects likely to occur to other wildlife species from implementation of Alternatives 2 through 7. These effects would primarily be from vessel noise and disturbance and would be greater under alternatives that involve the greatest number of days of hunt-related trips (Alternatives 2, 3, and 6), although hunting that takes place farther offshore (as under Alternative 3) would have a lower likelihood of affecting species that are present on the rocks and islands closer to shore. Some disturbance could also be expected from aircraft and weapons discharge associated with a hunt. Under all action alternatives, these effects are expected to be minor and temporary for all species with the possible exception of some seabird colonies during the nesting season.

Subsection 3.13.3, [Transportation] Existing Conditions, describes existing levels of vessel and air traffic in the project area to which the additional vessel and air traffic would be added under Alternatives 2 through 7. Future increases in shipping have the potential to affect marine mammals and birds through vessel interactions and noise. Vessel collisions with marine mammals, though rare, could increase as a result of increased shipping.

Oil and gas exploration is expected to continue to be focused in Arctic regions where disturbance from development and accidental spills can be expected. Effects on other wildlife associated with potential LNG and wave energy facilities cannot be predicted given the uncertainties about whether and where any facilities will actually be built. Although the Makah Bay wave energy project has been halted (see Subsection 3.4.3.6.10, Marine Energy Projects, for more detail), the FERC assessment (FERC 2007) associated with it provides useful insights into the types of mitigation that could be pursued for similar types of projects. It included a variety of protective measures to reduce any potential impacts to marine habitats and species, including developing a fuel and oil spill control, prevention, and countermeasures plan; developing and implementing a plan to conduct a baseline and post-installation hard substrate benthic community survey along the proposed submarine transmission line route; and removing existing marine debris and derelict fishing gear from the immediate project area prior to project construction and installation.

Activities in the U.S. Navy Training Complexes that may affect wildlife include collisions, explosions, and materials expended during training and testing activities. The EIS found that potential impacts on certain fish, bird, turtle, and marine mammal species could include injury or mortality, but impacts are not expected to decrease the overall fitness of or result in long-term population level impacts on any given population. In cases where potential impacts rise to the level that warrants mitigation, the Navy has identified numerous measures, including enhanced training, lookouts/surveillance, buffers, and approach protocols.

Global climate change will likely affect the distribution, abundance, and viability of various wildlife species. A report on ecological impacts of climate change by the National Academy of Sciences (2008) states that “climate change is happening on a global scale, but the ecological impacts are often local and vary from place to place.” That report goes on to describe how shifts have already been observed in species’ ranges and phenology (the timing of biological activities that occur seasonally). Along the Pacific Coast, one observed shift is that formerly “southern” species have increased in abundance since the mid-20th century, while many “northern” species have decreased as temperatures warm.

Ocean acidification is likely to adversely affect shell-forming organisms, which could in turn have widespread impacts on marine ecosystems (Fabry et al. 2008); however, there is

considerable uncertainty about the degree to which particular species will be affected. Modeling analyses by NMFS' scientists indicate highly variable results within food webs and that flexible foraging strategies may mitigate the effects of ocean acidification on certain species. For example, the Atlantis model predicts that groundfish stocks such as English sole, arrowtooth flounder (i.e., large flatfish), and yellowtail rockfish (midwater rockfish) may be particularly susceptible to the loss of shelled prey items from their diet (Kaplan et al. 2010). In contrast, some species of nearshore fish were predicted to increase (relative to a no acidification scenario) because of declines in their predators. We conclude that any changes in species assemblages and food webs will likely manifest over the long term, but these are too speculative to predict.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We therefore do not expect there would be significant cumulative effects on other wildlife.

5.6 Economics

Subsection 3.6.3, [Economics] Existing Conditions, describes Clallam County's recent decrease in average unemployment rate (from 8.1 percent in 2010 to 5.2 percent in 2021) and average annual increase in personal income (4.5 percent increase per year from 2011 to 2020). Levels of unemployment are higher and personal income lower in Neah Bay compared to county-wide data. There are no foreseeable future trends that may affect the present economic climate in the county or in Neah Bay.

Both tourism and fishing are important industries in the analysis area. Subsection 4.6, Economics, analyzes the potential for minor temporary increases or decreases in tourism in Clallam County and Neah Bay if a gray whale hunt is authorized under Alternatives 2 through 7. It also describes no likely change in economic conditions if a gray whale hunt is not authorized under Alternative 1. According to the environmental assessment for the Makah Bay wave energy project (FERC 2007), that project would have had a positive effect on the economy in the project area.

Given the current economic climate, generally favorable economic trends in Clallam County, and that the potential effects of any of the alternatives are either nonexistent or minor and temporary, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on the economics of the cumulative effects analysis area.

5.7 Environmental Justice

Subsection 4.7, Environmental Justice, describes the potential effects on the Makah Tribe (the population of concern for purposes of considering Executive Order 12898, Environmental Justice) of the No-action Alternative and the six action alternatives. Because the Makah Tribe has requested authorization of a whale hunt, impacts to the Tribe under the action alternatives are not an issue of concern under the Executive Order. However, it is likely that the Makah Tribe would experience negative cumulative effects under the No-action Alternative for the reasons described under Subsection 5.10, Ceremonial and Subsistence Resources.

5.8 Social Environment

As described in Subsection 3.8, Social Environment, various groups and individuals have different opinions about hunting whales. NMFS received public comments about the hunt from a broad geographic area—public scoping occurred near the action area and in Washington D.C. Makah tribal members and other tribes generally support the hunt, while the general public has mixed feelings about the issue. Subsection 4.8, Social Environment, analyzes the potential for these different groups to experience both increased social conflict and increased social bonding, within the groups and outside the groups, under any of the alternatives. Other social issues exist that may have caused conflict or bonding within or among these groups in the past, and new issues are likely to arise in the future. Therefore, we conclude that social events are too speculative to inform a cumulative impact analysis. For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on the social environment.

5.9 Cultural Resources

As analyzed in Subsection 4.9, Cultural Resources, no adverse effects are expected to cultural resources if hunting is authorized under Alternatives 2 through 7. Some beneficial effects are possible to both listed and unlisted cultural sites historically used for whaling-related ceremonies if hunting is authorized. These sites are also used for other non-whaling activities.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on cultural resources.

5.10 Ceremonial and Subsistence Resources

Subsection 3.10.3, [Ceremonial and Subsistence Resources] Existing Conditions, describes the past and current status of Makah subsistence and ceremonial practices, including a history of such practices being discouraged by U.S. government policy and a recent resurgence in such practices. It also describes the prestige accorded whaling families in traditional Makah society. Subsection 4.9, Cultural Resources, examines the potential for resumption of whaling under Alternatives 2 through 7 to enhance the Tribe's subsistence and ceremonial practices and, conversely, for implementation of Alternative 1 (no authorized hunting) to detract from these practices. Future policies of the U.S. government are difficult to predict, as are future trends in the values of the dominant culture that may affect Makah ceremonial and subsistence practices. It is also not possible to predict the availability of subsistence resources in the future, although it is likely that resources will shift as global climate change affects the ocean ecosystem. It is possible that a denial of the Tribe's request under Alternative 1, when added to the legacy of U.S. government policies discouraging subsistence and ceremonial practices, would have negative cumulative effects beyond the effects of alternatives analyzed in Subsection 4.10, Ceremonial and Subsistence Resources.

5.11 Noise

Subsection 3.11, Noise, describes the relevant noise-related policies and jurisdictions, sensitive noise receptors, and background noise conditions in the project area. Of the actions reviewed in our cumulative impact analysis, those that contribute to noise levels do so primarily via vessel noise (e.g., shipping, military exercises, fishing, and scientific research) or sonar and detonations during Navy training and testing. All of these sources of noise are unpredictable in terms of time, location, and intensity. Under Alternatives 2 through 7, there may be some localized, temporary increases in noise levels because of hunt-related vessel traffic, media and protest activity, and rifle shots or grenade explosions. However, it is likely that the increased amount of noise associated with vessel traffic would be masked by high ambient noise levels (e.g., natural sounds, such as those of wind and surf and existing sources of anthropogenic noise such as commercial shipping). Rifle shots and grenade explosions would produce high-intensity noise but it would be of short duration. It is not possible to predict noise levels associated with protest activities, but they would also likely be localized and temporary (and subject to control by law enforcement if protest activities were to pose an imminent threat to public safety).

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from

the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on noise.

5.12 Aesthetics

Under Alternatives 2 through 7, there may be some temporary aesthetic effects to people viewing gray whale hunts through the media or from local vantage points both inside and outside of the action area. There are currently no issues identified in the action area related to aesthetics, and those outside of the action area were addressed as a direct or indirect effect from media coverage or vantage points.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on aesthetics.

5.13 Transportation

Under Alternatives 2 through 7, there may be some localized, temporary effects on highway traffic in the action area, but no land-based transportation effects would occur outside of the action area. Marine and air traffic effects outside of the action area were also analyzed in Section 4, Environmental Consequences.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on transportation.

5.14 Public Services and Public Safety

Under Alternatives 2 through 7, there may be some localized, temporary effects on police services in the action area, but no strains are anticipated on medical services in either the action area or on medical services in larger cities outside of the action area. It is not anticipated that localized needs for police services under any of the action alternatives would require additional services from law enforcement sources outside of the area analyzed in Section 4, Environmental Consequences.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from

the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on public safety.

5.15 Human Health

Subsection 3.16.3, Human Health, Existing Conditions, describes the levels of contamination found in gray whales and the potential for food-borne pathogens associated with the butchering, storage, and preparation of gray whale products. It also describes the nutritional benefits of gray whale food products. As discussed in Subsection 4.16, Human Health, it is not possible to evaluate the change in tribal members' exposure to contaminants or pathogens, or in their nutrition, without knowing how much or what type of whale products individuals would consume and without knowing the contaminant level and nutritional composition of their present diet. Furthermore, it is not possible to determine how past events such as a moratorium on whaling affected the overall health of the Makah Tribe because no data exist to demonstrate changes in health before and after whale hunting was allowed.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on human health.

5.16 National and International Regulatory Environment

As described in Subsection 4.17, Regulatory Environment Governing Harvest of Marine Mammals, it is too speculative to conclude that NMFS' decision to authorize or not authorize a whale hunt would affect marine mammals in the United States or whaling worldwide.

For the reasons described above, we conclude that when the effects of past, present, and reasonably foreseeable future actions are added to the direct and indirect effects of Alternatives 1 through 7, the incremental effects of Alternatives 1 through 7 are not likely to be different from the effects described in Section 4, Environmental Consequences. We, therefore, do not expect there would be significant cumulative effects on the national and international regulatory environment.

References

Aerts, L., M. R. Jenkerson, V. E. Nechayuk, G. Gailey, R. Racca, A. L. Blanchard, L. K. Schwarz, and H. R. Melton. 2022. Seismic surveys near gray whale feeding areas off Sakhalin Island, Russia: assessing impact and mitigation effectiveness. *Environmental Monitoring and Assessment*, *194*(Suppl 1), p.746.

Affiliated Tribes of Northwest Indians. Undated. A Travel Guide to Indian Country—Washington State Edition 2005/2006. Visitors Guide Publications, Bellingham, WA. Available at http://www.experiencewa.com/v5/GuidesAndMaps/publications.aspx.

Aguilar, A. 1985. Aboriginal whaling off Pagalu (Equatorial Guinea). Reports of the International Whaling Commission 35: 385-386.

Aguilar, A. 2002. Fin whale. Pages 435-438 *in* W. F. Perrin, B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals, Academic Press, San Diego, CA. 1,414 pp.

Airamé, S., S. Gaines, and C. Caldow. 2003. Ecological linkages: Marine and estuarine ecosystems of central and northern California. NOAA, National Ocean Service, Silver Spring, MD. 164 pp.

Akmajian, A. M., J. J. Scordino, P. J. Gearin, and M. Gosho. 2021. Body condition of gray whales (Eschrichtius robustus) feeding on the Pacific Coast reflects local and basin-wide environmental drivers. Journal of Cetacean Research and Management, 22(1), 87–110. https://doi.org/10.47536/jcrm.v22i1.223.

Alaska Department of Fish and Game. 2014. Information by Fishery – Shellfish Commercial Fisheries. Available at http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyfisheryshellfish.main

Alaska Eskimo Whaling Commission. 2004. User's Manual for the Penthrite Projectile and Super Barrel Used in the Alaskan Eskimo Subsistence Hunt of the Bowhead Whale. Report by the Training and Certification by AEWC WIP Management Committee, February 2004.

Alaska Eskimo Whaling Commission. 2006. Report on Weapons, Techniques, and Observations in the Alaskan Bowhead Whale Subsistence Hunt. Unpublished report, submitted to the International Whaling Commission's Workshop on Whale Killing Methods by the United States, St. Kitts and Nevis, June 2006 (IWC/58/WKM&AWI22). Available at http://www.iwcoffice.org/_documents/commission/IWC58docs/iwc58docs.htm.

Alaska Eskimo Whaling Commission. 2023. Weapons Improvement Program. https://www.aewc-alaska.org/weapons-improvement-program. Accessed April 7, 2023.

Alaska Marine Conservation Council. 2005. Conservation and Management of North Pacific Rockfishes. August 2005. Prepared by Ben Enticknap and Whit Sheard. Available at http://www.akmarine.org/who-we-are/publications/.

Albert, T. F. 1981. Some thoughts regarding the possible effects of oil contamination on bowhead whales, Balaena mysticetus. Pages 945-953 *in* T. F. Albert, editor. Tissue structural studies and other investigations on the biology of endangered whales in the Beaufort Sea. Final report to the Bureau of Land Management, Anchorage, Alaska, from the Department of Veterinary Science, University of Maryland, College Park, MD. 953 pp.

Alexander, K. 2013. The International Whaling Convention (IWC) and Legal Issues Related to Aboriginal Rights. Congressional Research Service. Report 7-5700, R40571. July 22, 2013. Available at www.crs.gov.

Allen, S.E. and M.A. Wolfe. 2013. Dynamics of advection-driven upwelling over a shelf break submarine canyon. Journal of Geophysical Research, 115 (C8). doi:10.1029/2009JC005731.

Alter, S. E., E. Rynes, and S. R. Palumbi. 2007. DNA evidence for historic population size and past ecosystem impacts of gray whales. Proc. Nat. Acad. Sci. 104(38):15162-15167.

Alter, S.E., S. F. Ramirez, S. Nigenda, J. Urbán-Ramirez, L. R. Bracho, & S. R. Palumbi. 2009. Mitochondrial and Nuclear Genetic Variation across Calving Lagoons in Eastern North Pacific Gray Whales (Eschrichtius robustus). Journal of Heredity 2009:100(1):34–46 doi:10.1093/jhered/esn090.

Alter S. E., S. D. Newsome, and S. R. Palumbi. 2012. Pre-Whaling Genetic Diversity and Population Ecology in Eastern Pacific Gray Whales: Insights from Ancient DNA and Stable Isotopes. PLoS ONE 7(5): e35039. doi:10.1371/journal.pone.0035039.

Anderson, B. 1999. May letters — tribal traditions, Kosovo, guns in schools dominate. The Seattle Times June 13, 1999. Available at http://seattletimes.nwsource.com/

Anderson, P. 2008a. Makah To Look At Compensation Offer—Tribal Meeting Called To Examine Whether To Deal With Whaling Foes. Seattle Times online news article posted November 30, 1998 at http://community.seattletimes.nwsource.com/archive/?date=19981130&slug=2786312

Anderson, P. 2008b. Makah Decide to Proceed with Whale Hunt. The Spokesman-Review news article posted December 1, 1998. Available at http://news.google.com/newspapers?nid=1314&dat=19981201&id=fGNWAAAAIBAJ&sjid=7fEDAAAAIBAJ&pg=6643,81972

Anderson, P. 2010. Letter from P. Anderson (WDFW) to W. Anderson and T. Drake (Green Vegans) regarding petition for state listing of Eastern North Pacific – Southern Group gray whales. Dated September, 14, 2010.

Andrady, A. L. 2011. Microplastics in the marine environment. Marine Pollution Bulletin, 62(8), 1596-1605.

Andrew, R. K., B. M. Howe, J. A. Mercer, and M. A. Dzieciuch. 2002. Ocean ambient sound: Comparing the 1960s with the 1990s for a receiver off the California coast. Acoustics Research Letters Online 3(2):65-70.

Andrews, R.C. 1914. Monographs of the Pacific Cetacea. I. The California gray whale (Rhachianectes glaucus Cope). Mem. Am. Mus. Nat. Hist. 1(5):227-87.

Angliss, R. P. and K. L. Lodge. 2002. Alaska Marine Mammal Stock Assessments. U.S. Department of Commerce NOAA Technical Memorandum NMFS-AFSC-133.

Angliss, R. P. and R. B. Outlaw. 2005. Alaska marine mammal stock assessments, 2005. U.S. Department of Commerce NOAA Technical Memorandum NMFS-AFSC-161.

Angliss, R. P. and R. B. Outlaw. 2008. Alaska marine mammal stock assessments, 2007. U.S. Department of Commerce NOAA Technical Memorandum NMFS-AFSC-180. February 2008.

Anzio Ironworks. 2013. Available at http://www.anzioironworks.com/light_50.htm

Arctic Climate Impact Assessment. 2004. Impacts of a warming Arctic: Arctic Climate Impact Assessment. Cambridge University Press, Cambridge, UK.

Arctic Monitoring and Assessment Programme (AMAP). 2021. AMAP Assessment 2021: Human Health in the Arctic. Tromsø, Norway. x+240pp. ISBN: 978-82-7971-200-8.

Arima, E. 1983. The West Coast People: The Nootka of Vancouver Island and Cape Flattery. British Columbia Provincial Museum Special Publication No. 6. British Columbia Provincial Museum, Victoria, British Columbia.

Arima, E., T. Klokeid, and K. Robinson. (Ed.). 2000. The Whaling Indians: tales of extraordinary experience. Sapir-Thomas Nootka Texts, Part 10. Mercury Series, Canadian Ethnology Series, Paper 134. Ottawa, ON.

Arnold, S.M. and J. P. Middaugh. 2004. Use of Traditional Foods in a Health Diet in Alaska: Risks in Perspective. Second Edition: Volume 2. Mercury. State of Alaska, Epidemiology Bulletin Recommendations and Reports. December 2, 2004.

Ashton, K., L. Holmes, and A. Turner. 2010. Association of metals with plastic production pellets in the marine environment. Marine Pollution Bulletin 60(11), 2050-2055.

Associated Press. 1999. "Whale hunt doesn't scare away tourists—peninsula visitors curious, not furious" The Seattle Times August 4, 1999. Available at http://seattletimes.nwsource.com.

Associated Press. 2005. Eskimos Test New Explosive for Whale Hunts. FOXNews.com November 10, 2005. Available at http://www.foxnews.com/printer_friendly_story/0,3566,175207,00.html

Atkins, N. and S. L. Swartz. (Ed.). 1988. Proceedings of the workshop to review and evaluate whale watching programs and management needs, November 14-16, 1988, Monterey, CA. Center for Marine Conservation, Washington, D.C.

Au, W.W. L, D. A. Carder, R. H. Penner, and B. L. Scronce. 1985. Demonstration of adaptation in beluga whale echo-location signals. Journal of the Acoustical Society of America 77: 726-730.

Au, W.W. L. and M. Green. 2000. Acoustic interaction of humpback whales and whale-watching boats. Marine Environmental Research 49(5):469-481.

Baillie, J. E. M., C. Hilton-Taylor, and S. N. Stuart. (Ed.). 2004. 2004 IUCN Red List of Threatened Species. A Global Species Assessment, IUCN, Gland, Switzerland and Cambridge, United Kingdom.

Bain, D. E. and M. E. Dahlheim. 1994. Effects of masking noise on detection thresholds of marine mammals. Pages 243-256 *in* T. R. Loughlin, editor. Marine Mammals and the Exxon Valdez. Academic Press, New York, NY.

Baird, R. W. 2002. Risso's dolphin. Pages 1037-1039 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Baird, R. W., P. A. Abram, and L. M. Dill. 1992. Possible indirect interactions between transient and resident killer whales: implications for the evolution of foraging specialization in the genus Orcinus. Oecologia 89:125-132.

Baird, R. W., P. J. Stacey, D. A. Duffus, and K. M. Langelier. 2002. An evaluation of gray whale (Eschrichtius robustus) mortality incidental to fishing operations in British Columbia, Canada. Journal of Cetacean Research and Management, 4(3):289-296.

Ballachey, B. E., J. L. Bodkin, and A. R. DeGange. 1994. An overview of sea otter studies. Pages 47-59 *in* T. R. Loughlin, editor. Marine mammals and the Exxon Valdez. Academic Press, San Diego, CA.

Barber, M. 1999. Slings and arrows in hunt for heritage – Indians celebrate, divide whale – catch protest, abuse. The Seattle Post-Intelligencer May 19, 1999. Available at http://seattlepi.nwsource.com/archives.

Barber, R. T. and F. P. Chavez. 1983. Biological consequences of El Niño. Science 222:1203-1210.

Barlett, M. L. and G. R. Wilson. 2002. Characteristics of small boat signatures. Journal of the Acoustical Society of America 112:2221.

Barlow, J. 2010. Cetacean abundance in the California Current from a 2008 ship-based line-transect survey. NOAA Technical Memorandum, NMFS, NOAA-TM-NMFS-SWFSC-456. 19 p.

Barlow, J. 2016. Cetacean abundance in the California Current estimated from ship-based line-transect surveys in 1991-2014. Southwest Fisheries Science Center, Administrative Report, LJ-2016-01. 63 pp.

Barlow, J., S. L. Swartz, T. C. Eagle, and P. R. Wade. 1995. U.S. Marine mammal stock assessments: guidelines for preparation, background, and a summary of the 1995 assessments. U.S. Department of Commerce NOAA Technical Memorandum NMFS-OPR-95-6.

Barlow, J., J. Calambokidis, E. A. Falcone, C. S. Baker, A. M. Burdin, P. J. Clapham, J. K. B. Ford, C. M. Gabriele, R. Leduc, D. K. Mattila, T. J. Quinn, L. Rojas-Bracho, J. M. Straley, B. L. Taylor, J. Urbán, R., P. Wade, D. Weller, B. Witteveen, and M. Yamaguchi. 2011. Humpback whale abundance in the North Pacific estimated by photographic capture-recapture with bias correction from simulation studies. Marine Mammal Science, 27: 793-818.

Barnes, D. K. A., F. Galgani, R. C. Thompson, and M. Barlaz. 2009. Accumulation and fragmentation of plastic debris in global environments. Philosophical Transactions of the Royal Society B, Vol. 364, pages 1985-1998.

Barnes, R.H. 1991. Indigenous whaling and porpoise hunting in Indonesia. Pages 99-106 *in* Leatherwood, S., and G. P. Donovan, editors. Cetaceans and Cetacean Research in the Indian Ocean Sanctuary, Marine Mammal Technical Report 3, United Nations Environment Programme, Nairobi, Kenya.

Barnes, R.H. 1996. Sea Hunters of Indonesia: Fishers and Weavers of Lamalera. Clarendon Press, Oxford, United Kingdom.

Barrett Firearms. 2011. Operators manual for M107A1. P/N 12927 5/18/2011. Downloaded from: http://barrett.net/pdfs/M107A1-Manual.pdf.

Barrett-Lennard, L. G., C. O. Matkin, J. W. Durban, E. L. Saulitis, and D. Ellifrit. 2011. Predation on gray whales and prolonged feeding on submerged carcasses by transient killer whales at Unimak Island, Alaska. Marine Ecology Progress Series. 421: 229-241.

Barstow, R. 1996. Why Whales? Breakthrough to a Broader Ethic. Presentation by Cetacean Society International Director Emeritus at the Fourth Annual 'Whales Alive Conference,' Wailea, Maui, HI. Available at http://csiwhalesalive.org/csiwhy.html

Barth, J. A. and R. L. Smith. 1997. Coastal ocean circulation off Oregon: Recent observations of spatial and temporal variability. Pages 57-68 *in* Emmett, R. L. and M. H. Schiewe, editors. Estuarine and ocean survival of northeastern Pacific salmon: Proceedings of the workshop. NOAA Technical

Memorandum NMFS-NWFSC-29. Available at http://www.nwfsc.noaa.gov/publications/techmemos/tm29/.

Barth, J. A., S. D. Pierce, and R. L. Smith. 2000. A separating coastal upwelling jet at Cape Blanco, Oregon and its connection to the California Current System. Deep-Sea Research II 47(2000):783-810.

Bass, J. 2000. Variations in gray whale feeding behavior in the presence of whalewatching vessels in Clayoquot Sound, 1993-1995. PhD dissertation. University of Victoria, Victoria, BC.

Bass, J., and D. Duffus. 1999. Behavior of foraging gray whales in the presence of whale-watching vessels. Page 13 in Abstracts of the 13th Biennial Conference on the Biology of Marine Mammals, Wailea, Hawaii.

Batchelder, H. P., J. A. Barth, P. M. Kosro, P. T. Strub, R. D. Brodeur, W. T. Peterson, C. T. Tynan, M. D. Ohlman, L. W. Botsford, T. M. Powell, F. B. Schwing, D. G. Ainley, D. L. Mackas, B. M. Hickey, and S. R. Ramp. 2002. The GLOBEC Northeast Pacific California Current System program. Oceanography 15(2):36-47.

Bates, A. M. 1987. Affiliation and differentiation: intertribal interactions among the Makah and Ditidaht Indians. Ph.D. dissertation, Indiana University, Bloomington, IN.

Bean, M. J. 1983. The evolution of national wildlife law, revised and expanded edition. Praeger Publishers, New York, NY.

Beattie, K. H. 2001. Minimizing the potential for injury or death from rifle fire to non-participants in Makah gray whale hunts. Report prepared by Beattie Natural Resources Consulting, Inc. for the Makah Whaling Commission. March 2001.

Bechard, M. J., and C. Marquez-Reyes. 2003. Mortality of wintering ospreys and other birds at aquaculture facilities in Colombia. Journal of Raptor Research 37: 292-298.

Becker, E.A., K. A. Forney, D. L. Miller, P. C. Fiedler, J. Barlow, and J. E. Moore. 2020. Habitat-based density estimates for cetaceans in the California Current Ecosystem based on 1991- 2018 survey data, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC638.

Bedard, R. 2005. Offshore wave power feasibility demonstration project. Final summary report, project definition study. E2I EPRI Global WP 009-US Rev 2. Global Energy Partners, LLC. September 22, 2005.

Bejarano, A. C., VanDola, F.M., Gulland, F.M., Rowles, T.K. and Schwacke, L.H. 2008. Production and Toxicity of the Marine Biotoxin Domoic Acid and Its Effects on Wildlife: A Review. Human and Ecological Risk Assessment 14:544-567.

Belley, R., P.V. Snelgrove, P. Archambault and S.K. Juniper. 2016. Environmental drivers of benthic flux variation and ecosystem functioning in Salish Sea and Northeast Pacific sediments. PloS one, 11(3), p.e0151110.

Bender, T. R., T. S. Jones, W. E. DeWitt, G. J. Kaplan, A. R. Saslow, S. E. Nevius, P. S. Clark, and E. J. Gangarosa. 1972. Salmonellosis associated with whale meat in an Eskimo community. Serologic and bacteriologic methods as adjuncts to an epidemiologic investigation. American Journal of Epidemiology 96(3):153-160.

Benson, S. R., D. A. Croll, C. C. Marinovic, F. P. Chavez, and J. T. Harvey. 2002. Changes in the cetacean assemblage during El Nino 1997-98 and La Nina 1999. Progress in Oceanography 54:279-291.

Berdeal, I. G., B. M. Hickey, and M. Kawase. 2002. Influence of wind stress and ambient flow on a high discharge river plume. Journal of Geophysical Research 107(C9):3130.

Bermant, C. 2010. Whale-watching season blows in, and coast offers great views. Online news article for Peninsula Daily News, dated March 26, 2010. Available at http://www.peninsuladailynews.com/article/20100326/news/303269992.

Berta, A. and J. L. Sumich. 1999. Marine Mammals: Evolutionary Biology. Academic Press, San Diego, CA.

Berzin, A. A. 1984. Soviet studies on the distribution and numbers of the gray whale in the Bering and Chukchi Seas from 1968 to 1982. Pages 409-419 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press Inc., Orlando, FL.

Berzin, A. A. 1990. Gray whales of the Okhotsk-Korean population in the Sea of Okhotsk. Paper SC/A90/G28 presented to the IWC Scientific Committee Special Meeting on the Assessment of Gray Whales, Seattle, April 1990 (unpublished). 5 pp.

Berzin, A. A. and V. L. Vladimirov. 1981. Changes in the abundance of whalebone whales in the Pacific and the Antarctic since the cessation of their exploitation. Rep. Int. Whal. Commn 31:495-499.

Bettridge, S., C. S. Baker, J. Barlow, P. J. Clapham, M. Ford, D. Gouveia, D. K. Mattila, R. M. Pace III, P. E. Rosel, G. K., Silber, P. R. and Wade. 2015. Status review of the humpback whale (*Megaptera novaeangliae*) under the Endangered Species Act. NOAA Technical Memorandum, NOAA-TM-NMFS-SWFSC-540. Available at https://repository.library.noaa.gov/view/noaa/4883. Accessed April 6, 2023.

Bickham, J. W., J. M. Dupont, and K. Broker. 2013. Review of the status of the western North Pacific gray whale; stock structure hypotheses, and recommendations for methods of future genetic studies. Paper SC/65a/BRG16 presented to the International Whaling Commission.

Bigg, M. A., P. F. Olesiuk, G. M. Ellis, J. K. B. Ford, and K. C. Balcomb III. 1990. Social organization and genealogy of resident killer whales (Orcinus orca) in the coastal waters of British Columbia and Washington State. Pages 386-406 *in* Hammond, P. S., S. A. Mizroch, and G. P. Donovan, editors. Individual recognition of cetaceans: use of photo-identification and other techniques to estimate population parameters. Rep. Int. Whal. Comm. (Special Issue) 12.

Bjorge, A. and K. A. Tolley. 2002. Harbor porpoise. Pages 549-551 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 pp.

Black, M. 1999. Out of the mist: treasures of the Nuu-chah-nulth chiefs. Royal British Columbia, Victoria, BC.

Black, R. 2006. Moves begin on Iceland's whaling. BBC News Website, United Kingdom, October 18, 2006. Available at http://news.bbc.co.uk/2/hi/science/nature/6064028.stm

Bluhm, B., and R. Gradinger. 2008. Regional variability in food availability for Arctic marine mammals. Ecol. Appl. 18:S77-S96.

Bockstoce, J. R. 1986. Whales, ice and men: The history of whaling in the western arctic. University of Washington Press, Seattle. 400 pp.

Bograd, S. J., I. Schroeder, N. Sarkar, X. Qiu, W. J. Sydeman, and F. B. Schwing. 2009. Phenology of coastal upwelling in the California Current. Geophysical Research Letters, Vol. 36, L01602, doi:10.1029/2008GL035933, 2009

Bomford, M. and P. H. O'Brien. 1990. Sonic deterrents in animal damage control: A review of device tests and effectiveness. Wildlife Society Bulletin. 18:411-422.

Bond, N. A. 2006. Recent Shifts in the State of the North Pacific Climate System. Available at http://www.beringclimate.noaa.gov/essays_bond2.html. Accessed July 2, 2006.

Bond, N. A., M. F. Cronin, H. Freeland, and N. Mantua. 2015. Causes and impacts of the 2014 warm anomaly in the NE Pacific. Geophysical Research Letters, 42 (9), 3414–3420. doi:10.1002/2015GL063306.

Borodin, R. G., K. A. Zharikov, V. Yu. Ilyashenko, and I. V. Mikhno. 2012. Rationale of subsistence and cultural needs for Gray whales and Bowhead whales by indigenous people of Chukotka (Russian Federation) in 2013-2018. Paper IWC/64/ASW 6 presented to the International Whaling Commission.

Bosley, K. L., J. W. Lavelle, R. D. Brodeur, W. W. Wakefield, R. L. Emmett, E. T. Baker, and K. M. Rehmke. 2004. Biological and physical processes in and around Astoria submarine Canyon, Oregon, USA. Journal of Marine Systems 50:21-37.

Botsford L. W. 2001. Physical influences on recruitment to California Current invertebrate populations on multiple scales. Journal of Marine Science 58:1081–1091.

Bowechop, J. 2004. Contemporary Makah whaling. Pages 407-419 *in* Mauzé, M., M.E. Harkin, and S. Kan, editors. Coming to Shore: Northwest coast ethnology, tradition and visions. University of Nebraska Press, Lincoln, NE.

Bowen, S. L. 1974. Probable extinction of the Korean stock of the gray whale (Eschrichtius robustus). J. Mammal. 55(1):208-9.

Bowlby, C. E., G. A. Green, and M. L. Bonnel. 1994. Observations of leatherback turtles offshore of Washington and Oregon. Northwestern Naturalist 75:33-35.

Bowles A. E., M. Smultea, B. Wursig, D. DeMaster, and D. Palka. 1994. Relative abundance and behaviour of marine mammals exposed to transmissions from the Heard Island Feasibility Test. Journal of the Acoustical Society of America 96(4):2469-2484.

Bradford, A. L., D. W. Weller, Y. V. Ivaschenko, A. M. Burdin, and R. L. J. Brownell. 2008. Seasonal and annual variation in body condition of western gray whales off northeastern Sakhalin Island, Russia. Paper SC/60/BRG16 presented to the Scientific Committee of the International Whaling Commission. June 2008, Santiago, Chile. Available at https://digitalcommons.unl.edu/usdeptcommercepub/129/.

Bradford, A. L., D. W. Weller, Y. V. Ivaschenko, A. M. Burdin, and R. L. Brownell, Jr. 2009. Anthropogenic Scarring of Western Gray Whales (Eschrichtius robustus). Publications, Agencies and Staff of the U.S. Department of Commerce. Paper 16. Available at http://digitalcommons.unl.edu/usdeptcommercepub/16.

Bradford, A. L., D. W. Weller, A. R. Lang, G. A. Tsidulko, A. M. Burdin and R. L. Brownell. 2010. Comparing observations of age at first reproduction in western gray whales to estimates of age at sexual maturity in eastern gray whales. Document SC/62/BRG2 submitted to the IWC Scientific Committee. 6 pp. Agadir, Morocco, June 2010.

Bradley, D. L., and R. Stern. 2008. Underwater Sound and the Marine Mammal Acoustic Environment - A Guide to Fundamental Principles. Prepared for the U.S. Marine Mammal Commission. July 2008. 79 p.

Braham, H. W. 1984. Distribution and migration of gray whales in Alaska. *In* Jones, M. L., S. L. Swartz, and S. Leathergood, editors. The gray whale, Eschrichtius robustus. Academic Press, Inc., Orlando, Fla. pp. 249–266.

Brandon, J. R. and J. Scordino. 2012. Suggested additional SLA variants to further evaluate the proposed Makah hunt. Paper SC/D12/AWMP3 presented to the International Whaling Commission.

Braun, G. M. 2005. Benthic Infauna at the Mouth of the Columbia River. White paper prepared for the Institute for Natural Resources at Oregon State University. Tetra Tech EC, Inc. May 2005.

Braund, S. R. and Associates. 1997. Quantification of Subsistence and Cultural Need for Bowhead Whales by Alaska. Eskimos - 1997 Update Based on 1997 Alaska Department of Labor Data. Prepared for the Alaska Eskimo Whaling Commission, Barrow, Alaska. Stephen R. Braund & Associates. October 13, 1997. Available at http://www.iwcoffice.org/_documents/commission/IWC59docs/54-AS-1.pdf

Braund, S. R. and Associates. 2007. Documentation of Makah Cultural Resources and Ceremonial and Subsistence Resources. Available from NMFS, 1201 NE Lloyd Blvd., Suite 1100, Portland, OR, 97232.

Breiwick, J. M. and H. W. Braham. 1984. The Status of Endangered Whales. Marine Fisheries Review 46(4):1-64. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Breiwick, J. M., A. E. Punt, D. J. Rugh, J. L. Laake, and R. C. Hobbs. 2009. Revised Methods for Estimating Abundance of the Eastern North Pacific Stock of Gray Whales. Paper SC/61/AWMP1 presented to the International Whaling Commission.

Brewer, J. 1999. Many calls, letters oppose whale hunt. The Peninsula Daily News May 19, 1999.

Brewer, P. G. and K. C. Hester. 2009. Ocean acidification and the increasing transparency of the ocean to low-frequency sound. Oceanography 22:86–93.

Broadsword Group. 2013. Broadsword Group LLC Acquires Sharps Rifle Company, Aims to Rejuvenate Iconic Manufacturer with Innovative New Produces. Press release. March 25, 2013. Available at http://www.broadswordgroup.com/broadsword_group_llc_acquires_sharps_rifle_co.html. Accessed April 10, 2013.

Brodeur, R. D., J. P. Fisher, R. L. Emmett, C. A. Morgan, and E. Casillas. 2005. Species composition and community structure of pelagic nekton off Oregon and Washington under variable oceanographic conditions. Marine Ecology Progress Series 298:41-57.

Brown, A. L. 1990. Measuring the effect of aircraft noise on sea birds. Environment International 16: 587-592.

Brown, H. A., R. B. Bury, D. M. Darda, L. V. Diller, C. R. Peterson, and R. M Storm. 1995. Reptiles of Oregon and Washington. Seattle, Audubon Society, Seattle, WA.

Brown, R. F., B. E. Wright, S. D. Riemer, and J. Laake. 2005. Trends in abundance and current status of harbor seals in Oregon 1977-2003. Marine Mammal Science 21: 657-670.

Browne, M. A., P. Crump, S. J. Niven, E. L. Teuten, A. Tonkin, T. S. Galloway, R. C. and Thompson. 2011. Accumulation of microplastic on shorelines worldwide: sources and sinks. Environmental Science Technology 45: 9175-9179.

Brownell, R. L. and C. Chun. 1977. Probable Existence of the Korean Stock of the Gray Whale (Eschrichtius robustus). Journal of Mammalogy, 58(2):237-239

Brownell, R. L. Jr., P.J. Clapham, T. Miyashita, and T. Kasuya. 2001. Conservation status of North Pacific right whales. Journal of Cetacean Research and Management, 2:269–286.

Brownell, R. L, G. P. Donovan, H. Kato, F. Larson, D. Mattila, R.R. Reeves, Y. Rock, V. Vladimirov, D. Weller, Q. Zhu. 2010. Draft Conservation Plan for Western North Pacific Gray Whales (Eschrichtius robustus). June 2010.

Brueggeman, J. J., G. A. Green, R. A. Grotefendt, C. E. Bowlby, M. L. Bonnel, K. C. Balcomb, K. T. Briggs, D. H. Varoujean, W. W. Williams, R. G. Ford, and J. L. Casey. 1992. Oregon and Washington Marine Birds and Mammal Surveys: Final Report. Pacific OCS Region, Minerals Management Service, MMS 91-0093. Los Angeles, CA.

Brüniche-Olsen A., J. Urbán R., V. V. Vertyankin, C. A. J. Godard-Codding, J. W. Bickham, and J. A. DeWoody. 2018a. Genetic data reveal mixed-stock aggregations of gray whales in the North Pacific Ocean. Biology Letters, 14:20180399. https://doi.org/10.1098/rsbl.2018.0399

Brüniche-Olsen, A., R. Westerman, Z. Kazmierczyk, V. V. Vertyankin, C. Godard-Codding, J. W. Bickham, and J. A. DeWoody. 2018b. The inference of gray whale (*Eschrichtius robustus*) historical population attributes from whole-genome sequences. *BMC Evol Biol* 18, 87. https://doi.org/10.1186/s12862-018-1204-3

Brüniche-Olsen, A., J. W. Bickham, C. A. Godard-Codding, V. A. Brykov, K. F. Kellner, J. Urbán R., J. A. Dewoody. 2021. Influence of Holocene habitat availability on Pacific gray whale (Eschrichtius robustus) population dynamics as inferred from whole mitochondrial genome sequences and environmental niche modelling. Journal of Mammalogy 102(986-999). https://doi.org/10.1093/jmammal/gyab032

Bryant, P. J., C. M. Lafferty, and S. K. Lafferty. 1984. Reoccupation of Laguna Guerrero Negro, Baja California, Mexico, by gray whales. Pages 375-387 *in* Jones, M. L, S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press Inc., Orlando, FL.

BST Associates. 2004. 2004 Marine Cargo Forecast. Final report prepared by BST Associates for Washington Public Ports Association and Washington State Department of Transportation. May 19, 2004.

Buchanan, J. B., D. H. Johnson, E. L. Greda, G. A. Green, T. R. Wahl, and S. J. Jeffries. 2001. Wildlife of coastal and marine habitats. Pages 389-422 *in* Johnson, D. H. and T. A. O'Neil (managing directors). Wildlife-Habitat Relationships in Oregon and Washington. Oregon State University Press, Corvallis, OR.

Buck, E. H. 1998. Whale Conservation and Whaling. Oceans and Coastal Resources: A Briefing Book. CRS Report 97-588 ENR. Available at http://www.ncseonline.org/nle/crsreports/briefingbooks/oceans/c.cfm

Buck, J. R. and P. L. Tyack. 2000. Response of gray whales to low-frequency sounds. J. Acoust. Soc. Am. 107:2774.

Buckland, S. T. and J. M. Breiwick. 2002. Estimated trends in abundance of eastern Pacific gray whales from shore counts, 1967/68 to 1995/96. Journal of Cetacean Research and Management (Special Issue) (SC/A90/G9), 4:41-48.

Buckland, S. T., K. L. Cattanach, and R. C. Hobbs. 1993. Abundance estimates of Pacific white-sided dolphin, northern right whale dolphin, Dall's porpoise and northern fur seal in the North Pacific, 1987-1990. International North Pacific Fisheries Commission Bulletin 53(3):387-407.

Budnikova, L. L. and S. A. Blokhin. 2012. Food contents of the eastern gray whale Eschrichtius robustus Lilljeborg, 1861 in the Mechigmensky Bay of the Bering Sea. Russ. J. Mar. Biol. 38(2):149-155. 2012. Original Russian text in Biologiya Morya

Budnikova, L. L., S. A. Blokhin, and D. I. Litovka. 2013. The food diet content of the gray whale Eschrichtius robustus in Mechigmensky Bay, Western Bering Sea. Paper SC/65a/BRG13 presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org/

Budowski, P. 1988. Omega 3-fatty acids in health and disease. World Reviews of Nutrition and Dietetics 57:214-274.

Burdin, A. M., O. A. Sychenko, and M. M. Sidorenko. 2012. Status of western gray whales off northeastern Sakhalin Island, Russia in 2011. Paper SC/64/BRG5 presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org/

Burdin, A. M., O. Sychenko, and M. Mamaevet. 2019. Status of Gray Whales off Northeastern Sakhalin Island and Eastern Kamchatka Russia, in 2019. Paper SC/68b/CMP/24 presented to the International Whaling Commission Scientific Committee. Available at https://archive.iwc.int/pages/themes.php.

Burdin, A. M., O. Sychenko, and A. Kunitsa. 2022. Gray whale research in 2021 Off Northeastern Sakhalin Island and Eastern Kamchatka, Russia. Paper SC/68d/CMP15 presented to the International Whaling Commission's Scientific Committee. 14 pp. Available at https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=19474&ext=pdf&k=.

Bureau of Economic Analysis. 2023. CAINC4 Personal income and employment by major component. Available at https://apps.bea.gov/iTable/?reqid=70&step=1&acrdn=6#eyJhcHBpZCI6NzAsInN0ZXBzIjpbMSwyNCwyOSwyNSwzMSwyNiwyNywzMF0sImRhdGEiOltbIlRhYmxlSWQiLCI0OSJdLFsiQ2xhc3NpZmljYXRpb24iLCJOb24tSW5kdXN0cnkiXSxbIk1ham9yX0FyZWEiLCI0Il0sWyJTdGF0ZSIsWyI1MzAwMCJdXSxbIkFyZWEiLFsiNTMwMDkiXV0sWyJTdGF0aXN0aWMiLFsiTEiXV0sWyJVbml0X29mX21lYXN1cmUiLCJMZXZlbHMiXSxbIlllYXIiLFsiMjAyMSJdXSxbIlllYXJCZWdpbiIsIi0xIl0sWyJZZWFyX0VuZCIsIi0xIl1dfQ. Accessed March 22, 2023.

Bureau of Indian Affairs. 2001. Indian Population and Labor Force Report 2001. Available at http://www.bia.gov/cs/groups/public/documents/text/idc-001190.pdf.

Bureau of Indian Affairs. 2003. Indian Population and Labor Force Report 2003. Available at http://www.bia.gov/cs/groups/public/documents/text/idc-001777.pdf.

Bureau of Labor Statistics. 2023. Western Information Office, Washington Economy at a Glance. Available at https://www.bls.gov/regions/west/washington.htm#eag_wa.f.3. Accessed March 22, 2023.

Bureau of Ocean Energy Management. 2015. Pacific Region Facts and Figures. Available at http://www.boem.gov/BOEM-Newsroom/Offshore-Stats-and-Facts/Pacific-Facts-and-Figures.aspx. Accessed January 12, 2015.

Burger, A. E. 2003. Effects of the Juan de Fuca eddy and upwelling on densities and distributions of seabirds off southwest Vancouver Island, British Columbia. Marine Ornithology 31:113-122.

Burger J. 1998. Effects of motorboats and personal watercraft on flight behavior over a colony of Common Terns. Condor. 100:528–534.

Burger, J., M. Gochfeld, C. D. Jenkins, and F. Lesser. 2010. Effect of Approaching Boats on Nesting Black Skimmers: Using Response Distances to Establish Protective Buffer Zones. Journal of Wildlife Management 74(1):102–108; 2010; doi: 10.2193/2008-576.

Burkitt, J. 1999a. Sound Tribes Feel the Impact of the Hunt. The Seattle Times May 19, 1999. Available at http://seattletimes.nwsource.com/

Burkitt, J. 1999b. Hunt's foes hold a vigil in Seattle. The Seattle Times May 18, 1999. Available at http://seattletimes.nwsource.com/

Burnham, R. E.. and D. A. Duffus, D. A. 2016. Gray whale (Eschrichtius robustus) predation and the demise of amphipod prey reserves in Clayoquot Sound. British Columbia. Aquat. Mamm. 42, 123–126. doi: 10.1578/AM.42.2.2016.123.

Burnham, R. E. and D. A. Duffus. 2022. A multi-dimensional examination of foraging habitat use by gray whales using long time-series and acoustics data. *Animals*, *12*(20), p.2735.

Bursk, M. K. 1983. Effects of boats on migrating gray whales. Manuscript, San Diego State University, San Diego, CA.

Bursk, M. 1989. Response of whales to whale watching in southern California. Page 11 in Proceedings of the Workshop to Review and Evaluate Whale Watching Programs and Management Needs. 14-16 November 1988, Monterey, California. Center for Marine Conservation, Washington, D.C., and the National Marine Fisheries Service, Silver Spring, MD.

Burtenshaw, J. C., E. M. Oleson, J. A. Hildebrand, M. A. McDonald, R. K. Andrew, B. M. Howe, and J. A. Mercer. 2004. Acoustic and satellite remote sensing of blue whale seasonality and habitat in the Northeast Pacific. Deep-Sea Research II 51:967-986.

Butterworth, A. and P. Brakes. 2006. A review of recent research on Norwegian whale killing. Unpublished report presented to the IWC Whale Killing Workshop, St. Kitts and Nevis, May 27, 2006. Available at http://www.iwcoffice.org/_documents/commission/IWC58docs/58-WKM&AWI%2011.pdf

Butterworth, D. S., J. L. Korrubel, and A. E. Punt. 2002. What is needed to make a simple density-dependent response population model consistent with data for the eastern gray whales? Journal of Cetacean Research and Management, 4:63-76.

Calambokidis, J. 2008. Summary of collaborative photographic identification of gray whales from California to Alaska for 2006. Cascadia Research Collective Final Report for Purchase Order AB133F-05-SE-5570. Available at http://www.cascadiaresearch.org/reports/Rep-ER-06Rev.pdf

Calambokidis, J. and J. Barlow. 2004. Abundance of blue and humpback whales in the eastern North Pacific estimated by capture-recapture and line-transect methods. Marine Mammal Science 20:63-85.

Calambokidis, J., and J. Huggins. 2008. Cetacean stranding response in Washington with special attention to gray whales and harbor porpoise. Cascadia Research Collective Final Report –

NA04NMF4390016. Available at http://www.cascadiaresearch.org/reports/Rep-Cetacean-Final-Prescott-08.pdf

Calambokidis, J. and A. Perez. 2017a. Sightings and follow-up of mothers and calves in the PCFG and implications for internal recruitment. IWC Report SC/A17/GW/04 for the Workshop on the Status of North Pacific Gray Whales. 27-29 April 2017. La Jolla, CA. 8pp.

Calambokidis, J. and A. Perez. 2017b. Association of PCFG gray whales on migration. IWC Report SC/A17/GW/02 for the Workshop on the Status of North Pacific Gray Whales. 27-29 April 2017. La Jolla, CA. 10pp.

Calambokidis, J., J. R. Evenson, G. H. Steiger, and S. J. Jeffries. 1994. Gray whales of Washington State: Natural history and photographic catalog. Cascadia Research Collective, Olympia, WA.

Calambokidis, J., G. H. Steiger, J. R. Evenson, K. R. Flynn, K. C. Balcomb, D. E. Claridge, P. Bloedel, J. M. Straley, C. Scott Baker, and O. Von Ziegesar. 1996. Interchange and isolation of humpback whales off California and other North Pacific feeding grounds. Marine Mammal Science 12(2): 215-226.

Calambokidis, J., S. Osmek, and J.L. Laake. 1997. Survey report for the 1997 Aerial Surveys for harbor porpoise and other marine mammals of Oregon, Washington, and British Columbia outside waters. Available from Cascadia Research, 218½ W 4th Ave., Olympia, WA 98501.

Calambokidis, J., J. Quan, and L. Schlender. 1999. Gray whale photographic identification in 1998. Report prepared for National Marine Mammal Laboratory, Seattle, WA.

Calambokidis, J., G. H. Steiger, K. Rasmussen, J. Urbán R., K. C. Balcomb, P. Ladrón De Guevara, M. Salinas Z., J. K. Jacobsen, C. S. Baker, L. M. Herman, S. Cerchio, and J. D. Darling. 2000. Migratory destinations of humpback whales that feed off of California, Oregon, and Washington. Marine Ecology Progress Series, 192: 295-304.

Calambokidis, J., J. D. Darling, V. Deecke, P. Gearin, M. Gosho, W. Megill, C. M. Tombach, D. Goley, C. Toropova, and B. Gisborne. 2002. Abundance, range and movements of a feeding aggregation of gray whales (Eschrichtius robustus) from California to southeast Alaska in 1998. Journal of Cetacean Research and Management, 4(2):267-276.

Calambokidis, J., R. Lumper, M. Gosho, P. Gearin, J. D. Darling, W. Megill, D. Goley, B. Gisborne, and B. Kopach. 2003. Gray whales photographic identification in 2002: collaborative research in the Pacific Northwest. Final Report to National Marine Mammal Laboratory, Seattle, WA.

Calambokidis, J., R. Lumper, J. Laake, M. Gosho, and P. Gearin. 2004a. Gray whale photographic identification in 1998-2003: collaborative research in the Pacific Northwest. Final Report prepared for National Marine Mammal Laboratory, Seattle, WA.

Calambokidis, J., G. H. Steiger, D. K. Ellifrit, B. L. Troutman, and C. E. Bowlby. 2004b. Distribution and abundance of humpback whales (Megaptera novaeagliae) and other marine mammals off the northern Washington coast. Fishery Bulletin, U.S., 102:563-580.

Calambokidis, J., A. Klimek, and L. Schlender. 2009a. Summary of collaborative photographic identification of gray whales from California to Alaska for 2007. Final Report for Purchase Order AB133F-05-SE-5570. April 2009. Cascadia Research, 218½ W 4th Ave., Olympia, WA 98501.

Calambokidis, J., E. Falcone, A. Douglas, L. Schlender, and J. Huggins. 2009b. Photographic identification of humpback and blue whales off the US West Coast: Results and updated

abundance estimates from 2008 field season. Final Report for Contract AB133F08SE2786 from Southwest Fisheries Science Center. Cascadia Research, 218½ W 4th Ave., Olympia, WA 98501.

Calambokidis, J., J. Laake, and A. Klimek. 2010. Abundance and population structure of seasonal gray whales in the Pacific Northwest, 1998-2008. Paper SC/62/BRG32 presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org/

Calambokidis, J., J. Laake, and A. Klimek. 2012. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1998-2010. Paper SC/M12/AWMP2-Rev presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org/

Calambokidis, J., J. Laake, and A. Perez. 2014. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2012. Final Report to National Marine Mammal Laboratory, Seattle, WA.

Calambokidis, J., J. Barlow, K. Flynn, E. Dobson, and G. H. Steiger. 2017. Update on abundance, trends, and migrations of humpback whales along the US West Coast. IWC Scientific Committee Report SC/A17/NP/13.

Calambokidis, J., A. Perez, and J. Laake. 2019. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2017. Final Report to NOAA, Seattle, WA. pp. 1-72.

Caldwell, D. K., and M. C. Caldwell. 1975. Dolphin and Small Whale Fisheries of the Caribbean and West Indies: Occurrence, History and Catch Statistics with Special Reference to the Lesser Antillean Island of St. Vincent. Journal of the Fisheries Research Board of Canada 32:1105-1110.

California Energy Commission. 2010. Liquified Natural Gas – U.S. Facilities. Maps dated June 2010. Available at http://www.energy.ca.gov/lng/worldwide/maps/

Cantor, M., T. Cachuba, L. Fernandes, and M. H. Engel. 2010. Behavioural reactions of wintering humpback whales (*Megaptera novaeangliae*) to biopsy sampling in the western South Atlantic. Journal of the Marine Biological Association of the United Kingdom 90(8):1701–1711.

Calkins, D. G., and K. W. Pitcher. 1982. Population assessment, ecology, and trophic relationships of Steller sea lions in the Gulf of Alaska. U.S. Dep. Comm., NOAA, Outer Continental Shelf Environmental Assessment Program. Final Report 19 (1983).

Carlson, C. 2004. A Review of Whale Watch Guidelines and Regulations Around the World: Version 2004. Report by the International Fund for Animal Welfare, Yarmouth Port, MA.

Carlson, C. 2012. A Review of Whale Watching Guidelines and Regulations Around the World. Version 2012. Available at http://iwc.int/index.php?cID=3107&cType=document)

Carney, K. M., and W. J. Sydeman. 1999. A Review of Human Disturbance Effects on Nesting Colonial Waterbirds. Waterbirds 22(1):68-79.

Carretta, J. V., K. A. Forney, M. M. Muto, J. Barlow, J. Baker, B. Hanson, and M. Lowry. 2006. U.S. Pacific Marine Mammal Stock Assessments: 2005. U.S. Department of Commerce. NOAA Technical Memorandum NMFS-SWFSC-388. 317 pp.

Carretta, J., E. Oleson, D. W. Weller, A. R. Lang, K. A. Forney, J. Baker, B. Hanson, K. Martien, M. M. Muto, M. S. Lowry, J. Barlow, D. Lynch, L. Carswell, R. L. Brownell Jr., D. K. Mattila, and M.

C. Hill. 2013. U.S. Pacific Marine Mammal Stock Assessments: 2012. Gray whale (Eschrichtius robustus): Eastern North Pacific Stock. NOAA-TM-NMFS-SWFSC-504.

Carretta, J., E. Oleson, D. W. Weller, A. R. Lang, K. A. Forney, J. Baker, B. Hanson, K. Martien, M. M. Muto, A. J. Orr, H. Huber, M. S. Lowry, J. Barlow, D. Lynch, L. Carswell, R. L. Brownell Jr., and D. K. Mattila. 2014. U.S. Pacific Marine Mammal Stock Assessments, 2013. Gray whale (Eschrichtius robustus): Eastern North Pacific Stock. NOAA-TM-NMFS-SWFSC-532.

Carretta, J., E. M. Oleson, D. W. Weller, A. R. Lang, K. A. Forney, J. Baker, M. M. Muto, B. Hanson, A. J. Orr, H. Huber, M. S. Lowry, J. Barlow, J. E. Moore, D. Lynch, L. Carswell, and R. L. Brownell Jr.. 2015. U.S. Pacific Marine Mammal Stock Assessments, 2014. NOAA-TM-NMFS-SWFSC-549. Available at https://repository.library.noaa.gov/view/noaa/5017.

Carretta, J.V., B. Delean, V. Helker, M. M. Muto, J. Greenman, K. Wilkinson, D. Lawson, J. Viezbicke, J. Jannot. 2020. Sources of Human-Related Injury and Mortality for U.S. Pacific West Coast Marine Mammal Stock Assessments, 2014-2018. NOAA-TM-NMFS-SWFSC-631. Available at https://doi.org/10.25923/j73c-6q78.

Carretta, J.V., E.M. Oleson, K.A. Forney, D.W. Weller, A.R. Lang, J. Baker, A.J. Orr, B. Hanson, J.Barlow, J.E. Moore, M. Wallen, and R.L. Brownell Jr. 2023. U.S. Pacific marine mammal stock assessments: 2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-684. https://doi.org/10.25923/5ysf-gt95.

Carter H., and J. Stein. 1995. Molts and Plumages in the Annual Cycle of the Marbled Murrelet, Chapter 9 in Ralph, C. John; Hunt, George L., Jr.; Raphael, Martin G.; Piatt, John F., Technical Editors. 1995. Ecology and conservation of the Marbled Murrelet. Gen. Tech. Rep. PSW-GTR-152. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; p. 99-112. Available at http://www.treesearch.fs.fed.us/pubs/27891.

Cascadia Research Collective. 2008. Efforts to save entangled young humpback whale underway. Available at http://www.cascadiaresearch.org/entangled humpback.htm.

Cascadia Research Collective. 2010a. Efforts to free entangled humpback whale of [sic] Washington. Update through 14 May 2010. Available at http://www.cascadiaresearch.org/Humpback-Disentanglement-14May2010.htm.

Cascadia Research Collective. 2010b. Examination of gray whale from west Seattle reveals unusual stomach contents but no definitive cause of death. Information on specific recent whale strandings in Washington. Available at http://www.cascadiaresearch.org/WSeattle-ER.html.

Cascadia Research Collective. 2011. Record number of blue whales sighted off Washington coast. Information and photographs posted December 14, 2011. Available at http://www.cascadiaresearch.org/BlueWhaleWA-2011.htm.

Casey, J. 2007. Makah file tribal charges against whalers; parallel federal trial delayed. Peninsula Daily News article published 11/27/07. Available at http://www.peninsuladailynews.com/apps/pbcs.dll/article?AID=/20071127/NEWS/711270307&template=printart.

Castro, C. G., T. R. Baumgartner, S. Bograd, R. Castro, F. P. Chavez, C. A. Collins, R. Durazo, J. García, G. Gaxiolo-Castro, T. Hayward, A. Huyer, R. Lynn, A. S. Mascarenhas, M. R. D. Robert, R. L. Smith, P. A. Wheeler, and F. A. Whitney. 2002. Introduction to 'The 1997-8 El Niño Atlas of

oceanographic conditions along the west coast of North America (23° N–50° N).' Progress in Oceanography 54:503-511.

Cato, D. H. and R. D. McCauley. 2002. Australian research in ambient sea noise. Acoustics Australia 30:13-20.

Cavole, L. M., A.M. Demko, R.E. Diner, A. Giddings, I. Koester, C.M. Pagniello, M.L. Paulsen, A. Ramirez-Valdez, S.M. Schwenck, N.K. Yen, and M.E. Zill. 2016. Biological impacts of the 2013–2015 warm-water anomaly in the Northeast Pacific: winners, losers, and the future. Oceanography, 29(2), 273-285.

Cawthorn, M. W. 1997. Meat consumption from stranded whales and marine mammals in New Zealand: public health and other issues. Conservation Advisory Science Notes No. 164, Department of Conservation, Wellington.

Cayan, D. R., K. T. Redmond, and L. G. Riddle. 1999. ENSO and hydrologic extremes in the western United States. Journal of Climate 12(9):2881-2893.

CBC News. 2006. B.C. First Nations yield on whale hunt. CBC News, December 12, 2006. Available at http://www.cbc.ca/canada/british-columbia/story/2006/12/12/bc-whaling.html.

CERTAIN (Coalition to End Racial Targeting of American Indian Nations). 2000. Letter from Keith Hunter to John Vance, Editor of Peoples Bark News. August 31, 2000. Available at http://www.certain-natl.org/calljustice.html.

Childers, A. R., T. E. Whitledge, and D. A. Stockwell. 2005. Seasonal and interannual variability in the distribution of nutrients and chlorophyll a across the Gulf of Alaska shelf: 1998-2000. Deep-Sea Research II 52:193-216.

Christiansen, F., F. Rodríguez-González, S. Martínez-Aguilar, J. Urbán R., S. Swartz, H. Warick, F. Vivier, and L. Bejder. 2021. Poor body condition associated with an unusual mortality event in gray whales. Marine Ecology Progress Series, 658, pp.237-252. https://doi.org/10.3354/meps13585.

Chukmasov, P., A. Aksenov, T. Sorokina, Y. Varakina, N. Sobolev, and E. Nieboer. 2019. North Pacific Baleen Whales as a Potential Source of Persistent Organic Pollutants (POPs) in the Diet of the Indigenous Peoples of the Eastern Arctic Coasts. Toxics 7(4): 65. https://doi.org/10.3390/toxics7040065.

Clapham, P. J. and D. K. Mattila. 1993. Reactions of humpback whales to skin biopsy sampling on a West Indies breeding ground. Marine Mammal Science 9: 382-391.

Clapham, P. J. and J. G. Mead. 1999. Megaptera novaeangliae. Mammalian Species 604:1-9.

Clapham, P. J., L. S. Baraff, C. A. Carlson, M. A. Christian, D. K. Mattila, C. A. Mayo, M. A. Murphy, and S. Pittman. 1993. Seasonal occurrence and annual return of humpback whales, Megaptera novaeangliae, in the southern Gulf of Maine. Canadian Journal of Zoology 71(2):440-443.CH3, ENP - KASEY SENT PDF TO PMX 10/23/06

Clapham, P. J., S. J. Leatherwood, I. Szczepaniak, and R. L. Brownell, Jr. 1997. Catches of humpback and other whales from shore stations at Moss Landing and Trinidad, California, 1919-1926. Marine Mammal Science 13(3):368-394.

Clapham, P., C. Good, S. Quinn, R. R. Reeves, J. E. Scarff, and R. L. Brownell, Jr. 2004. Distribution of North Pacific right whales (Eubalaena japonica) as shown by 19th and 20th century whaling catch and sighting records. Journal of Cetacean Research and Management, 6:1–6.

Clark, R. B. 1997. Marine pollution. 4th edition. Clarendon Press, Oxford, United Kingdom.

Clarke, J. T. and S. E. Moore. 2002. A note on observation of gray whales in the southern Chukchi and northern Bering Seas, August-November, 1980-89. Journal of Cetacean Research and Management, 4(3):283-288.

Clarridge, C. 1998. Tribe accuses media of disruption. The Seattle Times August 29, 1998. Available at http://seattletimes.nwsource.com/

Clinton, W. J. 1993. Message to the Congress on Whaling Activities of Norway. October 4, 1993. Available at http://www.presidency.ucsb.edu/ws/print.php?pid=47162

Cohen, F. 2005. Cohen's Handbook of Federal Indian Law, 2005 edition. Editor in Chief N. J. Newton, Exec. Editors. R. T. Anderson, C. E. Goldberg, J. P. La Velle, J. V. Royster, J. W. Singer, R. Strickland, and Associate Ed. B. R. Berger. LexisNexis Matthew Bender Publications, San Francisco, CA.

Colson. E. 1953. The Makah Indians: a study of an Indian tribe in modern American society. Greenwood Press Publishers, Westport, CT.

Conlan, R. and R. Service. 2000. El Niño and La Niña: Tracing the dance of ocean and atmosphere. National Academy of Sciences, Washington, D.C. Available at http://www7.nationalacademies.org/opus/elnino_PDF.pdf

Connell, J. H. 1978. Diversity in tropical rain forests and coral reefs. Science 199:1302-1309.

Conomy, J. T., J. Dubovsky, J. Collazo, and W. J. Fleming. 1998. Do black ducks and wood ducks habituate to aircraft disturbance? Journal of Wildlife Management 62(3): 1135-1142.

Cooke, J. G., D. W. Weller, A. L. Bradford, O. Sychenko, A. M. Burdin, R. L. Brownell, Jr. 2013. Population Assessment of Sakhalin Gray Whale Aggregation. International Whaling Commission, SC/65a/BRG27. Available at https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=4794&ext=pdf&k=. Accessed April 6, 2023.

Cooke, J.G. 2017. Updated assessment of the Sakhalin gray whale population and its relationship to gray whales in other areas. IUCN Western Gray Whale Advisory Panel, 18th meeting. https://www.iucn.org/sites/dev/files/content/documents/wgwap-18-24_cooke_-_updated_assessment_of_the_sakhalin_gray_whale_population_and_its_relationship_to_gray_whales_in_other_areas.pdf

Cooke J.G., D.W. Weller, A.L. Bradford, A.O. Sychenko, A.M. Burdin A.R. Lang, and R.L. Brownell, Jr. 2017. Population assessment update for Sakhalin gray whales, with reference to stock identity. IWC Scientific Committee doc. SC/67a/NH11.

Cooke, J.G. 2018a. Abundance estimates for western North Pacific gray whales for use with stock structure hypotheses of the Range-wide Review of the Population Structure and Status of North Pacific gray whales. Paper SC/67b/ASI/02 presented to the International Whaling Commission Scientific Committee. Available at https://archive.iwc.int/pages/themes.php.

Cooke, J.G. 2018b. *Eschrichtius robustus*. The IUCN Red List of Threatened Species 2018:

e.T8097A50353881. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T8097A50353881.en. Accessed on 13 March 2023.

Cooke, J.G., B. L. Taylor, R. Reeves, and R. L. Brownell Jr. 2018. Eschrichtius robustus (western subpopulation), Western Gray Whale. The IUCN Red List of Threatened Species. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T8099A50345475.en. Accessed March 13, 2023.

Cooke, J.G., O. Sychenko, A.M. Burdin, D.W. Weller, A.L. Bradford, A.R. Lang, and R.L. Brownell Jr. 2019. Population Assessment Update for Sakhalin Gray Whales. Paper SC/68a/CMP/WP/07.

Corkeron, J. and C. Connor. 1999. Why do baleen whales migrate? Marine Mammal Science 15(4):1228-1245.

Corsi, E., J. Calambokidis, K. R. Flynn, and G. H. Steiger. 2022. Killer whale predatory scarring on mysticetes: A comparison of rake marks among blue, humpback, and gray whales in the eastern North Pacific. Marine Mammal Science, 38(1), 223– 234. https://doi.org/10.1111/mms.12863.

Corwith, H. L. and P. A. Wheeler. 2002. El Niño related variations in nutrient and chlorophyll distributions off Oregon. Progress in Oceanography 54:361-380.

Council on Environmental Quality (CEQ). 1997. Considering cumulative effects under the National Environmental Policy Act. Council on Environmental Quality. January 1997. Available at https://ceq.doe.gov/publications/cumulative_effects.html.

Cowles, C. J., D. J. Hansen, and J. D. Hubbard. 1981. Types and potential effects of offshore oil and gas development on marine mammals and endangered species of the northern Bering Sea and Arctic Ocean. Technical Paper #9, Dec. 1981. US Department of Commerce. 23 pp.

Coyle, K. O., B. Bluhm, B. Konar, A. Blanchard, and R. C. Highsmith. 2007. Amphipod prey of gray whales in the northern Bering Sea: comparison of biomass and distribution between the 1980s and 2002 – 2003. Deep. Res. 2 Top. Stud. Oceanogr. 54, 2906–2918. doi:10.1016/j.dsr2.2007.08.026.

Crawford, W., J. Cherniawsky, M. Foreman, and P. Chandler. 1999. El Niño sea level signal along the west coast of Canada. Freeland, H. J., W. T. Peterson, and A. Tyler, editors. Proceedings of the 1998 Science Board Symposium on the impacts of the 1997/98 El Niño event on the North Pacific Ocean and its marginal seas. North Pacific Marine Science Organization (PICES): PICES Scientific Report No. 10. Available at http://www.pices.int/publications/scientific_reports/Report10/.

Crockford, C.E. 1996. Nuu-chah-nulth labour relations in the pelagic sealing industry, 1868-1911. Masters Thesis, University of Victoria, Victoria, BC.

Cross, J. N. 1987. Demersal fishes of the upper continental slope off southern California. CalCOFl Reports 28:155-167. Available at http://www.calcofi.org/newhome/publications/CalCOFI_Reports/v28/v28_toc.htm.

Cross, J. N. and L. G. Allen. 1993. Fishes. Pages 459-540 *in* Dailey, M. D., D.J . Reish, and J. W. Anderson, editors. Ecology of the Southern California Bight. Berkeley: University of California Press.

Cummings, W. C. and P. O. Thompson. 1971. Gray whales, Eschrichtius robustus, avoid the underwater sounds of killer whales, Orcinus orca. Fishery Bulletin 69(3):525-530.

Curtis, E. 1916. The Nootka. Volume 11 in North American Indian: being a series of volumes picturing and describing the Indians of the United States, the Dominion of Canada, and Alaska. E.S. Curtis, Seattle, WA.

Curtis, K. Alexandra, John Calambokidis, Katherina Audley, Melvin G. Castaneda, Joëlle De Weerdt, Andrea Jacqueline García Chávez, Frank Garita, Pamela Martínez-Loustalot, Jose D. Palacios-Alfaro, Betzi Pérez, Ester Quintana-Rizzo, Raúl Ramírez Barragan, Nicola Ransome, Kristin Rasmussen, Jorge Urbán R., Francisco Villegas Zurita, Kiirsten Flynn, Ted Cheeseman, Jay Barlow, Debbie Steel, and Jeffrey Moore. 2022. Abundance of humpback whales (Megaptera novaeangliae) wintering in Central America and southern Mexico from a one-dimensional spatial capture-recapture model. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-661. https://doi.org/10.25923/9cq1-rx80

D'Amato, A. and S. K. Chopra. 1991. Whales: Their Emerging Right to Life. 85 American Journal of International Law 21. January 1991.

D'Intino, A. M., J. D. Darling, J.D. Urbán-Ramirez, and T.R. Frasier. 2012. Substructuring of mitochondrial, but not nuclear, markers in the "southern feeding group" of eastern North Pacific gray whales. Paper SC/64/AWMP2 presented to the International Whaling Commission.

D'Intino, A.M., J.D. Darling, J. Urbán R. and T. R. Frasier. 2013. Lack of nuclear differentiation suggests reproductive connectivity between 'southern feeding group' and the larger population of eastern North Pacific gray whales, despite previous detection of mitochondrial differences. The Journal of Cetacean Research and Management, 13(2): 97–104.

Di Lorenzo, E., and N. Mantua. 2016. Multi-year persistence of the 2014/15 North Pacific marine heatwave. Nature Climate Change, 6(11), 1042-1047.

Dahlgren, T. G., A. G. Glover, A. Baco, and C. R. Smith. 2004. Fauna of whale falls: systematic ecology of a new polychaete (Annelida: Chyrsopetalidae) from the deep Pacific Ocean. Deep-Sea Research Part I (51):1873-1887.

Dahlheim, M. E. 1987. Bio-acoustics of the gray whale (Eschrichtius robustus). Ph.D. Thesis, University of British Columbia, Vancouver, BC.

Dahlheim, M. E., H. D. Fisher, and J. D. Schempp. 1984. Sound production by the gray whale and ambient noise levels in Laguna San Ignacio, Baja California, Sur, Mexico. Pages 511-541 *in* M. L. Jones, S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Dahlstrom, W. A. and P. W. Wild. 1983. A History of Dungeness Crab Fisheries in California. Chapter 1 in P.W. Wild and R.N. Tasto, editors., Life History, Environment, and Mariculture Studies of the Dungeness Crab, Cancer Magister, With Emphasis on The Central California Fishery Resource. Fish Bulletin 172. California Department of Fish and Game.

Dark, A. 1999. Native Americans and the environment case study: The Makah Whale Hunt. Website maintained by the National Council for Science and the Environment. Available at http://www.cnie.org/NAE/cases/makah/index.html. Accessed November 15, 2005.

Dark, T. A. and M. E. Wilkins. 1994. Distribution, abundance, and biological characteristics of groundfish off the coast of Washington, Oregon, and California, 1977-1986. NOAA Technical Report NMFS 117:1-73.

Darling, J. D. 1984. Gray whales off Vancouver Island, British Columbia. Pages 267-288 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Darling, J. D., K. E. Keogh, and T. E. Steeves. 1998. Gray whale (Eschrichtius robustus) habitat utilization and prey species off Vancouver Island, B.C. Marine Mammal Science 14(4):692-720.

Dedina, S. and E. Young. 1995. Conservation and development in the gray whale lagoons of Baja California Sur, Mexico. Final report for MMC contract T10155592. NTIS PB96-113154.

Dehn, L. A, E. H. Follmann, D. L. Thomas, G. G. Sheffield, C. Rosa, L. K. Duffy, and T. M. O'Hara. 2006a. Trophic relationships in an arctic food web and implications for trace metal transfer. Science of the Total Environment 362: 103-123.

Dehn, L. A., E. H. Follmann, C. Rosa, L. K. Duffy, D. L. Thomas, G. R. Bratton, R. J. Taylor, and T. M. O'Hara. 2006b. Stable isotope and trace element status of subsistence-hunted bowhead and beluga whales in Alaska and gray whales in Chuktotka. Marine Pollution Bulletin 52:301-319.

deMarban, A. 2007. Japan vows to support Eskimo whaling this year. Anchorage Daily News website, May 29, 2007. Available at http://www.adn.com/money/industries/fishing/v-printer/story/8928966p-8829182c.html.

Denn, R. 1998a. Whale talks cut tension but positions hold firm: Sea Shepherd leader says he'll move boats out of Neah Bay. The Seattle Post Intelligencer, November 24, 1998. Available at http://seattlepi.nwsource.com/archives/1998/9811240046.asp.

Denn, R. 1998b. New offer aimed at scrapping Makah whale hunt. The Seattle Post Intelligencer, November 26, 1998. Available at http://seattlepi.nwsource.com/archives/1998/9811260083.asp.

Denn, R. 1998c. No deal to stop hunt, say Makah: aid offer rejected, 'rights not for sale.' The Seattle Post Intelligencer, December 1, 1998. Available at http://seattlepi.nwsource.com/archives/1998/9812020044.asp.

Densmore, F. 1939. Nootka and Quileute Music. Bureau of American Ethnology, Bulletin 124. Washington, D.C.

Department of Fisheries and Oceans (DFO) Canada. 2012a. Regulations Amending the Marine Mammal Regulations. Marine mammal watching regulations issued March 15, 2012. Available at http://gazette.gc.ca/rp-pr/p1/2012/2012-03-24/html/reg2-eng.html.

Department of Fisheries and Oceans (DFO) Canada. 2012b. Seafisheries - 2012 Atlantic and Pacific Coasts Commercial Landings, by Province. Available at http://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/sea-maritimes/s2012pq-eng.htm.

Department of Fisheries and Oceans (DFO) Canada. 2013. The Economics of British Columbia's Crab Fishery: Socio-Economic Profile, Viability, and Market Trends. Online report modified on September 4, 2013. Available at http://www.dfo-mpo.gc.ca/ea-ae/cat1/no1-4/no1-4-intro-eng.htm#a2.

Department of State. 2003. U.S. Position on International Whaling Issues (released in conjunction with IWC meeting in Berlin, Germany). June 16, 2003. Available at http://usinfo.state.gov/gi/Archive/2003/Jun/22-826867.html.

Dewailly, E., C. Blanchet, S. Lemieux, L. Sauve, S. Gingras, G. Ayotte, and B. J. Holub. 2001. Omega-3 fatty acids and cardiovascular disease risk factors among the Inuit of Nunavik. American Journal of Clinical Nutrition 74:464-473.

Deysher, L. E., T. A. Dean, R. S. Grove, and A. Jahn. 2002. Design considerations for an artificial reef to grow giant kelp (Macrocystis pyrifera) in Southern California. ICES Journal of Marine Science 59:S201-S207.

Dohl, T. P. and R. Guess. 1979. Evidence for increasing offshore migration of the California gray whale (Eschrichtius robustus) in southern California, 1975-1978. Page 13 in Abstracts of the Third Biennial Conference on the Biology of Marine Mammals, Seattle, Washington.

Dolman, S. J., Weir, C. R., and M. Jasney. 2009. Comparative review of marine mammal guidance implemented during naval exercises. Marine Pollution Bulletin 58:465–477.

Donguy, J. R., C. Henin, A. Morliere, and J. P. Rebert. 1982. Thermal changes in the western tropical Pacific in relation to the wind field. Deep-Sea Research 29(7A):869-882.

Dorsey, E. M., S. J. Stern, A. R. Hoelzel, and J. Jacobsen. 1990. Minke whale (Balaenoptera acutorostrata) from the west coast of North America: individual recognition and small-scale site fidelity. Rept. Int. Whal. Commn., Special Issue 12: 357-368. SC/A88/ID21.

Dougan, M. 2001. Makah's corner a bypassed gem/Whaling tribe part of history in Neah bay. Online news article posted November 25, 2001. Available at http://www.sfgate.com/travel/article/Makah-s-corner-a-bypassed-gem-Whaling-tribe-2850252.php.

Dower, J. F. and R. I. Perry. 2001. High abundance of larval rockfish over Cobb Seamount, an isolated seamount in the Northeast Pacific. Fisheries Oceanography 10(3):268-274.

Doyle, M. J. 1992. Neustonic ichthyoplankton in the northern region of the California Current ecosystem. CalCOFI Reports 33:141-161. Available at http://www.calcofi.org/newhome/publications/CalCOFI_Reports/v33/v33_toc.htm.

Drucker, P. 1951. The northern and central Nookan tribes. Smithsonian Institution, Bureau of American Ethnology, Bulletin 44, Washington, D.C.

Dudarev, Alexey A., Valery S. Chupakhin, Sergey V. Vlasov, and Sveta Yamin-Pasternak. 2019. Traditional Diet and Environmental Contaminants in Coastal Chukotka II: Legacy POPs. International Journal of Environmental Research and Public Health, 16(5): 695. https://doi.org/10.3390/ijerph16050695.

Dufault, A. M., K. Marshall, and I. C. Kaplan. 2009. A synthesis of diets and trophic overlap of marine species in the California Current. U.S. Dept. Commer., NOAA Technical Memorandum NMFS-NWFSC-103, 81 p.

Duffus, D.A. 1996. The recreational use of gray whales in southern Clayoquot Sound, Canada. Applied Geography 16:179-190.

Dunham, J. S. and D. A. Duffus. 2001. Foraging patterns of gray whales in central Clayoquot Sound, British Columbia, Canada. Marine Ecology Press Series 223:299-310.

Dunham, J. S. and D. A. Duffus. 2002. Diet of gray whales (Eschrichtius robustus) in Clayoquot Sound, British Columbia, Canada. Mar. Mamm. Sci. 18: 419–437.

Dunnet, G. M. 1977. Observations on the effects of low-flying aircraft at seabird colonies on the coast of Scotland. Biological Conservation 12:55-64

Durazo, R., T. R. Baumgartner, S. J. Bograd, C. A. Collins, S. de la Campa, J. García, G. Gaxiola-Castro, A. Huyer, K. D. Hyrenbach, D. Loya, R.J. Lynn, F. B. Schwing, R. L. Smith, W. J. Sydeman, and P. Wheeler. 2001. The state of the California Current, 2000-2001: A third straight La Niña year. CalCOFI Reports 42:29-60. Available at http://www.calcofi.org/newhome/publications/CalCOFI_Reports/v42/v42_toc.htm.

Durban, J.W., D.W. Weller, A.R. Lang, and W.L. Perryman. 2013. Estimating gray whale abundance from shore-based counts using a multilevel Bayesian model. Paper SC/65a/BRG02 presented to the International Whaling Commission Scientific Committee. Available at https://archive.iwc.int/pages/themes.php.

Durban, J.W., D.W. Weller, A.R. Lang, and W.L. Perryman. 2015. Estimating gray whale abundance from shore-based counts using a multilevel Bayesian model. Journal of Cetacean Research and Management 2015;15.61-8.

Durban, J.W., D.W. Weller, and W.L. Perryman. 2017. Gray whale abundance estimates from shore-based counts off California in 2014/15 and 2015/16. Paper SC/A17/GW/06 presented to the rangewide workshop on gray whales, April 2017. 69 pp.

Ebbesson, S. O. E., A. I. Adler, P. M. Risica, L. O. E. Ebbesson, J. L. Yeh, O. T. Go, W. Doolittle, G. Ehlert, M. Swenson, and D. C. Robbins. 2005a. Cardiovascular disease and risk factors in three Alaskan Eskimo populations: The Alaska-Siberia project. International Journal of Circumpolar Health. 64(4):365-386.

Ebbesson, S. O. E., P. M. Risica, L. O. E. Ebbesson, J. M. Kennish, and M. E. Tejero. 2005b. Omega-3-fatty acids improve glucose tolerance and components of the metabolic syndrome in Alaskan Eskimos: The Alaska Siberia project. International Journal of Circumpolar Health 64(4):396-408.

Ebbesson, S. O. E., L. O. E. Ebbesson, M. Swenson, J. M. Kennish, and D. C. Robbins. 2005c. A successful diabetes prevention study in Eskimos: The Alaska Siberia project. International Journal of Circumpolar Health 64(4):409-424.

Eberhardt, L. L. and D. B. Siniff. 1977. Population dynamics and marine mammal management policies. Journal Fisheries Research Board of Canada 34:183-190.

Ecology. 2011. Vessel Entries and Transits for Washington Waters (VEAT) 2010. Prepared by Washington State Department of Ecology Department of Spill Prevention, Preparedness, and Response Program, Olympia, WA. WDOE Publication 11-08-001. Available at http://www.ecy.wa.gov/biblio/1108001.html.

Ecology. 2012a. Marine Water Condition Index. Washington State Department of Ecology. Publication No. 12-03-013. May 2012. Available at https://fortress.wa.gov/ecy/eimreporting/MonitoringProgramDefault.aspx?StudyMonitoringProgramUserId=BEACH&StudyMonitoringProgramUserIdSearchType=Equals www.ecy.wa.gov/biblio/1203013.html.

Ecology. 2012b. Vessel Entries and Transits for Washington Waters (VEAT) 2011. Prepared by Washington State Department of Ecology Department of Spill Prevention, Preparedness, and Response Program, Olympia, WA. WDOE Publication 12-08-003. Available at http://www.ecy.wa.gov/biblio/1208003.html.

Ecology. 2013a. Washington BEACH Program monitoring data. Online query for Clallam – Entero on August 28, 2013. Available at https://fortress.wa.gov/ecy/eimreporting/MonitoringProgramDefault.aspx?StudyMonitoringProgramUserId=BEACH&StudyMonitoringProgramUserIdSearchType=Equals.

Ecology. 2013b. Tsunami / Marine debris on Washington beaches. Online report updated December 9, 2013. Available at http://marinedebris.wa.gov/.

Ecology. 2019. 30 Years of Spill Prevention, Preparedness, and Response. Publication 18-08-012. Online report revised September 2019. Available at https://apps.ecology.wa.gov/publications/documents/1808012.pdf.

Ecology. 2020. VEAT 2019: Vessel Entries and Transits for Washington Waters. Publication 20-08-004. Available at https://apps.ecology.wa.gov/publications/UIPages/documents/2008004.pdf.

Ecology. 2021a. Report of Vessel Traffic and Vessel Traffic Safety, Strait of Juan de Fuca and Puget Sound Area. Publication 19-08-002, January 2019. Revised February 2021. Available at https://apps.ecology.wa.gov/publications/summarypages/1908002.html.

Ecology. 2021b. VEAT 2020: Vessel Entries and Transits for Washington Waters. Publication 21-08-007. Available at https://apps.ecology.wa.gov/publications/documents/2108007.pdf.

Ecology. 2022a. Washington State Oil and Hazardous Materials Cleanup Contractors. Revised October 2022. Available at https://ecology.wa.gov/DOE/files/b5/b571de76-2413-476a-98a5-26caf10757cf.pdf.

Ecology. 2022b. VEAT 2021: Vessel Entries and Transits for Washington Waters. Publication 22-08-002. Available at https://apps.ecology.wa.gov/publications/UIPages/documents/2208002.pdf.

Ecology. 2023. Reporting Requirements: Emergency Response Towing Vessel. Accessed April 3, 2023. Available at https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Emergency-response-towing-vessel.

Eguchi T., A.R. Lang, and D.W. Weller. 2022a. Abundance and Migratory Phenology of Eastern North Pacific Gray Whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. Available at https://swfsc-publications.fisheries.noaa.gov/publications/CR/2022/2022Eguchi2.pdf.

Eguchi T., A.R. Lang, and D.W. Weller. 2022b. Eastern North Pacific Gray Whale Calf Production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667. Available at https://repository.library.noaa.gov/view/noaa/46436.

Eguchi, T., A.R. Lang, and D.W. Weller. 2023a. Abundance of eastern North Pacific gray whales 2022/2023. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-680. https://doi.org/10.25923/n10e-bm23.

Eguchi, T., A.R. Lang, and D.W. Weller. 2023b. Eastern North Pacific gray whale calf production 1994-2023. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-685. https://doi.org/10.25923/e9at-x936.

Ek, C. 1996. Norwegian Commercial Whaling: Issues for Congress. CRS Report for Congress 97-55 F. December 31, 1996. Available at http://www.ncseonline.org/nle/crsreports/marine/mar-15.cfm.

Eligon, J. 2019. "A native tribe wants to resume whaling. Whale defenders are divided." *The New York Times*, November 14, 2019. Available at https://www.nytimes.com/2019/11/14/us/whale-hunting-native-americans.html.

Ellison, W. T., B. L. Southall, C. W. Clark, and A. S. Frankel. 2012. A New Context-Based Approach to Assess Marine Mammal Behavioral Responses to Anthropogenic Sounds. Cons. Biol. 26:21-28.

Elwen, S. H., and T. Gridley. 2013. Gray whale (Eschrichtius robustus) sighting in Namibia SE Atlantic)—first record for Southern Hemisphere. Submitted to IWC as SC/65a/BRG30.

Emmett, R. L., S. A. Hinton, S. L. Stone, and M. E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries, Vol. II: Species life history summaries. ELMR Rep. No. 8. NOAA/NOS SEA Division, Rockville , MD. 329 pp.

Emmett, R. L., R. D. Brodeur, and P. M. Orton. 2004. The vertical distribution of juvenile salmon (Oncorhynchus spp.) and associated fishes in the Columbia River plume. Fisheries Oceanography 13(6):392-402.

Emmett, R. L., G. K. Krutzikowsky, and P. Bentley. 2006. Abundance and distribution of pelagic piscivorous fishes in the Columbia River plume during spring/early summer 1998-2003: Relationship to oceanographic conditions, forage fishes, and juvenile salmonids. Progress in Oceanography 68:1-26.

Emmons, C.K., M. B. Hanson, and M. O. Lammers. 2021. Passive acoustic monitoring reveals spatiotemporal segregation of two fish-eating killer whale Orcinus orca populations in proposed critical habitat. Endangered Species Research, 44: 253-261.

Environmental Protection Agency (EPA). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. Technical Report NTID300.1.

Environmental Protection Agency (EPA). 1997. Volunteer stream monitoring: a methods manual. EPA 841-B-97-003. November 1997. Office of Wetlands, Oceans, and Watersheds, Washington, DC. Available at http://water.epa.gov/type/rsl/monitoring/stream_index.cfm.

Environmental Protection Agency (EPA). 1998. Reviewing for environmental justice: EIS and permitting resource guide. NEPA Review. Region 10 – Environmental Justice Office.

Environmental Protection Agency (EPA). 1999. Consideration Of Cumulative Impacts In EPA Review of NEPA Documents U.S. Environmental Protection Agency, Office of Federal Activities (2252A). EPA 315-R-99-002/May 1999. Retrieved from https://www.epa.gov/sites/default/files/2014-08/documents/cumulative.pdf.

Environmental Protection Agency (EPA). 2010. EPA's Action Development Process. Interim Guidance on Considering Environmental Justice During the Development of an Action. July 2010. Available at http://www.epa.gov/compliance/ej/resources/policy/ej-rulemaking.html.

Environmental Protection Agency (EPA). 2011a. Japanese Nuclear Emergency: EPA's Radiation Monitoring. Fukushima Information and Resources. Available at http://www.epa.gov/japan2011/index.html.

Environmental Protection Agency (EPA). 2011b. Marine Debris in the North Pacific: A summary of existing information and identification of data gaps. EPA-909-R-11-006. 23 pp.

Environmental Protection Agency (EPA). 2013. National Priorities List site narrative for Makah Reservation Warmhouse Beach Dump. Available at http://www.epa.gov/superfund/sites/npl/nar1883.htm.

Environmental Protection Agency (EPA). 2015. EPA's Action Development Process. Guidance on Considering Environmental Justice During the Development of Regulatory Actions. Available at https://www.epa.gov/environmentaljustice/guidance-considering-environmental-justice-during-development-action.

Environmental Protection Agency (EPA). 2019. Stream Flow, Health of the Salish Sea Ecosystem Report. Retrieved from https://www.epa.gov/salish-sea/stream-flow.

Environmental Protection Agency (EPA). 2021. Warmhouse Beach Cleanup, q'idiqabit ('Camping Place While Drying Fish'): Updates on the Warmhouse Beach Dump Superfund Site Cleanup. Newsletter 5, April 2021. Available at https://semspub.epa.gov/work/10/100314256.pdf.

Environmental Research Consulting. 2009. Oil Spill Risk in Industry Sectors Regulated by Washington State Department of Ecology Spills Program For Oil Spill Prevention and Preparedness. Prepared by Environmental Research Consulting for Nhi Hoang, PhD Washington Department of Ecology, P.O. Box 47600, Olympia, WA 98504-7600. 24 pp.

Erbe, C. 2002. Underwater noise of whale-watching boats and potential effects on killer whales (Orcinus orca), based on an acoustic impact model. Marine Mammal Science 18:394-418.

Erikson, P. P. 2002. Voices of a thousand people: the Makah Cultural and Research Center. University of Nebraska Press, Lincoln, NB.

Erikson, P. P. 2003. Welcome to This House: A Century of Makah People Honoring Identity and Negotiating Cultural Tourism. Ethnohistory 50:523–47.

Estes, J. A. and J. L. Bodkin. 2002. Otters. Pages 842-858 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Etnier, M. A. and J. Sepez. 2008. Changing patterns of sea mammal exploitation among the Makah. In Time and Change: Archaeological and Anthropological Perspectives on the Long Term in Hunter-Gatherer Societies, edited by D. Papagianni and R. Layton. University of Utah Press.

EVS Environmental Consultants. 2003. Status, trends and effects of toxic contaminants in the Puget Sound environment. Puget Sound Action Team, Olympia, WA. Available at http://www.psat.wa.gov/shared/PSAT_Recommendations_Final_10_03.pdf.

Fabry, V. J., B. A. Seibel, R. A. Feely, and J. C. Orr. 2008. Impacts of ocean acidification on marine fauna and ecosystem processes. ICES Journal of Marine Science, 65(3): 414–432.

Fadeev, V. I. 2011. Benthos studies in feeding grounds of western gray whales off the northeast coast of Sakhalin Island (Russia), 2002-2010 // Int'l Whaling Com., 63rd meeting, doc. SC/63/BRG15. 13 pp.

Fagan, R.P., J. B. McLaughlin, L. J. Castrodale, B. D. Gessner, S. A. Jenkerson, E. A. Funk, T. J. Hennessy, J. P. Middaugh, and J. C. Butler. 2011. Endemic Foodborne Botulism among Alaska Native Persons—Alaska, 1947–2007. Clin Infect Dis. 52(5): 585-592. doi:10.1093/cid/ciq240.

Fauquier, D., S. Raverty, P. Cottrell, S. MacConnachie, J. Urban R., L. Viloria-Gómora, S. Martínez-Aguilar, S. Swartz, J.L. Huggins, J. Rice , B. Halaska, M. Flannery, K. Danil, K. Savage, M. Garner, P. Duignan, K.B.Huntington, D. Weller, J. Stewart, K. Lefebvre, F. Gulland, T.

Goldstein, J. Calambokidis, S. Moore, P. D. Goley, A. Lui, S.Anthony, J. Baker, K. Wilkinson, J.Viezbicke, J. Greenman, M. Keogh, D.e Greig, K. Brill, S. Wilkin, T. Rowles 2023. Update on the Eastern North Pacific Gray Whale (Eschrichtius robustus) 2019-2023 Unusual Mortality Event. International Whaling Commission Scientific Committee Annual Meeting 2023 Paper Submission – Conservation Management Plans. SC/69A/E/08. Available at https://archive.iwc.int/pages/search.php?search=%21collection112382.

Fay, F. H., R. A. Dieterich, L. M. Shults, and P. B. Kelly. 1978. Morbidity and mortality of marine mammals. NOAA Outer Continental Shelf Environmental Assessment Program Annual Report 1:39-79.

Federal Aviation Administration. 2019. Airport master record for the Forks and Quillayute Airports. Available at https://www.airportiq5010.com/5010Web/. Accessed March 15, 2023.

Federal Aviation Administration. 2020. Airport master record for the Sekiu Airport. Available at https://www.airportiq5010.com/5010Web/. Accessed March 15, 2023.

Federal Energy Regulatory Commission (FERC). 2007. Environmental Assessment for Hydropower License. Makah Bay Offshore Wave Energy Pilot Project. FERC Project No. 12751-000. May 2007. Available at http://www.ferc.gov/docs-filing/elibrary.asp.

Federal Energy Regulatory Commission (FERC). 2012. FERC license for Reedsport OPT Wave Park, LLC, issued August 13, 2012. Available at http://www.oceanpowertechnologies.com/PDF/20120813-3045(27484096).pdf.

Federal Energy Regulatory Commission (FERC). 2014a. FERC Issues Pilot License For Tidal Project in Puget Sound. Federal Energy Regulatory Commission news release dated March 20, 2014. Docket No. P-12690-005. Item No. H-1. Available at http://www.ferc.gov/media/news-releases/2014/2014-1/03-20-14-H-1.asp#.VLQ3J2OmUWA.

Federal Energy Regulatory Commission (FERC). 2023. Hydrokinetic Projects (as of March 21, 2023). Available at https://www.ferc.gov/licensing/hydrokinetic-projects. Accessed March 24, 2023.

Fenner, L. 2006. U.S. Ambassador Raises Concerns About Iceland's Whaling Plan. Van Voorst meeting with Icelandic officials over restart of commercial whaling. November 1, 1996. Available at http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2006&m=October&x=20061026164037xlrennef4.276675e-02.

Fernandez, A., J. F. Edwards, F. Rodriguez, A. Espinosa de los Monteros, P. Herraez, P. Castro, J. R. Jaber, V. Martin, and M. Arbelo. 2005. Gas and fat embolic syndrome involving a mass stranding of beaked whales (Family Ziphiidae) exposed to anthropogenic sonar signals. Vet Pathol 42:446–457.

Ferrero, R. C., D. P. DeMaster, P. S. Hill, M. M. Muto, and A. L. Lopez. 2000. Alaska marine mammal stock assessments, 2000. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SAFSC-119.

Feyrer, L. J. 2010. The foraging ecology of gray whales in Clayoquot Sound: interactions between predator and prey across a continuum of scales. M.S. Thesis, Univ. Victoria.

Feyrer, L. J. and D. A. Duffus. 2011. Predatory disturbance and prey species diversity: The case of gray whale (Eschrichtius robustus) foraging on a multi-species mysid (family Mysidae) community. Hydrobiologia 678(1):37-47.

Field, J. C., R. C. Francis, & A. Strom. 2001. Toward a fisheries ecosystem plan for the northern California current. Reports of California Cooperative Oceanic Fisheries Investigations, 42, 74–87.

Field J. C., R. C. Francis, and K. Aydin. 2006. Top-down modeling and bottom-up dynamics: Linking a fisheries-based ecosystem model with climate hypotheses in the Northern California Current. Progress in Oceanography. 68(2-4), 238-270. https://doi.org/10.1016/j.pocean.2006.02.010.

Filatova, O. A., I. D. Fedutin, T.P. Pridorozhnaya, and E. Hoyt. 2022. Bottom-feeding gray whales *Eschrichtius robustus* demonstrate a finer scale of site fidelity than pelagic-feeding humpback whales *Megaptera novaeangliae* on an Arctic feeding ground. *Polar Biol* 45, 1013–1021 https://doi.org/10.1007/s00300-022-03048-x.

Findlay, L. T., and O. Vidal. 2002. Gray whale (Eschrichtius robustus) at calving sites in the Gulf of California, Mexico. Journal of Cetacean Research and Management, 4(1):27-40.

Fiscus, C. H., and K. Niggol. 1965. Observation of cetaceans off California, Oregon and Washington. US Fish and Wildlife Service Special Scientific Report — Fisheries No. 498. 25p.

Fominykh I.B. and Smith. 2016. Monitoring in 2016 by the Russian Federation and the United States of the aboriginal subsistence of aboriginal subsistence quota for gray whales set by the International Whale Commission. Available by request from the NOAA Fisheries Office of International Affairs, Trade, and Commerce.

Fominykh I.B. and R. Wulff. 2017. Monitoring in 2017 by the Russian Federation and the United States of the aboriginal subsistence of aboriginal subsistence quota for gray whales set by the International Whale Commission. Available by request from the NOAA Fisheries Office of International Affairs, Trade, and Commerce.

Fominykh I.B. and R. Wulff. 2023. Monitoring in 2023 by the Russian Federation and the United States of aboriginal subsistence quota for gray whales set by the International Whale Commission. Available by request from the NOAA Fisheries Office of International Affairs, Trade, and Commerce.

Ford, J. K. B. and R. R. Reeves. 2008. Fight or flight: antipredator strategies of baleen whales. Mammal Rev. 38: 50-86.

Ford, J. K. B., G. M. Ellis, and K. C. Balcomb. 2000. Killer whales: the natural history and geneology of Orcinus orca in British Columbia and Washington, 2nd Edition. University of British Columbia Press, Vancouver, BC and University of Washington Press, Seattle, WA.

Ford, J. K. B., J. W. Durban, G. M. Ellis, J. R. Towers, J. F. Pilkington, L. G. Barrett-Lennard and R. D. Andrews. 2013. New insights into the northward migration route of gray whales between Vancouver Island, British Columbia, and southeastern Alaska.

Ford, J. K. B., J. F. Pilkington, B. Gisborne, T. R. Frasier, R. M. Abernethy, and G. M. Ellis. 2016. Recent observations of critically endangered North Pacific right whales (Eubalaena japonica) off the west coast of Canada. Marine Biodiversity Records, 9(50). doi: dx.doi.org/10.1186/s41200-016-0036-3

Ford, M. J., editor. 2011. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest. U.S. Dept. Commerce, NOAA Technical Memorandum NMFS-NWFSC-113, 281 pp.

Forks Washington Chamber of Commerce. 2013. 5 Day Trips on the West Side of the Olympic Peninsula. Visitors brochure. Available at www.forkswa.com.

Forney, K. A. 2007. Preliminary Estimates of Cetacean Abundance along the U.S. West Coast and within Four National Marine Sanctuaries during 2005. NOAA Technical Memorandum NMFS. NOAA-TM-NMFS-SWFSC-406. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center. June 2007.

Forney, K. A. and J. Barlow. 1998. Seasonal patterns in the abundance and distribution of California cetaceans, 1991-92. Marine Mammal Science 14:460-489.

Fort Victoria Journal. Post Journal 1846-1850. Hudson's Bay Company Archives, Archives of Manitoba, Winnipeg, MB. B/226/a.

Fossi, M. C., C. Panti, C. Guerranti, D. Coppola, M. Giannetti, L. Marsili, and R. Minutoli. 2012. Are baleen whales exposed to the threat of microplastics? A case study of the Mediterranean fin whale (Balaenoptera physalus). Marine Pollution Bulletin, 64(11): 2374-79.

Foster, M. S., and D. R. Schiel. 1985. The ecology of giant kelp forests in California: A community profile. Biological Report. 85(7.2). U.S. Fish and Wildlife Service. 152 pp.

Fraser, D. 2009. NOAA boat strikes whale off Scituate. Cape Cod Times online news article published April 23, 2009. Accessed January 16, 2015. Available at http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20090423/NEWS/90423031.

Fraser, F. C. 1970. An early 17th century record of the California gray whale in Icelandic waters. Investigations on Cetacea 2:13-20.

Frasier, T. R., S. M. Koroscil, B. N. White, and J. D. Darling. 2011. Assessment of population substructure in relation to summer feeding ground use in the eastern North Pacific gray whale. Endangered Species Research 14:39-48. https://doi.org/10.3354/esr00340.

Frayne, A. 2021. 2021 Soundwatch Program Annual Contract Report. The Whale Museum. Available at https://cdn.shopify.com/s/files/1/0249/1083/files/2021SWannualreport.pdf?v=1649715728.

Freeland, H. J. 1992. The physical oceanography of the west coast of Vancouver Island. Pages 10-14 *in* Vermeer, K., R. W. Butler, and K. Morgan, editors. The ecology, status and conservation of marine and shoreline birds on the west coast of Vancouver Island. Ottawa, Canada: Canadian Wildlife Service Occasional Paper No. 75.

Freeland, H. 2000. The 1997-98 El Niño: The view from Line-P. CalCOFI Reports 41:56-61. Available at https://calcofi.com/publications/calcofireports/v41/Vol_41_Freeland.pdf.

Freeland, H. J. and K. L. Denman. 1982. A topographically controlled upwelling center off southern Vancouver Island. Journal of Marine Research 40:1069-1093.

Freeman, M. M. R. 1994. Science and Trans-Science in the Whaling Debate. Pages 143-158 *in* Freeman, M. M. R., and U. P. Kreuter, editors. Elephants and Whales: Resources for Whom? Gordon and Breach Science Publishers, Singapore.

Freeman, M. M. R., and U. P. Kreuter. 1994. Introduction. Pages 1-16 *in* Freeman, M. M. R. and U. P. Kreuter, editors. Elephants and Whales: Resources for Whom? Gordon and Breach Science Publishers, Singapore.

Friedman, E. 1976. An archaeological survey of Makah territory: a study in resource utilization. Ph.D. dissertation, Washington State University, Pullman, WA.

Fristrup, K. M., L. T. Hatch, and C. W. Clark. 2003. Variation in humpback whale (Megaptera novaeangliae) song length in relation to low-frequency sound broadcasts. Journal of the Acoustical Society of America 113(6):3411-3424.

Frölicher, T. L., E.M. Fischer, and N. Gruber. 2018. Marine heatwaves under global warming. Nature, 560(7718), 360-364.

Gagnon, C. 2016. Western gray whale activity in the East China Sea from acoustic data: Memorandum for Dr. Brandon Southall. Paper IWC/66/CC29 from the International Whaling Conservation Committee Meeting Papers. Available at https://archive.iwc.int/pages/themes.php.

Gailey, G., O. Sychenko, O. Tyurneva, Y. Yakovlev, V. Vertyankin, P. Van Der Wolf, K. Drozdov, and I. Zhmaev. 2020. Effects of sea ice on growth rates of an endangered population of gray whales. *Scientific Reports,* 10(1): 1553.

Gailey, G., O. Sychenko, M. Zykov, A. Rutenko, A. Blanchard, and R. H. Melton. 2022. Western gray whale behavioral response to seismic surveys during their foraging season. Environmental Monitoring and Assessment, 194(1): 740–740. doi:10.1007/s10661-022-10023-w.

Gaines, S. D., and J. Roughgarden. 1985. Larval settlement rate: a leading determinant of structure in ecological communities of the marine intertidal zone. Proceedings of the National Academy of Sciences (USA) 82:3707-3711.

Galasso, G. 2000. Olympic Coast National Marine Sanctuary Area to be Avoided (ATBA) Education and Monitoring Program. NOAA National Ocean Service, Marine Sanctuaries Conservation Series MSD-00-1. Silver Spring, MD.

Galasso, G. 2005. Olympic Coast National Marine Sanctuary Overflight Education and Monitoring Program, report on FY 2003-2004 accomplishments. Olympic Coast National Marine Sanctuary, unpublished report.

Gard, R. 1974. Aerial census of gray whales in Baja California lagoons, 1970 and 1973, with notes on behavior, mortality and conservation. California Fish & Game 60(3):132-143.

Gardner, S. C., and S. Chávez-Rosales. 2000. Changes in the relative abundance and distribution of gray whales (Eschrichtius robustus) in Magdalena Bay, Mexico during an El Nino event. Marine Mammal Science 16(4):728-38.

Garrett, C. 2004. Priority substances of interest in the Georgia Basin: profiles and background information on current toxics issues. GBAP Publication Number EC/GB/04/79, Canadian Toxics Work Group, Puget Sound/Georgia Basin International Task Force, Victoria, BC, and Olympia, WA. Available at http://www.pyr.ec.gc.ca/Georgiabasin/resources/publications/SciTechReports/EC-GB-04-79_e.pdf.

Gauthier, J. and R. Sears. 1999. Behavioral response of four species of balaenopterid whales to biopsy sampling. Marine Mammal Science, 15(1):85-101.

Gaydos, J. K., and N.A. Brown. 2011. Species of concern within the Salish Sea: changes from 2002 to 2011. In Proceedings of the 2011 Salish Sea Ecosystem Conference. Vancouver, BC, 25-27 October 2011.

Gaydos, J.K. and S.E. Pearson. 2011. Birds and Mammals that Depend on the Salish Sea: A Compilation. Northwestern Naturalist 92: 79-94.

Gaydos, J.K., L. Dierauf, G. Kirby, D. Brosnan, K. Gilardi, G.E. Davis. 2009. Top 10 Principles for Designing Healthy Coastal Ecosystems Like the Salish Sea. EcoHealth, 5: 460-471. doi: 10.1007/s10393-009-0209-1.

Gearin, P. J. and D. DeMaster. 1997. Gray whales in Washington. Report to International Whaling Commission SC/48/AS18.

Gearin, P. J. and M. Gosho. 2000. Report on whaling activity during the spring 2000 Makah gray whale hunt. NMFS/NWR report. Available from NMFS Northwest Regional Office, 7600 Sand Point Way NE, Seattle, WA.

Gearin, P. J. and J. Scordino. 1995. Marine mammals of the northwest coast of Washington. Unpublished NMFS-NWR report, available National Marine Mammal Laboratory, 7600 Sand Point Way, NE, Seattle, WA 98115. 26 pp.

Gearin, P.J., S. Jeffries, S. Riemar, L. Lehman, K. Hughes, and L. Cooke. 1999. Prey of Steller's sea lion, Eumetopias jubatus, in Washington State. Abstracts from 13th Biennial Conference on the Biology of Marine Mammals, Wailea, Hawaii, Nov. 28-Dec. 2, 1999.

Gelippi, M., J. Caraveo-Patiño, M.F.W. Gauger, B. N. Popp, S. Panigada, and R. Marcín-Medina. Isotopic composition of the eastern gray whale epidermis indicates contribution of prey outside Arctic feeding grounds. *Scientific Reports,* 12, 7055. https://doi.org/10.1038/s41598-022-107801.

Gentry, R. 2002. Northern fur seals. Pages 813-817 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Geo-Mexico. 2012. Why is the world's largest salt-works in Baja California Sur? Online news article posted February 21, 2012 at http://geo-mexico.com/?p=5667

George, J. C. and R. S. Suydam. 1998. Observations of killer whale predation in the northeastern Chukchi and western Beaufort Seas. Marine Mammal Science 14(2):330-332.

Geraci, J. R. 1989. Clinical investigation of the 1987-88 mass mortality of bottlenose dolphins along the U.S. central and south Atlantic coast. Final Report to National Marine Fisheries Service, U.S. Navy, Office of Naval Research, and Marine Mammal Commission.

Geraci, J. R. 1990. Physiological and toxic effects on cetaceans. Pages 167-197 *in* Geraci, J. R., and D. J. St. Aubin, editors. Sea mammals and oil: confronting the risks. Academic Press, New York, NY.

Geraci, J. R., and D. J. St. Aubin. 1985. Effects of offshore oil and gas development on marine mammals and turtles. Pages 587-617 *in* D. F. Boesch and N. N. Rabalais, editors. Long- term Environmental Effects of Offshore Oil and Gas Development. El Servier Applied Science. New York. 711 pp.

Geraci, J. R., and D. J. St. Aubin, editors. 1990. Sea mammals and oil: confronting the risks. Academic Press, New York, NY.

Gerodette, T. and D. P. DeMaster. 1990. Quantitative Determination of Optimum Sustainable Population Level. Marine Mammal Science 6:1-16.

Giese, M., and M. Riddle. 1999. Disturbance of emperor penguin Aptenodytes fosteri chicks by helicopters. Polar Biology 22:366-371.

Gilmore, R. M. 1960. A census of the California gray whale. U.S. Fish and Wildlife Service, Special Scientific Report: Fisheries No. 342. Washington, D.C.

Gilmore, R. M. 1978. Some news and views of the gray whale, 1977 – migration south and north between the islands of southern California. Whalewatcher 12:9-13.

Givens, G. H. 1999. Optimising Strike Limit Algorithms: Example Search and Results. Paper SC/51/AWMP3 presented to the IWC Scientific Committee May 1999.

Givens, G.H., D.W. Weller. 2021. Two Aboriginal Subsistence Whaling Stocks Remain in Tested Parameter Space. Paper SC/68C/ASW/02 from the International Whaling Commission Scientific Committee Meeting Papers. Available at https://archive.iwc.int/pages/themes.php.

Gless, E.J. and J. Krieger. 2023. Pacific Whale Watch Association 2022 Sightings and Sentinel Actions Report. Pacific Whale Watch Association. 34 pp.

Goerlitz, D. S., J. Urbán R., L. Rojas-Bracho, M. Belson, and C.M. Schaeff. 2003. Mitochondrial DNA variation among eastern north pacific gray whales (Eschrichtius robustus) on winter breeding grounds in Baja California. Can. J. Zool., 81(12).

Goffredi, S. K., C. K. Paull, K. Fulton-Bennett, L. A. Hurtado, and R. C. Vrijenhoek. 2004. Unusual benthic fauna associated with a whale fall in Monterey Canyon, California. Deep Sea Research I (51):1295-1306.

Goley, P. D. and J. M. Straley. 1994. Attack on gray whales (Eschrichtius robustus) in Monterey Bay, California, by killer whales (Orcinus orca) previously identified in Glacier Bay, Alaska. Canadian Journal of Zoology 72(8):1528-1530.

Gómez-Gutiérrez, J., W. T. Peterson, and C. B. Miller. 2005. Cross-shelf life-stage segregation and community structure of the euphausiids off central Oregon (1970–1972). Deep-Sea Research II 52: 289-315.

GoNorthwest. 2014. Washington Activities – Whale Watching. Online information accessed September 27, 2014. Available at http://www.gonorthwest.com/Washington/Activities/whales/whale_watching.htm.

Goodman, L., and H. Swan. 2003. Singing the songs of my ancestors: the life and music of Helma Swan, Makah elder. University of Oklahoma Press, Norman, OK.

Gosho, M. E. 1999. Report of the NMFS observer monitoring the Makah gray whale spring hunt in 1999. Unpublished NMFS-NMML Report.

Gosho, M. E., D. W. Rice, and J. M. Breiwich. 1984. The sperm whale. Marine Fisheries Review 46(4):54-64.

Gosho, M. E., P. J. Gearin, J. Calambokidis, K. M. Hughes, L. Cooke, and V. E. Cooke. 1999. Gray whales in the waters of northwest Washington in 1996 and 1997. Unpublished report presented to the International Whaling Commission Scientific Committee SC/51/AS9.

Gosho, M. E., P. J. Gearin, J. Calambokidis, K. M. Hughes, L. Cooke and V. E. Cooke. 2001. Regional movements of gray whales off the coasts of north Washington and southern Vancouver Island, 1996-1999. NMFS-NMML Report.

Gosho, M., P. Gearin, R. Jenkinson, J. Laake, L. Mazzuca, D. Kubiak, J. Calambokidis, W. Megill, B. Gisborne, D. Goley, C. Tombach, J. Darling, V. Deecke. 2011. Movements and diet of gray whales (Eschrichtius robustus) off Kodiak Island, Alaska, 2002-2005. Paper SC/M11/AWMP2 presented to the International Whaling Commission.

Gottlieb, P. 1999. Coast Guard on Alert after Death Threats. Peninsula Daily News May 18, 1999. Page A3.

Gottlieb, P. 2010. Neah Bay tug aids crippled ship; 'true value' of mission shown. Peninsula Daily News article published March 4, 2010. Available at http://www.peninsuladailynews.com/article/20100304/news/303049987.

Graham, M. H. 1997. Factors determining the upper limit of giant kelp, Macrocystis pyrifera Agardh, along the Monterey Peninsula, central California, USA. Journal of Experimental Marine Biology and Ecology 218:127-149.

Gramling, J. 2000. Ballast water and shipping patterns in Puget Sound: Considerations for siting of alternative ballast water exchange zones. Puget Sound Water Quality Action Team, Olympia, WA.

Grandjean, P., K. S. Bjerve, P. Weihe, and U. Steuerwald. 2001. Birthweight in a fishing community: significance of essential fatty acids and marine food contaminants. International Journal of Epidemiology 30:1272-1278.

Grant, S. C. H. and P. S. Ross. 2002. Southern resident killer whales at risk: toxic chemicals in the British Columbia and Washington environment. Canadian Technical Report of Fisheries and Aquatic Sciences 2412.

Graves, W., and L. Hazelton. 2004. Addendum 1: Report to the United States National Oceanic and Atmospheric Administration on Firearms Safety and Guidelines for the Makah Indian Tribe Gray Whale Hunt. March 2004.

Graves, W., L. Hazelton, and H. Krager. 2004. Report to the United States National Oceanic and Atmospheric Administration on Firearms Safety and Guidelines for the Makah Indian Tribe Gray Whale Hunt. February 2004. Available at NMFS Northwest Region, 7600 Sand Point Way, Seattle, WA.

Grebmeier, J. M., and N. M. Harrison. 1992. Seabird feeding on benthic amphipods facilitated by gray whale activity in the northern Bering Sea. Marine Ecology Progress Series 80:125-133.

Grebmeier, J. M., H. M. Feder, and C. P. McRoy. 1989. Pelagic benthic coupling on the shelf of the northern Bering and Chukchi Seas II: benthic community structure. Marine Ecology Progress Series 51:253-268.

Grebmeier, J. M., J. E. Overland, S. E. Moore, E. V. Farley, E. C. Carmack, L. W. Cooper, K. E. Frey, J. H. Helle, F. A. McLaughlin, and S. L. McNutt. 2006. A major ecosystem shift in the northern Bering Sea. Science 311:1461-1464.

Grebmeier, J. M., Frey, K. E., Cooper, L. W. and M. Kędra. 2018. Trends in benthic macrofaunal populations, seasonal sea ice persistence, and bottom water temperatures in the Bering Strait region. Oceanography 31, 136–151.

Grebmeier, J. M., Moore, S. E., Overland, J. E., Frey, K. E. and R. Gradinger. 2010. Biological Response to Recent Pacific Arctic Sea Ice Retreats. Eos, Transactions American Geophysical Union 91, 161–162.

Green, G. A., J. J. Brueggeman, R. A. Grotefendt, C. E. Bowlby, M. L. Bonnel, and K. C. Balcomb. 1992. Cetacean distribution and abundance off Oregon and Washington, 1989-1990. Pages 1-100 *in* J. J. Brueggeman, editor. Oregon and Washington Marine Mammal and Seabird Surveys. Final Rept. OCS study Minerals Management Service, 91-0093.

Green, G. A., R. A. Grotefendt, M. A. Smultea, C. E. Bowlby, and R. A. Rowlett. 1993. Delphinid aerial surveys in Oregon and Washington offshore waters. Final Report. National Marine Fisheries, National Marine Mammal Laboratory, Contract #50ABNF200058, Seattle, WA.

Green, G. A., J. J. Brueggeman, R. A. Grotefendt, and C. E. Bowlby. 1995. Offshore distances of gray whales migrating along the Oregon and Washington coasts, 1990. Northwest Science 69:223-227.

Greene, T. J. 2013. April 24, 2013, testimony of Timothy J. Greene, Chairman, Makah Tribal Council, Before the House Appropriations Subcommittee on Interior, Environment and Related Agencies on the Fiscal Year 2014 Budget.

Greenland Home Rule Government (Ministry of Fisheries, Hunting, and Agriculture) and Greenland Hunter's Organization. 2006. Whale killing methods and associated welfare issues in Greenland. Unpublished report submitted to the International Whaling Commission's Workshop on Whale Killing Methods (IWC/58/WKM&AWI 17). Available at http://www.iwcoffice.org/_documents/commission/IWC58docs/iwc58docs.htm.

Gregory, M. R. 2009. Environmental implications of plastic debris in marine settings—entanglement, ingestion, smothering, hangers-on, hitch-hiking and alien invasions. Philosophical Transactions of the Royal Society, 364: 2013-2025.

Groot, C. and L. Margolis. 1991. Pacific salmon life histories. UBC Press, Vancouver, BC.

Grubb, T. G. and W. Bowerman. 1997. Variations In Breeding Bald Eagles Responses to Jets, Light Planes and Helicopters. Journal of Raptor Research 31 (3): 213-222.

Grubb, T. G., W.W. Bowerman, J.P. Giesy, and G.A. Dawson. 1992. Responses of breeding bald eagles, Haliaeetus leucocephalis, to human activities in Northcentral Michigan. Canadian field-naturalist, 106:443-453.

Grundle DS, D.A. Timothy, D.E. Varela. 2009. Variations of phytoplankton productivity and biomass over an annual cycle in Saanich Inlet, a British Columbia fjord. Continental Shelf Research, 29(19):2257–69.

Gulland, F. M. D., H. Perez-Cortes, J. Urbán-Ramirez, L. Rojas-Bracho, G. Yitalo, C. Kreuder, and T. Rowles. 2002. Eastern North Pacific gray whale unusual mortality event, 1999-2000: a complication. Unpublished paper presented to the International Whaling Commission, May 2002. SC/54/BRG 23.

Gulland, F. M. D., H. Perez-Cortes, J. Urbán R., L. Rojas-Bracho, G. Ylitalo, J. Weir, S. A. Norman, M. M. Muto, D. J. Rugh, C. Kreuder, and T. Rowles. 2005. Eastern North Pacific gray whale unusual mortality event, 1999-2000. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-150.

Gulland, F., T. Rowles, J. Mazet, L. Rojas-Bracho, and R. Rasmussen. 2008. Health and nutrition in gray whales. Abstract from the workshop on "Gray Whales and Climate Change: Sentinels of the North Pacific/Arctic Ecosystems," held November 17, 2008, in conjunction with the American Cetacean Society Conference.

Gulland, F. M. D, J. D. Baker, M. Howe, E. LaBrecque, L. Leach, S. E. Moore, R. R. Reeves, and P. O. Thomas. 2022. A review of climate change effects on marine mammals in United States waters: Past predictions, observed impacts, current research and conservation imperatives. *Climate Change Ecology* 3: 100054.

Gunther, E. 1942. Reminiscences of a whaler's wife. Pacific Northwest Quarterly 33(1):65-69.

Gustafson, R. G., J. Drake, M. J. Ford, J. M. Myers, E. E. Holmes, and R. S. Waples. 2006. Status review of Cherry Point Pacific herring (Clupea pallasii) and updated status review of the Georgia Basin Pacific herring distinct population segment under the Endangered Species Act. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-NWFSC-76, 182 pp.

Hale, J. R., K. L. Laidre, S. J. Jeffries, J. J. Scordino, D. Lynch, R. J. Jameson, M. T. Tinker. 2022. Status, trends, and equilibrium abundance estimates of the translocated sea otter population in Washington State. The Journal of Wildlife Management, 86(4). https://doi.org/10.1002/jwmg.22215.

Haley, D. (Ed.). 1986. Marine mammals of eastern North Pacific and Arctic waters, 2nd edition. Pacific Search Press, Seattle, WA.

Hall-Spencer, J. M., R. Rodolfo-Metalpa, S. Martin, E. Ransome, M. Fine, S. M. Turner, S. J. Rowley, D. Tedesco, and M. C. Buia. 2008. Volcanic carbon dioxide vents show ecosystem effects of ocean acidification. Nature 454: 96-99.

Hamilton, J. 1999a. Tribes Unite for Whale Hunt. Peninsula Daily News May 14, 1999. Page A2.

Hamilton, J. 1999b. Protesters Converge on Sekiu. Peninsula Daily News May 12, 1999. Page A10.

Hamilton, J. 1999c. Threats Upset Makah Tribal Members. Peninsula Daily News May 20, 1999. Page A2.

Hancock, D. R. 1997. A Summary of Benthic Invertebrate Information in the Region of Existing Offshore Disposal Sites off the Mouth of the Columbia River. In Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement Columbia and Lower Willamette River Federal Navigation Channel August, 1999 Appendix H Vol II.1997 U.S. Army Corps of Engineers, Portland District, Portland, OR. Available at https://www.nwp.usace.army.mil/issues/crcip/1999.asp.

Hancock, S. 1927. The narrative of Samuel Hancock, with an Introduction by Arthur D. Howden Smith. Robert M. McBride & Company, New York, NY.

Hankins, S. M. 1990. The United States' abuse of the aboriginal whaling exception: a contradiction in United States policy and a dangerous precedent for the whale. Univ. of Calif.-Davis Law. Rev. 24:489-530.

Hansen, C. T, C. O. Nielsen, R. Dietz, and M. M. Hansen. 1990. Zinc, cadmium, mercury and selenium in minke whales, belugas and narwhals from west Greenland. Polar Biology 10: 529-539.

Hanson, M. B., C. K. Emmons, E. J. Ward, J. A. Nystuen, and M.O. Lammers. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. The Journal of the Acoustical Society of America, 134(5):3486-3495.

Hanson, M.B., E. J. Ward, C. K. Emmons, M. M. Holt, and D. M. Holzer. 2017. Assessing the movements and occurrence of Southern Resident Killer Whales relative to the U.S. Navy's Northwest Training Range Complex in the Pacific Northwest. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N00070-15-MP-4C363. 30 June 2017. 23 pp.

Hare, S. R. 1996. Low frequency climate variability and salmon production. Ph.D. dissertation, University of Washington, Seattle, WA.

Hare, S. R. and N. J. Mantua. 2000. Empirical evidence for North Pacific regime shifts in 1977 and 1989. Progress in Oceanography 47:103-145.

Hare, S. R., N. J. Mantua, and R. C. Francis. 1999. Inverse production regimes: Alaska and west coast Pacific salmon. Fisheries Habitat 24(1):6-14.

Harris, J., J. Calambokidis, A. Perez, J. Laake, and P.J. Mahoney. 2022. Recent trends in the abundance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle, WA 98115.

Harvey C., N. Garfield, G. Williams, K. Andrews, C. Barceló, K. Barnas, S. Bograd, R. Brodeur, B. Burke, J. Cope, L.deWitt, J. Field, J. Fisher, C. Greene, T. Good, E. Hazen, D. Holland, M. Jacox, S. Kasperski, S. Kim, s. Leising, A. Melin, S. Morgan, C. Munsch, S. Norman, K. Peterson, W. T. Poe, M. Samhouri, J. Schroeder, I. Sydeman, W. Thayer, J. Thompson, A. Tolimieri, N. Varney, A. Wells, B. Williams,and J. Zamon. 2017. Ecosystem Status Report of the California Current for 2017: A Summary of Ecosystem Indicators Compiled by the California Current Integrated Ecosystem Assessment Team (CCIEA). U.S. Department of Commerce. NOAA Technical Memorandum NMFS-NWFSC-139. https://doi.org/10.7289/V5/TM-NWFSC-139.

Harvey, C., T. Garfield, G. Williams, and N. Tolimieri. 2020. California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report, 2020. Report to the Pacific Fishery Management Council, March 5, 2020. Agenda Item G.1.a. IEA Team Report 1, March 2020.

Harvey, J. T. and B. R. Mate. 1984. Dive characteristics and movements of radio-tagged gray whales in San Ignacio Lagoon, Baja California Sur, Mexico. Pages 561-89 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale, Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Hatler, D. F. and J. D. Darling. 1974. Recent observations of the gray whale in British Columbia. Canadian Field-Naturalist 88(4):449-459.

Hayes, K. R. R., G. M. Ylitalo, T. A. Anderson, J. Urbán R., J. K. Jacobsen, J. J. Scordino, A. R. Lang, K. A. Baugh, J. L. Bolton, A. Brüniche-Olsen, J. Calambokidis, S. Martínez-Aguilar, S. Subbiah, M. O. Gribble, and C. A. J. Godard-Codding. 2022. Influence of Life-History Parameters on Persistent Organic Pollutant Concentrations in Blubber of Eastern North Pacific Gray Whales (Eschichtius robustus). Environmental Science & Technology 2022, 56 (23): 17119-17130. doi. 10.1021/acs.est.2c05998.

Haytowitz, D. B.; Ahuja, Jaspreet K.C.; Wu, Xianli; Somanchi, Meena; Nickle, Melissa; Nguyen, Quyen A.; Roseland, Janet M.; Williams, Juhi R.; Patterson, Kristine Y.; Li, Ying; Pehrsson, Pamela R. (2019). USDA National Nutrient Database for Standard Reference, Legacy Release. Nutrient Data Laboratory, Beltsville Human Nutrition Research Center, ARS, USDA. Available at https://data.nal.usda.gov/dataset/usda-national-nutrient-database-standard-reference-legacy-release. Accessed March 16, 2023.

Hayward, T. L. 2000. El Niño 1997-98 in the coastal waters of southern California: A timeline of events. CalCOFl Reports, 41:98-116. Available at http://www.calcofi.org/newhome/publications/CalCOFI_Reports/v41/v41_toc.htm.

Heckel, G., S. B. Reilly, J. L. Sumich, I. and Espejel. 2001. The influence of whalewatching on the behaviour of migrating gray whales (Eschrichtius robustus) in Todos Santos Bay and surrounding waters, Baja California, Mexico. Journal of Cetacean Research and Management, 3(3):227-37.

Heide-Jørgensen, M. P. 1994. Distribution, exploitation and population status of white whales (Delphinapterus leucas) and narwhals (Monodon monoceros) in West Greenland. Pp.135-149 *in*

Born, E. W., R. Dietz, and R. R. Reeves, editors. Studies of White Whales (Delphinapterus leucas) and Narwhals (Monodon monoceros) in Greenland and Adjacent Waters, Meddelelser om Grønland, Bioscience. 39.

Heise, K. 1997. Diet and feeding behaviour of Pacific white-sided dolphins (Lagenorhynchus obliquidens) as revealed through the collection of prey fragments and stomach content analyses. Report of the International Whaling Commission 47:807-815.

Henderson, D. A. 1984. Nineteenth century gray whaling: grounds, catches and kills, practices and depletion of the whale population. Pages 159-185 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Henderson, R. 2005. The Future of Whaling: Should the International Whaling Commission Create a Broadened Cultural Exemption to the Whaling Moratorium for Iceland? 33 Georgia Journal of International and Comparative Law 655 (Spring 2005).

Henry A.E., J. E. Moore, J. Barlow, J. Calambokidis, L. T. Ballance, L. RojasBracho, J. Urbán-Ramírez. 2020. Report on the California Current Ecosystem Survey (CCES): Cetacean and Seabird Data Collection Efforts, June26– December4, 2018, U.S. Departmentof Commerce, NOAA Technical Memorandum NMFS-SWFSC-636.

Herzig, D. L. and B. R. Mate. 1984. Gray whale migrations along the Oregon coast, 1978-81. Pages 289-308 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Hessing, P. 1981. Gray whale (Eschrichtius robustus) migration into the Bering Sea, Spring 1981. Final Report. NOAA/OMPA Contract: NA 81RGA 00080.

Hester, K. C., E. T. Peltzer, W. J. Kirkwood, and P. G. Brewer. 2008. Unanticipated Consequences of Ocean Acidification: A Noisier Ocean at Lower pH. Geophysical Research Letters, v. 35: L19601, doe:10.1029/2008FL034913.

Hickey, B. M. 1979. The California Current System--Hypotheses and facts. Progress in Oceanography 8:191-279.

Hickey, B. M. 1993. Physical oceanography. Pages 19-70 *in* Dailey, M. D., D. J. Reish, and J. W. Anderson, editors. Ecology of the Southern California Bight. University of California Press, Berkeley, CA.

Hickey, B. M. 1995. Coastal submarine canyons. Pages 95-110 *in* Muller, P., and D. Henderson, editors. Proceedings of the University of Hawaii 'Aha Huliko'a Workshop on Flow Topography Interactions. SOEST Special Publication. University of Hawaii, Honolulu, HI.

Hickey, B. M. 1998. Coastal oceanography of western North America from the tip of Baja California to Vancouver Island. Pages 345-393 *in* Robinson, A. R. and K. H. Brink, editors. The sea. Volume 11, Chapter 12. John Wiley & Sons, Inc., New York, NY.

Hickey, B. M. and N. S. Banas. 2003. Oceanography of the U.S. Pacific Northwest coastal ocean and estuaries with application to coastal ecology. Estuaries 26(4B):1010-1031.

Hickey B. M., and N.S. Banas. 2008. Why is the Northern End of the California Current System So Productive? Oceanography. 21(4), 90-1071.

Hickey, B. M., L. J. Pietrafesa, D. A. Jay, and W. C. Boicourt. 1998. The Columbia River plume study: Subtidal variability in the velocity and salinity fields. Journal of Geophysical Research 103(C5):10339-10368.

High North Alliance. 2007. Aboriginal Subsistence Whaling in: IWC Survival Kit for the May 27-31, 2007 meeting in Anchorage, Alaska. Available at http://www.highnorth.no/IWC2007/default.htm.

Highsmith, R. C. and K. O. Coyle. 1992. Productivity of arctic amphipods relative to gray whale energy requirements. Marine Ecology Press Series 83:141-150.

Highsmith R. C., K. O. Coyle, B. A. Bluhm, and B. Konar. 2007. Gray Whales in the Bering and Chukchi Seas. Pages 303-313 *in* Estes, J., D. P. DeMaster, D. F. Doak, T. M. Williams, and R. L. Brownell, editors. Whales, Whaling, and Ocean Ecosystems. University of California Press, Berkeley, CA.

Hildebrand, J. 2005. Impacts of Anthropogenic Sound. Pages 105-123 *in* Reynolds, J. E . III, W. F. Perrin, R. R. Reeves, S. Montgomery, and T. J. Ragan, editors. Marine Mammal Research, Conservation Beyond Crisis. Johns Hopkins University Press, Baltimore, MD.

Hildebrand, J. A. 2009. Anthropogenic and natural sources of ambient noise in the ocean. Marine Ecology-Progress Series 395:5-20.

Hildebrand, L., K. S. Bernard, and L. G. Torres. 2021. Do gray whales count calories? Comparing energetic values of gray whale prey across two different feeding grounds in the eastern North Pacific. *Frontiers in Marine Science* 8: 683634.

Hildebrand, L., F. A. Sullivan, R. A. Orben, S. Derville, and L. G. Torres. 2022. Trade-offs in prey quantity and quality in gray whale foraging. *Marine Ecology Progress Series* 695: 189-201.

Hill, P. S. and D. P. DeMaster. 1998. Alaska marine mammal stock assessments, 1998. NOAA Technical Memorandum NMFS-AFSC-97. December 1998.

Hilton-Taylor, C. 2000. 2000 IUCN Red List of Threatened Species. IUCN/SSC, Gland Switzerland and Cambridge, United Kingdom.

Himelbloom, B. H. 1998. Primer on food-borne pathogens for subsistence food handlers. International Journal of Circumpolar Health 57 (Suppl. 1):228-234.

Ho, J. 2010. The implications of Arctic sea ice decline on shipping. Marine Policy 34:713–715.

Hobbs, R. C., D. J. Rugh, J. M. Waite, J. M. Breiwick, and D. P. DeMaster. 2004. Abundance of gray whales in the 1995/96 southbound migration in the eastern North Pacific. Journal of Cetacean Research and Management, 6(2):115-20.

Hobday, A. J., L.V. Alexander, S.E. Perkins, D.A. Smale, S.C. Straub, E.C. Oliver, J.A. Benthuysen, M.T. Burrows, M.G. Donat, M. Feng, and N.J. Holbrook. 2016. A hierarchical approach to defining marine heatwaves. Progress in Oceanography, 141, 227-238.

Hoegh-Guldberg, O. and J.F. Bruno. 2010. The Impact of Climate Change on the World's Marine Ecosystems. Science 328, 1523–1528.

Hoelzel, A. R. , F. Sarigol, T. Gridley, and S. H. Elwen. 2021. Natal Origin of Namibian Grey Whale Implies New Distance Record for in-Water Migration. Biology Letters (2005), 17(6): 20210136–20210136. doi:10.1098/rsbl.2021.0136.

Hogarth, B. 2006. Welcome to Bill's Corner: Letter from Bill Hogarth, Director of NMFS to Constituents. June/July 2006. Available at http://www.nmfs.noaa.gov/features/billscorner/billscorner_archive/2006_06.htm.

Hogarth, W. 2007. NOAA Press Release - Hogarth Denounces Unauthorized Hunt of Gray Whale by Members of Makah Tribe. September 11, 2007 Statement from William T. Hogarth, Ph.D., Director of NOAA Fisheries Service and Commissioner to the International Whaling Commission. Available at http://www.nmfs.noaa.gov/mediacenter/docs/Director_Statement_on_Makah.pdf.

Hogarth, W. T. 2008. Written testimony of William T. Hogarth, U.S. Commissioner to the IWC before the U.S. House of Representatives' Committee on Natural Resources, Subcommittee on Fisheries, Wildlife, and Oceans. Oversight hearing on "60th Annual meeting of the IWC. June 10, 2008.

Holt, M. M., D. P. Noren, V. Veirs, E. Emmons, and S. Veirs. 2009. Speaking up: Killer whales (Orcinus orca) increase their call amplitude in response to vessel noise. Journal of the Acoustical Society of America Express Letters 125: EL27-EL32.

Holt, M. M., J. B. Tennessen, E. J. Ward, M. B. Hanson, C.K. Emmons, D. A. Giles, and J.T. Hogan. 2021a. Effects of Vessel Distance and Sex on the Behavior of Endangered Killer Whales. *Frontiers in Marine Science* 7. doi:10.3389/fmars.2020.582182.

Holt, Marla M., J. B. Tennessen, M. B. Hanson, C. K. Emmons, D. A. Giles, J. T. Hogan, and . J. Ford. 2021b. Vessels and Their Sounds Reduce Prey Capture Effort by Endangered Killer Whales (Orcinus Orca). *Marine Environmental Research* 170:105429–105429. doi:10.1016/j.marenvres.2021.105429.

Holub, D. J., and B. J. Holub. 2004. Omega-3 fatty acids from fish oils and cardiovascular disease. Molecular and Cellular Biochemistry 263:217-225.

Hopfinger, A. 2007. Japan Fails to Get Support for Whaling, May Quit IWC (Update2). June 1, 2007. Web article available at http://www.bloomberg.com/apps/news?pid=20601101&sid=a8F4Pb3_.oic&refer=japan.

Horner, R. A., D. L. Garrison, and F. G. Plumley. 1997. Harmful algal blooms and red tide problems on the U.S. West Coast. Limnology and Oceanography 42(5, part 2): 1076-1088.

Houde, M., P. F. Hoekstra, K. R. Solomon, and D. C. G. Muir. 2005. Organohalogen contaminants in delphinoid cetaceans. Reviews of Environmental Contamination and Toxicology 184:1-57.

Hovelsrud, G. K., M. McKenna, and H. P. Huntington. 2008. Marine mammal harvests and other interactions with humans. Ecol. Appl. 18(2 Supplement): S135-S47.

Howell, E. A., S. J. Bograd, C. Morishige, M. P. Seki, and J. J. Polovina. 2012. On North Pacific Circulation and Associated Marine Debris Concentration. Marine Pollution Bulletin 65(1): 16–22. doi:10.1016/j.marpolbul.2011.04.034.

Hoyt, E. 2001. Whale Watching 2001: Worldwide Tourism, Numbers, Expenditures, and Expanding Socioeconomic Benefits. Special Report from the United Nations Environment Programme by the International Fund for Animal Welfare.

Hoyt, E. 2006. Whale Watching and Marine Ecotourism in Russia - An introductory guide for companies, conservation groups and individuals wanting to promote or set up marine ecotours in Russia. The Whale and Dolphin Conservation Society. ISBN: 1 901386 56 2.

Hoyt, E. and G. Hvenegaard. 2002. A Review of Whale Watching and Whaling with Applications for the Caribbean. Coastal Management 30:381-399.

Hoyt, E. and M. Iñíguez. 2008. The State of Whale Watching in Latin America. WDCS, Chippenham, UK; IFAW, Yarmouth Port, USA; and Global Ocean, London, 60 pp.

Hoyt, E. and E. C. M. Parsons. 2014. The whale-watching industry: Historical development. 10.1017/CBO9781139018166.006.

Hubbs, C. L. and L. C. Hubbs. 1967. Gray whale censuses by airplane in Mexico. California Fish and Game 53:23-27.

Huelsbeck, D. R. 1988. The surplus economy of the central Northwest Coast. Pages 147-177 *in* Isaac, B., editor. Prehistoric economies of the Pacific Northwest Coast. Supplement 3 of Research in Economic Anthropology. JAI Press, Greenwich, CT.

Huelsbeck, D. R. 1994. The utilization of whales at Ozette. Part V. Pages 267-303 *in* Samuels, S. R., editor. Ozette archaeological project research reports, Vol. II. Washington State University Department of Anthropology Reports of Investigations 66. National Park Service, Pacific Northwest Region Office.

Huff, M. H., M. G. Raphael, S. L. Miller, S. K. Nelson, and J. Baldwin. 2006. Northwest Forest Plan – The first 10 years (1994-2003): status and trends of populations and nesting habitat for the marbled murrelet. Gen. Tech. Rep. PNW-GTR-650. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 149 pp.

Hunsicker, M. E., E. J. Ward, M. A. Litzow, S. C. Anderson, C. J. Harvey, J. C. Field, J. Gao, M. G. Jacox, S. Melin, A. R. Thompson, P. Warzybok. 2022. Tracking and forecasting community responses to climate perturbations in the California Current Ecosystem. California Current Ecosystem. PLOS Clim 1(3): e0000014. https://doi.org/10.1371/journal.pclm.0000014.

Hunt, J. and D. Cardwell. 2014. Experimental Efforts to Harvest the Ocean's Power Face Cost Setbacks. New York Times online news article posted April 27, 2014. Available at http://www.nytimes.com/2014/04/28/business/energy-environment/experimental-efforts-to-harvest-the-oceans-power-face-cost-setbacks.html?_r=0.

Huntington, H. P., F. K. Wiese, M.Baker, P. Boveng, J. J. Citta, A. De Robertis, D. M. S. Dickson, E. Farley, J. C. George, K. Iken, D. G. Kimmel, K. Kuletz, C. Ladd, R. Levine, L. Quakenbush, P. Stabeno, K. M. Stafford, D. Stockwell, and C. Wilson 2020. Evidence suggests potential transformation of the Pacific Arctic ecosystem is underway. Nat. Clim. Chang. 10, 342–348.

Huyer, A. and R.L. Smith. 1985. The signature of El Niño off Oregon, 1982-1983. Journal of Geophysical Research 90(C4):7133-7142.

Huyer, A., E. J. C. Sobey, and R. L. Smith. 1979. The spring transition in currents over the Oregon continental shelf. Journal of Geophysical Research 84(C11):6995-7011.

Huyer, A., J. A. Barth, P. M. Kosro, R. K. Shearman, and R. L. Smith. 1998. Upper-ocean water mass characteristics of the California Current, summer 1993. Deep-Sea Research II 45(1998):1411-1442.

HydroWorld. 2009. Finavera surrenders license for 1-MW Makah Bay wave project. Online news article posted April 29, 2009. Available at http://www.hydroworld.com/articles/2009/04/finavera-surrenders.html.

Ilyashenko, V. 2008. Considerations of Management Implications of "Stinky" Gray Whales for the Eastern North Pacific Stock. Submitted by the Russian Federation as IWC/59/ASW 7, Agenda item 6.2., CC Agenda item 4.1.1.

Ilyashenko, V. 2013. Aboriginal harvest of gray and bowhead whales in the Russian Federation in 2008-2012. Submitted by the Russian Federation as SC/65a/BRG24.

Ilyashenko, V. and D. DeMaster. 2012. Addendum to Monitoring in 2012 by the Russian Federation and the United States of the Aboriginal Subsistence Quota for Gray Whales Set by the International Whaling Commission. Agreement signed July 6, 2012.

Ilyashenko, V. and W. T. Hogarth. 2007. Addendum to Monoitoring(sic) in 2007 by the Russian Federation and the United States of the Aboriginal Subsistence Quota for Gray Whales Set by the International Whaling Commission. Agreement signed May 20, 2007.

Ilyashenko, V., and K. Zharikov. 2013. Aboriginal harvest of gray and bowhead whales in the Russian Federation in 2013. Submitted by the Russian Federation as SC/65b/BRG03.

Indian and Northern Affairs. 2006. December 9, 2006 letter from Eric Denhoff (Indian and Northern Affairs Canada) to the Chief Negotiators of the Maa-nuth First Nations re: Maa-nulth First Nations Final Agreement (the "Final Agreement") - Harvesting of Grey and Sei Whale. Available at http://www.maanulth.ca/the_treaty_side_agreements.asp.

Industrial Economics Inc. 2020. Final Analysis of the Economic Viability of Commercial Whale Watching License Holders. Industrial Economics Incorporated.

Ingling, A. L. 1997. The development of techniques incorporating traditional elements to enable the Makah to harvest the gray whale in an efficacious, safe, and humane manner. Unpublished paper presented to the International Whaling Commission IWC/49/HK4.

Ingling, A. L. 1999. Ballistic testing of large-caliber rifles for the Makah Tribal gray whale subsistence hunt. Unpublished paper presented to the International Whaling Commission IWC/51/WK14 Appendix.

Insley, S. J. 1992. Impact of airborne noise on northern fur seals in the Pribilof Islands: A preliminary assessment. *In* Kajimura, H., and E. Sinclair, editors. Fur Seal Investigations, 1990. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-AFSC-2.

Insley, S. J. 1993. Impact of airport noise on northern fur seals, St. George Island, Alaska, 1993. Final report to the National Marine Mammal Laboratory, contract #40-HANF-3-00087, December 15, 1993. Available at NMML, 7600 Sand Point Way, NE, Seattle, WA 98115.

Insley, S.J., B. Robson, T. Yack, and R.R. Ream. 2003. Use of onboard acoustic dataloggers to study responses of pinnipeds to vessel noise: Field trials with northern fur seals. Symposium on the Environmental Consequences of Underwater Sound (ECOUS). San Antonio, TX.

International Association for the Study of Pain. 1979. Subcommittee on Taxonomy. The need of a taxonomy. Pain 3:277-280.

International Panel on Climate Change (IPCC). 2019. Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–35. https://doi.org/10.1017/9781009157964.001.

International Union for the Conservation of Nature (IUCN). 2020. Report of the 20th Meeting of the Western Gray Whale Advisory Panel. 6−8 November 2019, Moscow, Russian Federation. WGWAP-20.

International Whaling Commission (IWC). 1979a. Report of the Cultural Anthropology Panel. Pages 33-49 in Aboriginal/Subsistence Whaling (with special reference to the Alaska and Greenland fisheries), Report of the International Whaling Commission, Special Issue 4, 1982. University Press, Cambridge, United Kingdom, 86 pp.

International Whaling Commission (IWC). 1979b. Report of the Nutrition Panel. Pages 23-33 in Aboriginal/Subsistence Whaling (with special reference to the Alaska and Greenland fisheries), Report of the International Whaling Commission, Special Issue 4, 1982. University Press, Cambridge, United Kingdom, 86 pp.

International Whaling Commission (IWC). 1982. Aboriginal/Subsistence Whaling (with special reference to the Alaska and Greenland fisheries). Report of the International Whaling Commission, Special Issue 4. University Press, Cambridge, United Kingdom, 86 pp.

International Whaling Commission (IWC). 1995. Chair's Report of the 46th Annual Meeting of the International Whaling Commission. Puerto Vallarta, Mexico, May 23-27, 1994.

International Whaling Commission (IWC). 1996. Chairman's Report of the Forty-Seventh Annual Meeting. Dublin, Ireland, May 29 - June 2, 1995. Pages 15-48 in Report of the International Whaling Commission 46. Cambridge, United Kingdom, 688 pp.

International Whaling Commission (IWC). 1997. Chairman's Report of the Forty-Eighth Annual Meeting. Aberdeen, United Kingdom, June 24 - 28, 1996. Pages 15-55 in Report of the International Whaling Commission 47. Cambridge, United Kingdom, 1032 pp.

International Whaling Commission (IWC). 1998. Chairman's Report of the Forty-Ninth Annual Meeting. Monte Carlo, Monaco, October 20-24, 1997. Pages 17-51 in Report of the International Whaling Commission 48. Cambridge, United Kingdom, 579 pp.

International Whaling Commission (IWC). 2001. Report of the Scientific Committee. 3 (Suppl.), 2001.

International Whaling Commission (IWC). 2002. Report of the Scientific Committee of the International Whaling Commission. Journal of Cetacean Research and Management, 5(Suppl.):30-31.

International Whaling Commission (IWC). 2003. Report of the Scientific Committee, 54th Annual Meeting of the International Whaling Commission. Shimonoseki, Japan, 2002. Supplement of the Journal of Cetacean Research and Management.

International Whaling Commission (IWC). 2004a. Chair's Report of the 55th Annual Meeting. Berlin, Germany, June 16-19, 2003. Pages 5-135 in Annual Report of the International Whaling Commission 2003. Cambridge, United Kingdom, 191 pp.

International Whaling Commission (IWC). 2004b. Report of the Aboriginal Subsistence Whaling Sub-Committee. Berlin, Germany, June 12, 2003. Pages 78-84 (Annex D of the Chair's Report of the 55th Annual Meeting) in Annual Report of the International Whaling Commission 2003. Cambridge, United Kingdom, 191 pp.

International Whaling Commission (IWC). 2004c. Report of the Workshop on Whale Killing Methods and Associated Welfare Issues. Berlin, Germany, June 7-9, 2003, pages 85-101 (Annex E of the Chair's Report of the 55th Annual Meeting) In Annual Report of the International Whaling Commission 2003. Cambridge, United Kingdom, 191 pp.

International Whaling Commission (IWC). 2005a. Chair's Report of the 56th Annual Meeting. Sorrento, Italy, July 19-22, 2004. In Annual Report of the International Whaling Commission 2004. Cambridge, United Kingdom.

International Whaling Commission (IWC). 2005b. Report of the Sub-committee on Aboriginal Subsistence Whaling. Sorrento, Italy, July 14, 2004. Annex D of the Chair's Report of the 56th Annual Meeting in Annual Report of the International Whaling Commission 2004. Cambridge, United Kingdom.

International Whaling Commission (IWC). 2006. Report of the Sub-Committee on Bowhead, Right and Gray Whales. Unpublished report to the International Whaling Commission's Scientific Committee. St. Kitts and Nevis, June 17, 2006. Annex F of the Scientific Committee Report.

International Whaling Commission (IWC). 2007a. Report of the Workshop on Whale Killing Methods and Associated Welfare Issues. St. Kitts and Nevis, June 11-13, 2006. Annex D of the Chair's Report of the 58th Annual Meeting. Available at http://www.iwcoffice.org/_documents/meetings/stkitts/AnnexD.pdf.

International Whaling Commission (IWC). 2007b. Revised Chair's Summary Report of the 59th Annual Meeting. Anchorage, Alaska, May 2007. Available at http://www.iwcoffice.org/_documents/meetings/ChairSummaryReportIWC59rev.pdf.

International Whaling Commission (IWC). 2007c. Aboriginal harvest of gray and bowhead whales in Russia Federation in 2006. Submitted by the Russian Federation as IWC/59/ASW5.

International Whaling Commission (IWC). 2008. Annual Report of the International Whaling Commission 2008. Santiago, Chile, 200 pp.

International Whaling Commission (IWC). 2009a. Aboriginal harvest of gray and bowhead whales by Russian indigenous people in 2008. IWC/61/ASW3 [without Annexes]

International Whaling Commission (IWC). 2009b. Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1). Submitted by the Russian Federation as IWC/61/WKM&AWI 5.

International Whaling Commission (IWC). 2010a. Report of the Scientific Committee.. IWC/62/Rep 1 (Inc Annex A-C).

International Whaling Commission (IWC). 2010b. Aboriginal harvest of gray and bowhead whales by Russian indigenous people in 2009. Submitted by the Russian Federation as IWC/62/ASW3.

International Whaling Commission (IWC). 2010c. Chair's Report of the 62nd Annual Meeting of the International Whaling Commission, June 21-25, 2010.

International Whaling Commission (IWC). 2011a. Report of the Scientific Committee. Journal of Cetacean Research and Management, 12 (Suppl.), 2011. Available at http://www.iwcoffice.org

International Whaling Commission (IWC). 2011b. Report of the 2011 AWMP workshop with a focus on eastern gray whales. Report SC/63/Rep.2 presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org

International Whaling Commission (IWC). 2011c. Report of the Scientific Committee. Annex E. Report of the standing working group on the aboriginal whaling management procedure (AWMP). Journal of Cetacean Research and Management, (Suppl.):143-167.

International Whaling Commission (IWC). 2011d. Report on weapons, techniques, and observations in the Alaskan bowhead whale subsistence hunt. IWC/63/WKM&AWI7, Agenda item 4.

International Whaling Commission (IWC). 2011e. Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1). Submitted by Greenland (Denmark) as IWC/63/WKM&AWI9, Agenda Item 3.

International Whaling Commission (IWC). 2012a. Report of the Scientific Committee. Panama City, Panama, 11-23 August 2012. IWC/64/Rep1rev1. Available at http://iwc.int/scientifc-committee-reports.

International Whaling Commission (IWC). 2012b. Annual Report of the International Whaling Commission 2012. Panama City, Panama, 200 pp.

International Whaling Commission (IWC). 2012c. International Convention for the regulation of Whaling, 1946. Schedule. As amended by the Commission at the 64th Annual Meeting, Panama City, Panama, July 2012.

International Whaling Commission (IWC). 2012d. Report of the Scientific Committee. Annex E: Report of the Standing Working Group on the Aboriginal Whaling Management Procedure (AWMP). IWC/64/Rep1 Annex E. 42 p.

International Whaling Commission (IWC). 2012e. Report of the AWMP Workshop focussing on the PCFG gray whale Implementation Review. SC/64/Rep3. 31 pp.

International Whaling Commission (IWC). 2012f. Report of the Fourth AWMP Workshop on the Development of SLAs for the Greenlandic Hunts. SC/65A/Rep.1.

International Whaling Commission (IWC). 2012g. Chair's Report of the 64th Annual Meeting of the International Whaling Commission, July 2-6, 2012.

International Whaling Commission (IWC). 2012h. Report on weapons, techniques, and observations in the Alaskan bowhead whale subsistence hunt. IWC/64/WKM&AWI 8, Agenda item 4.

International Whaling Commission (IWC). 2012i. Aboriginal harvest of whales by Russian indigenous people in 2011. Submitted by the Russian Federation as IWC/64/ASW9.

International Whaling Commission (IWC). 2012j. Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1). Submitted by the Russian Federation as IWC/64/WKM&AWI6.

International Whaling Commission (IWC). 2012k. Gray whale Eshrichtius robustus coastal counts and harvest monitoring results off Chukotka Peninsula, Russian Far East, 2011. Submitted by the Russian Federation as IWC/64/BRG21.

International Whaling Commission (IWC). 2012l. Report of the Scientific Committee. Journal of Cetacean Research and Management, 13 (Suppl.) 2012.

International Whaling Commission (IWC). 2012m. Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1). Submitted by Greenland (Denmark) as IWC/63/WKM&AWI9, Agenda Item 3.

International Whaling Commission (IWC). 2013a. Report of the IWC Scientific Committee. Jeju Island, Republic of Korea, June 3-15, 2013. IWC/65A/Rep 1.

International Whaling Commission (IWC). 2013b. Report of the 2013 IWC Scientific Committee workshop on marine debris. SC/65a/Rep06. 39 pp.

International Whaling Commission (IWC). 2013c. Report of the Scientific Committee. Journal of Cetacean Research and Management, Volume 14 (Suppl.) April 2013.

International Whaling Commission (IWC). 2014a. Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans. SC/65b/Forinfo42. 31 pp.

International Whaling Commission (IWC). 2014b. Report of the Workshop on the Rangewide Review of the Population Structure and Status of North Pacific Gray Whales. SC/65b/Rep08.

International Whaling Commission (IWC). 2014c. Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans. SC/65b/Forinfo42.

International Whaling Commission (IWC). 2014d. Report of the IWC Workshop on Mitigation and Management of the Threats Posed by Marine Debris to Cetaceans. August 2014. Honolulu, Hawaii, USA. IWC/65/CCRep04.

International Whaling Commission (IWC). 2014e. Report of the IWC Workshop on Impacts of Increased Marine Activities on Cetaceans in the Arctic. March 2014. Anchorage, Alaska, USA.

International Whaling Commission (IWC). 2015. Report of the IWC Expert Workshop on Aboriginal Subsistence Whaling. Maniitsoq, Greenland, September 14-18, 2015. IWC/66/ASWRep01. Pages 1-30. (Inc Annex A-E).

International Whaling Commission (IWC). 2016. Report on Weapons, Techniques, and Observations in the Alaska Bowhead Whale Subsistence Harvest. Prepared by the Alaska Eskimo Whaling Commission, Submitted by the United States of America to the 66th Annual Meeting of the International Whaling Commission. Porotoroz, Slovenia. IWC/66/WKM&WI06. 9p.

International Whaling Commission (IWC). 2017. Report of the Fourth Rangewide Workshop on the Status of North Pacific Gray Whales. 18th Meeting of the Western Gray Whale Advisory Panel. J. Cetacean Res. Manage. 19(Suppl), 521-536.

International Whaling Commission (IWC). 2018a. Report of the Scientific Committee. Annex E Report of the Standing Working Group on Aboriginal Subsistence Whaling Management Procedures. Bled, Slovenia, April 24 – May 6, 2018. IWC/67/Rep01(2018), Annex E. Pages 1-31.

International Whaling Commission (IWC). 2018b. Amendments to the Schedule Adopted at the 67th Meeting. Florianopolis, Brazil, September 10-14, 2018. (Annex P of the Chair's Report of the 67th Meeting). Cambridge, United Kingdom.

International Whaling Commission (IWC). 2018c. Proposal for a Schedule Amendment on Aboriginal Subsistence Whaling (submitted by the Kingdom of Denmark, Russian Federation, St. Vincent and the Grenadines, and the United States of America. IWC/67/01 Rev 01, Agenda item 6.1. 15pp.

International Whaling Commission (IWC). 2018d. Report of the Meeting of the Aboriginal Subsistence Whaling Working Group, Utgiakvik (Barrow), Alaska, April 10-13, 2018. IWC/67/ASW/Rep/01. Pages 1-28.

International Whaling Commission (IWC). 2018e. Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1). August 24, 2018. IWC/67/WKM&WI/01. Available at https://archive.iwc.int/pages/search.php?search=!collection29305.

International Whaling Commission (IWC). 2018f. Report of the Whale Killing Methods and Welfare Issues Working Group. Florianopolis, Brazil, September 6, 2018. IWC/67/REP/04, 67th Meeting Plenary Agenda items 13 and 20.3.

International Whaling Commission (IWC). 2019a. 2019 Report of the Scientific Committee. Nairobi, Kenya, May 10-23, 2019. IWC/SC/68A.

International Whaling Commission (IWC). 2019b. Report of the Fifth Rangewide Workshop on the Status of North Pacific Gray Whales. Journal of Cetacean Research & Management 20 (Supplement): 569-599.

International Whaling Commission (IWC). 2020. Report of the IWC Workshop on Marine Debris: The Way Forward. La Garriga, Catalonia, Spain, December 2019. SC/68B/REP/03.

International Whaling Commission (IWC). 2021a. 2021 Report of the Scientific Committee. Cambridge, United Kingdom, June 31, 2021. IWC/SC/68C.

International Whaling Commission (IWC). 2021b. Implementation Review. Journal of Cetacean Research and Management (Supp) Volume 22, 1-122.

International Whaling Commission (IWC). 2022a. International Convention for the Regulation of Whaling, 1946 Schedule, as amended by the Commission at the 68th Meeting. Portoroz, Slovenia, October 2022.

International Whaling Commission (IWC). 2022b. 2022 Report of the Scientific Committee. Cambridge, United Kingdom, July 13, 2022. IWC/SC/68D.

International Whaling Commission (IWC). 2022c. Report of the 68th Meeting (Chairs Report plus annexes). International Whaling Commission. Resource ID: 19873.

International Whaling Commission (IWC). 2022d. Summary of Reported Catches. Report of the Infractions Subcommittee. Portoroz, Slovenia, October 2022. INF/68/3.1/01.

International Whaling Commission (IWC). 2023a. Report of the Scientific Committee. Cambridge, United Kingdom, May 30, 2023. IWC/SC/69A.

International Whaling Commission (IWC). 2023b. Description of the Aboriginal Subsistence Hunt in Chukotka, Russian Federation. Webpage. Accessed April 7, 2023. Available at https://iwc.int/russian-federation.

Island Adventures. 2014. Island Adventures Whale Watching – Guaranteed Sightings. Accessed April 23, 2014. Available at http://www.island-adventures.com/whale-watching-tours/guarantee.php

Jacobs, G. A., H. E. Hurlburt, J. C. Kindle, E. J. Metzger, J. L. Mitchell, W. J. Teague, and A. J. Wallcraft. 1994. Decade-scale trans-Pacific propagation of an El Niño anomaly. Nature 370:360-363.

Jameson, R. J. 1995. Translocated Sea Otter Populations off the Oregon and Washington Coasts. U.S. Geological Survey, Biological Resources Division, California Science Center, Corvallis, OR.

Jameson, R. J., and S. Jeffries. 2005. Results of the 2005 Survey of the Reintroduced Sea Otter Population in Washington State. Unpublished report available at http://wdfw.wa.gov/wlm/research/papers/seaotter/survey/index.htm.

Jameson, R. J. and S. Jeffries. 2013. Results of the 2012 Survey of the Reintroduced Sea Otter Population in Washington State. Washington Department of Fish and Wildlife, Wildlife Science Program, Marine Mammal Investigations. March 28, 2013. Available at http://olympiccoast.noaa.gov/science/surveyscruises/2012/ottercensus_report.pdf

Jarman, W. M., R. J. Nordstrom, D. C. G. Muir, B. Rosenberg, M. Simon, and R. W. Baird. 1996. Levels of organochlorine compounds, including PCDDs and PCDFs, in the blubber of cetaceans from the west coast of North America. Marine Pollution Bulletin 32(5):426-436.

Jefferson, T. A. 2002. Dall's porpoise. Pages 308-310 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 pp.

Jeffries, S. J. and T. C. Newby. 1986. Pacific harbor seal. Pages 208-215 *in* Haley, D., editor. Marine mammals of eastern North Pacific and Arctic waters, 2nd edition. Pacific Search Press, Seattle, WA. 295 p.

Jeffries, S. J., P. J. Gearin, H. R. Huber, D. L. Saul, and D. A. Pruett. 2000. Atlas of seal and sea lion haulout sites in Washington. Washington Department of Fish and Wildlife, Olympia, WA. Available at http://wdfw.wa.gov/wlm/research/papers /seal_haulout/.

Jeffries, S. J., H. R. Huber, J. Calambokidis, and J. Laake. 2003. Trends and status of harbor seals in Washington state: 1978-1999. Journal of Wildlife Management 67:208-219.

Jeffries, S., J. Calambokidis, A. B. Douglas, E. A. Falcone, and G. S. Schorr. 2012. Research to Support the Recovery and Management of ESA Listed Large Whales off Washington and Oregon. Progress Report. Contract Award NA10NMF4720025. August 2012. 8 pp.

Jeffries, S., D. Lynch, and S. Thomas. 2016. Results of the 2016 Survey of the Reintroduced Sea Otter Population in Washington State. Unpublished Report. 9pp. Copies may be obtained from the Washington Department of Fish and Wildlife or U.S. Fish and Wildlife Service's Washington Fish and Wildlife Office.

Jenkins, L. and C. Romanzo. 1998. Makah Whaling: Aboriginal Subsistence or a Stepping Stone to Undermining the Commercial Whaling Moratorium? Colorado Journal of International Law and Policy 71.

Jensen, F. H., L. Bejder, M. Wahlberg, N. Aguilar-Soto, M. Johnson, and P. T. Madsen. 2009. Vessel noise effects on delphinid communication. Marine Ecology Progress Series 395: 161–175.

Jepson, P. D., M. Arbelo, R. Deaville, I. A. P. Patterson, P. Castro, J. R. Baker, E. Degollada, H. M. Ross, P. Herraez, A. M. Pocknell, F. Rodriguez, F. E. Howie, A. Espinosa, R. J. Reid, J. R. Jaber, V. Martin, A. A. Cunningham, and A. Fernandez. 2003. Gas-bubble lesions in stranded cetaceans. Nature 425: 575-576.

Johannessen, O. M., L. Bengtsson, M. W. Miles, S. I. Kuzmina, V. A. Semenov, G. V. Alexseev, A. P. Nagurnyi, V. F. Zakharov, L. P. Bobylev, L. H. Pettersson, K. Hasselmann, and H. P. Cattle. 2004. Arctic climate change: observed and modeled temperature and sea-ice variability. Tellus 56A:328-341.

Johannessen S.C. and R.W. Macdonald. 2009. Effects of local and global change on an inland sea: the Strait of Georgia, British Columbia, Canada. Climate Research, 40(1):1–21. doi: 10.3354/cr00819 PMID: WOS:000272135600001.

Johansen, L. E. 1997. Address to the Conference on Whaling in the North Atlantic, Reykjavik , March 1, 1997 by Prime Minister Lars Emil Johansen, Greenland Home Rule. Available at http://www.highnorth.no/library/Policies/National/ad-to-th.htm

Johnson, C. S. 1967. Sound detection thresholds in marine mammals. Pages 247-260 *in* Tavolga, W. N., editor. Marine Bio-acoustics, Vol. 2. Pergamon Press, Oxford, United Kingdom.

Johnson, D. F., L. W. Botsford, W. D. Methot, Jr., and T. C. Wainwright. 1986. Wind stress and cycles in Dungeness crab (Cancer magister) catch off California, Oregon, and Washington. Can. J. Fish. Aquat. Sci. 43: 838-845.

Johnson, K. R. and C. H. Nelson. 1984. Side-scan sonar assessment of gray whale feeding in the Bering Sea. Science 225: 1150-1152.

Johnson, W. 1999. Whaling captain proud of culture, tired of intolerance. The Peninsula Daily News May 21, 1999. Page A8.

Joling, D. 2012. Rare whale swims up West Coast toward Russian home. Anchorage Daily News online article dated March 19, 2012. Available at http://www.adn.com/2012/03/19/2379732/rare-whale-swims-up-west-coast.html

Jollie, C. and L. Green. 2001. Tribal Tourism in Washington State. Governor's Office of Indian Affairs and Office of Trade and Economic Development, Olympia, WA.

Jonaitis, A. 1999. The Yuquot whalers' shrine. University of Washington Press, Seattle, WA.

Jones, M. L. and S. L. Swartz. 1984. Demography and phenology of gray whales and evaluation of whale-watching activities in Laguna San Ignacio, Baja California Sur, Mexico. Pages 309-374 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Jones, M. L. and S. L. Swartz. 1986. Demography and phenology of gray whales and evaluation of human activities in Laguna San Ignacio, Baja California Sur, Mexico; 1978-1982. Report from Cetacean Research Association, San Diego, California for U.S. Marine Mammal Commission, Washington, D.C.

Jones, M. L. and S. L. Swartz. 2002. Gray whale Eschrichtius robustus. Pages 524-36 *in* Perrin, W. F., B. Wursig, and J. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA.

Jones, M. L. and S. L. Swartz. 2009. Gray whales. Page 507 *in* Perrin, W. F., B. Würsig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Jones, M. L., S. L. Swartz, and M. E. Dahlheim. 1994. Census of gray whale abundance in San Ignacio lagoon: a follow-up study in response to low whale counts recorded during an acoustic playback study of noise-effects on gray whales. Final report to the U.S. Marine Mammal Commission. Contract number MM2911023-0. July 1994.

Journal of Commerce. 2014. Container Volumes on the Rise at North American Ports. Online news article by Corianne Egan, dated August 31, 2014. Available at http://www.joc.com

Journey North. 2012. Varvara's Surprising Travels – New Discovery Made as Scientists Track an Endangered Gray Whale. Online article. Available at https://www.learner.org/jnorth/tm/gwhale/varvara_tracking_tagged.html

Joyce, T.W., M.C. Ferguson, C.L. Berchok, D.L. Wright, J.L. Crance, E.K. Braen, T.Eguchi, W.L. Perryman, and D.W. Weller. 2023. The role of sea ice in the distribution, habitat use, and phenology of eastern North Pacific gray whales. *Marine Ecology Progress Series* 709: 141-158.

Kajimura, H. 1984. Opportunistic feeding of the northern fur seal, Callorhinus ursinus, in the eastern North Pacific Ocean and eastern Bering Sea. U.S. Department of Commerce NOAA Technical Report NMFS SSRF-779. 49 p.

Kalland, A. 1994. Whose Whale is that? Diverting the Commodity Path. Pages 159-186 *in* Freeman, M. M. R., and U. P. Kreuter, editors. Elephants and Whales: Resources for Whom? Gordon and Breach Science Publishers, Singapore.

Kaplan, I. C., Levin, P. S., Burden, M. and E. A. Fulton. 2010. Fishing catch shares in the face of global change: a framework for integrating cumulative impacts and single species management. Can. J. Fish. Aquat. Sci. 67:1968–1982. doi:10.1139/F10-118.

Kastak, D. and R. J. Schusterman. 1998. Low-frequency amphibious hearing in pinnipeds: Methods, measurements, noise, and ecology. Journal of the Acoustical Society of America 103:2216-2228.

Keefe, F. J., R. B. Fillingim, and D. A. Williams. 1991. Behavioral assessment of pain: nonverbal measures in animals and humans. ILAR News 33: 3-13.

Kent, D. B., S. Leatherwood, and L. Yohe. 1983. Responses of migrating gray whales, Eschrichtius robustus, to oil on the sea surface - results of a field evaluation. Final Report, Contract P-0057621, to the Department of Pathology, Ontario Veterinary College, University of Guelph, Guelph, ON.

Ketten, D. R. 2000. Cetacean ears. Pages 43-108 *in* Au, W. W. L., A. N. Popper, and R. R. Fay, editors. Hearing by whales and dolphins. New York, New York: Springer-Verlag.

Khangaonkar, T., B. Sackmann, W. Long, T. Mohamedali, and M. Roberts. 2012. Simulation of annual biogeochemical cycles of nutrient balance, phytoplankton bloom(s), and DO in Puget Sound using an unstructured grid model. Ocean Dynamics, 62, 1353–1379.

Kim, H. W., H. Sohn, Y. An, K. J. Park, D. N. Kim and D. H. An. 2013. Report of Gray Whale Sighting Survey off Korean waters from 2003 to 2011. Paper SC/65a/BRG26 submitted to the IWC Scientific Committee. Available at
https://archive.iwc.int/pages/themes.php

Kim, H. W., H. Sohn, Y. Imai. 2018. Possible occurrence of a gray whale off Korea in 2015. Paper SC/67b/CMP11 presented to the International Whaling Commission's Scientific Committee. 6 pp. Available at
https://archive.iwc.int/pages/view.php?ref=8847&search=%21collection29529+&offset=0&order_by=field73&sort=ASC&archive=0#.

Kim, S. L. and J. S. Oliver. 1989. Swarming benthic crustaceans in the Bering and Chukchi seas and their relation to geographic patterns in gray whale feeding. Canadian Journal of Zoology 67: 1531-1542.

Kline, R. 2001. February 5, 2001. FAX from Kline Engineering Co., Inc., Newton, NJ to Mr. C. Owens regarding the firing of a .50 caliber weapon in the waters adjacent to the Olympic Peninsula.

Klinowska, M. 1991. Dolphins, Porpoises and Whales of the World. IUCN, Gland, Switzerland.

Knight, R. L. and S. K. Knight. 1984. Responses of wintering bald eagles to boating activity. Journal of Wildlife Management 48:999-1004.

Knudsen, S. K. 2005. A review of the criteria used to assess insensibility and death in hunted whales compared to other species. The Veterinary Journal 169:42-59.

Knudsen, S. K. and E. O. Øen. 2003. Blast-induced neurotrama in whales. Neuroscience Research 46:377-386.

Komenda-Sehnder, S., M. Cevallos, and B. Bruderer. 2003. Effects of disturbance by aircraft overflight on waterbirds – An experimental approach. Proc. IBSC. Warsaw 2003.

Koppert, V. 1930. Contributions to Clayoquot ethnology. The Catholic University of America Anthropological Series, No. 1. The Catholic University of America, Washington, D.C.

Krahn, M. M., G. M. Ylitalo, D. G. Burrows, J. Calambokidis, S. E. Moore, M. Gosho, P. Gearin, P. D. Plesha, R. L. Brownell, Jr., S. A. Blokhin, K. Tilbury, T. Rowles, and J. E. Stein. 2001. Organochlorine contaminant concentrations and lipid profiles in eastern North Pacific gray whales (Eschrichtius robustus). Journal of Cetacean Research and Management, 3(1):19-29.

Krahn, M. M., M. J. Ford, W. F. Perrin, P. R. Wade, R. P. Angliss, M. B. Hanson, B. L. Taylor, G. M. Ylitalo, M. E. Dahlheim, J. E. Stein, and R. S. Waples. 2004. 2004 Status review of Southern Resident killer whales (Orcinus orca) under the Endangered Species Act. U.S. Department of Commerce NOAA Technical Memorandum NMFS-NWFSC-62. 73 pp.

Krahn, M. M., P. R. Wade, S. T. Kalinowski, M. E. Dahlheim, B. L. Taylor, M. B. Hanson, G. M. Ylitalo, R. P. Angliss, J. E. Stein, and R. S. Waples. 2002. Status review of southern resident killer whales (Orcinus orca) under the Endangered Species Act. NOAA Technical Memorandum NMFS-NWFSC-54, U.S. Department of Commerce, Seattle, WA.

Kraig, E. and T. Scalici. 2018. 2016 Washington State Sport Catch Report. Washington Department of Fish and Wildlife, Fish Science Division. Available at https://wdfw.wa.gov/publications/02002.

Kraig, E. and T. Scalici. 2019. 2017 Washington State Sport Catch Report. Washington Department of Fish and Wildlife, Fish Science Division. Available at https://wdfw.wa.gov/publications/02108.

Kraig, E. and T. Scalici. 2020. 2018 Washington State Sport Catch Report. Washington Department of Fish and Wildlife, Fish Science Division. Available at https://wdfw.wa.gov/publications/02158.

Kraig, E. and T. Scalici. 2021. 2019 Washington State Sport Catch Report. Washington Department of Fish and Wildlife, Fish Science Division. Available at https://wdfw.wa.gov/publications/02257.

Kraig, E. and T. Scalici. 2022. 2020 Washington State Sport Catch Report. Washington Department of Fish and Wildlife, Fish Science Division. Available athttps://wdfw.wa.gov/publications/02326.

Krepakevich, A. and V. Pospelova. 2010. Tracing the influence of sewage discharge on coastal bays of Southern Vancouver Island (BC, Canada) using sedimentary records of phytoplankton, Continental Shelf Research 30(18):1924-1940.

Krupnik, I. I. 1984. Gray whales and the aborigines of the Pacific Northwest: the history of aboriginal whaling. Pages 103-120 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press Inc., Orlando, FL.

Krupnik, I. I. 1987. The Bowhead vs. the Gray Whale in Chukotkan Aboriginal Whaling. Arctic 40(1):16-32.

Kuletz, K. J. 1996. Marbled murrelet abundance and breeding activity at Naked Island, Prince William Sound, and Kachemak Bay, Alaska before and after the Exxon Valdez oil spill. In Rice, S. D., R. B. Spies, D. A. Wolfe, and B. A. Wright, editors. Exxon Valdez oil spill symposium proceedings.; 1993 February 2-5; Anchorage, AK. American Fisheries Society Symposium. 18: 770-784.

Kunc H.P., and Schmidt R. 2019. The effects of anthropogenic noise on animals:a meta-analysis. Biol. Lett.15: 20190649. Available at http://dx.doi.org/10.1098/rsbl.2019.0649.

Kvitek, R. G. and J. S. Oliver. 1986. Side-scan sonar estimates of the utilization of gray whale feeding grounds along Vancouver Island, Canada. Continental Shelf Research 6(5): 639-654.

Laake, J. 2011. Abundance estimates, immigration, non-PCFG whales. Annex F to the Report of the 2011 AWMP Workshop with a focus on eastern gray whales: SC/63/Rep. 2.

Laake, J. L. 2012. Evaluation of potential bias in abundance estimates for seasonal gray whales in the Pacific Northwest. Paper SC/64/AWMP10 presented to the International Whaling Commission.

Laake, J. L., D. J., Rugh, J. A. Lerczak, and S. T. Buckland. 1994. Preliminary estimates of population size of gray whales from the 1992/93 and 1993/94 shore-based surveys. Report to International Whaling Commission SC/46/AS7.

Laake, J. L., A. Punt, R. Hobbs, M. Ferguson, D. Rugh, and J. Breiwick. 2009. Re-analysis of gray whale southbound migration surveys, 1967-2006. NOAA Technical Memorandum NMFS-AFSC-203. 55 p.

Laake, J.L., A. E. Punt, R. Hobbs, M. Ferguson, D. Rugh, and J. Breiwick. 2012. Gray whale southbound migration surveys 1967-2006: an integrated re-analysis. Journal of Cetacean Research and Management, 12(3):287-306.

Lacitis, E. 1998. Lead Stuntman in Anti-Whaling Drama is One Seasoned Actor. The Seattle Times November 3, 1998. Available at http://archives.seattletimes.nwsource.com.

Laguna San Ignacio Ecosystem Science Program (LSIESP). 2023. Annual gray whale research report for Laguna San Ignacio and Bahia Magdalena, B.C.S., Mexico during winter 2023. May 2023. 35pp. Available at https://www.sanignaciograywhales.org/annual-gray-whale-research-report-for-laguna-san-ignacio-and-bahia-magdalena-b-c-s-mexico-winter-2023/.

Laidre, K. L., I. Stirling, L. F. Lowry, Ø. Wiig, M. P. Heide-Jørgensen, and S. H. Ferguson. 2008. Quantifying the sensitivity of Arctic marine mammals to climate-induced habitat change. Ecological Applications 18(Supplement):S97–S125.

Laidre, K., R.J. Jameson, S.J. Jeffries, and E. Gurarie. 2011. Updated estimates of carrying capacity for sea otters in Washington state. Unpublished final contract report, December 31, 2011, 12 pp. and Appendix.

Laist, D. W., A. R. Knowlton, J. G. Mead, A. S. Collet, and M. Podesta. 2001. Collisions Between Ships and Whales. Marine Mammal Science 17(1):35-75.

Lance, M. M., S. A. Richardson, and H. L. Allen. 2004. Washington State Recovery Plan for the Sea Otter. Prepared for the Washington Department of Fish and Wildlife, Olympia, WA. December 2004, 103 pages. Available at http://wdfw.wa.gov/wlm/diversty/soc/recovery/seaotter/

Lang A.R. 2010. The population genetics of gray whales (Eschrichtius robustus) in the North Pacific. PhD dissertation, University of California, San Diego, CA.

Lang, A. R. and K. K. Martien. 2012. Update on the use of a simulation-based approach to evaluate plausible levels of recruitment into the Pacific Coast Feeding Group of gray whales. Paper SC/64/AWMP4 presented to the Scientific Committee of the International Whaling Commission. Available from http://www.iwcoffice.org.

Lang, A.R., D. W. Weller, R. LeDuc, A.M. Burdin, V.L. Pease, D. Litovka, V. Burkanov. and R. L. Brownell. 2011. Genetic analysis of stock structure and movements of gray whales in the eastern and western North Pacific. Paper SC/63/BRG10 presented to the International Whaling Commission Scientific Committee. Available at https://archive.iwc.int/pages/themes.php.

Lang A.R., J. Calambokidis, J. Scordino, V. L. Pease, A. Klimek, V. N. Burkanov, P. Gearin, D. I. Litovka, K.M. Robertson, B.R. Mate, J. K. Jacobsen, & B. L. Taylor. 2014. Assessment of genetic structure among eastern North Pacific gray whales on their feeding grounds. Marine Mammal Science. 30(4):1473-1493. https://doi.org/10.1111/mms.12129.

Lang, A. R., D. W. Weller, A. M. Burdin, K. Robertson, O. Sychenko, J. Urban, S. Martinez-Aguilar, V. L. Pease, R. G. LeDuc, D. I. Litovka, V. N. Burkanov, R. L. Brownell, Jr. 2022. Population structure of North Pacific gray whales in light of trans-Pacific movements. Marine Mammal Science, 38(2): 433-468. https://doi.org/10.1111/mms.12875.

Larsen, J. N., O. A. Anisimov, A. Constable, A. B. Hollowed, N. Maynard, P. Prestrud, T. D. Prowse, and J. M. R. Stone. 2014. Polar regions. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White, editors]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1567-1612. Available at http://www.ipcc.ch/report/ar5/wg2/

Leatherwood, S. and R. R. Reeves. 1986. Porpoises and dolphins. Pages 110-131 *in* Haley, D., editor. Marine mammals of eastern North Pacific and Arctic waters, 2nd edition. Pacific Search Press, Seattle, WA. 295 p.

Leatherwood, S. and W. A. Walker. 1979. The northern right whale dolphin in the eastern North Pacific. Pages 85-141 *in* Winn, H. W., and B. L. Olla, editors. Behavior of Marine Animals. Plenum Publishing Company, New York, NY.

Leatherwood, S., R. R. Reeves, W. F. Perrin, and W. E. Evans. 1982. Whales, dolphins, and porpoises of the eastern North Pacific and adjacent Arctic Waters, a guide to their identification. NOAA Technical Report NMFS Circular 444.

Lebreton, L., B. Slat, F. Ferrari, B. Sainte-Rose, J. Aitken, R. Marthouse, S. Hajbane, S. Cunsolo, A. Schwarz, A. Levivier, K. Noble, P. Debeljak, H. Maral, R. Schoeneich-Argent, R Brambini, and J. Reisser. 2018. Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic. Scientific Reports, 8: 4666. https://doi.org/10.1038/s41598-018-22939-w.

LeDuc, R. G., D. W. Weller, J. Hyde, A. M. Burdin, P. E. Rosel, R. L. Brownell, Jr., B. Wursig, and A. E. Dizon. 2002. Genetic differences between western and eastern gray whales (Eschrichtius robustus). Journal of Cetacean Research and Management, 4(1):1-6.

Lefebvre, K. A., A. Roberston, E. R. Frame, K. M. Colegrove, S. Nance, K. A. Baugh, H. Wiedenhoft, and F. M. D. Gulland. 2010. Clinical signs and histopathology associated with domoic acid poisoning in northern fur seals (Callorhinus ursinus) and comparison of toxin detection methods. Harmful Algae, 9:374–383.

Lefebvre, K. A., L. Quakenbush, E. Frame, K. Burek Huntington, G. Sheffield, R. Stimmelmayr, A. Bryan, P. Kendrick, H. Ziel, T. Goldstein, J. A. Snyder, T. Gelatt, F. Gulland, B. Dickerson, and V. Gill. 2016. Prevalence of algal toxins in Alaskan marine mammals foraging in a changing arctic and subarctic environment. *Harmful Algae* 55: 13-24.

Leising, A.W., I.D. Schroeder, S.J. Bograd, J. Abell, R. Durazo, G. Gaxiola-Castro, E.P. Bjorkstedt, J. Field, K. Sakuma, R.R. Robertson, and R. Goericke. 2015. State of the California Current 2014-15: Impacts of the Warm-Water" Blob". California Cooperative Oceanic Fisheries Investigations Reports, 56.

Lemos, L. S., J.D.Burnett, T.E. Chandler, J.L. Sumich, and L.G. Torres. 2020. Intra-and inter-annual variation in gray whale body condition on a foraging ground. Ecosphere, 11(4), p.e03094. doi:10.1002/ecs2.3094.

Lemos, L.S., A. Olsen, A. Smith, J. D. Burnett, T. E. Chandler, S. Larson, K. E. Hunt, and L. G. Torres. 2021. Stressed and slim or relaxed and chubby? A simultaneous assessment of gray whale body condition and hormone variability. Marine Mammal Science, pp.1-11. doi: 10.1111/mms.12877.

Lemos, L. S., J. H. Haxel, A, Olsen, J. D. Burnett, A. Smith, T. E. Chandler, S. L. Nieukirk, S. E. Larson, K. E. Hunt, and L. G. Torres. 2022. Effects of Vessel Traffic and Ocean Noise on Gray Whale Stress Hormones. Scientific Reports, 12(1): 18580–13. doi:10.1038/s41598-022-14510-5.

Lenarz, W. H., D. A. Ventresca, W. M. Graham, F. B. Schwing, and F. Chavez. 1995. Explorations of El Niño events and associated biological population dynamics off central California. CalCOFl Reports 36:106-119.

Levesque, J. 1999. Local TV covered every moment of hunt. The Seattle Post-Intelligencer May 18, 1999.

Lindsay, J. 2013. Summer foraging patterns of gray whales in Washington State. Chapter 7 in the Final report for Species Recovery Grant award NA10NMF4720372 issued to the Makah Tribe in 2010. Available from Makah Tribe or NMFS Protected Resources Division, Portland, Oregon.

Lipsky, J. D. 2002. Right whale dolphins. Pages 1030-1033 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Litkova, D. I., S. V. Naidenko, M. S. Mamaev, P. S. Klyuchnikova, L. T. Kovekovdova, and S. Blokhinet.
2020. Monitoring, populational and toxicology researches of gray whales in the Mehcigmensky Bay and of beluga whales in the Anadyr Liman (western Bering Sea, Russia) 2013-2019. Paper Presented at the SC/68B/E/11 International Whaling Commission.

LNG in BC. 2014. LNG projects in BC. Accessed October 4, 2014. Available at http://engage.gov.bc.ca/lnginbc/

Locke, G. 2011. Letter from U.S. Department of Commerce Secretary G. Locke to the President re: Pelly Amendment certification of Iceland. July 19, 2011.

Longhurst, A. 1998. Ecological Geography of the Sea. Book. Academic Press Limited. 1st ed.

Longhurst, A. 2006. Ecological Geography of the Sea. Book. Academic Press Limited. 2nd ed.

Loughlin, T. R. (Ed.). 1994. Marine mammals and the Exxon Valdez. Academic Press, San Diego, CA. 395 pp.

Lynn, R. J., T. Baumgartner, J. Garcia, C. A. Collins, T. L. Hayward, K. D. Hyrenbach, A. W. Mantyla, T. Murphree, A. Shankle, F. B. Schwing, K. M. Sakuma, and M. J. Tegner. 1998. The state of the California Current, 1997-1998: Transition to El Niño conditions. CalCOFI Reports 39:25-49.

Lyon, B. and A. G. Barnston. 2005. The evolution of the weak El Niño of 2004-2005. U.S. Clivar Variations 3(2):1-4.

MacCall, A., H. Batchelder, J. King, D. Mackas, N. Mantua, G. McFarlane, I. Perry, J. Schweigert, and F. Schwing. 2005. Appendix 2: Recent ecosystem changes in the California Current System. Pages 65-86 *in* King, J. R., editor. Report of the study group on fisheries and ecosystem responses to recent regime shifts. PICES Scientific Report No. 28. Sidney, British Columbia, Canada: North Pacific Marine Science Organization (PICES).

Mackas, D. L. and P. J. Harrison. 1997. Nitrogenous nutrient sources and sinks in the Juan de Fuca Strait/Strait of Georgia/Puget Sound Estuarient System: Assessing the Potential for Eutrophication. Estuarine Coastal Shelf Science, 44(1), 1–21.

Makah Fisheries Management. 2012. Annual Report. Makah Indian Reservation, Neah Bay, WA. December 2012.

Makah Tribal Council. 1995. Letter from Makah Tribal Council to W. Martin, NOAA, and DOS, Dated May 5, 1995.

Makah Tribal Council. 2023. Makah Tribal Council Website; Activities and Attractions; Marina. Available at https://makah.com/activities/marina/. Accessed March 24, 2023.

Makah Tribe. 1999. Forest Management Plan for the Makah Indian Reservation. Makah Indian Reservation, Neah Bay, WA.

Makah Tribe. 2005. Makah Tribe's Request for a Waiver of the Marine Mammal Protection Act (MMPA) Take Moratorium. Letter from Makah Tribal Council to William T. Hogarth, Ph.D. dated February 11, 2005.

Makah Tribe. 2006a. Makah Tribe's clarification of MMPA waiver request application. Letter from Makah Tribal Council to William T. Hogarth, Ph.D. dated January 24, 2006.

Makah Tribe. 2006b. Update to the 2005 Comprehensive Economic Development Strategy. Makah Tribe, Neah Bay, WA.

Makah Tribe. 2009. Forest Management Plan for the Makah Indian Reservation. August 1999 to July 2009. Amended in June 2009 as a Living Plan by Makah Tribal Resolution No. 33-09.

Makah Tribe. 2017. Makah Ocean Policy. Provided via email May 2, 2023.

Makah Tribe. 2022a. Makah Tribe 2022 Annual Report. Provided via email May 2, 2023.

Makah Tribe. 2022b. Makah Fisheries Department: 2022 Annual Report. January 1– December 31, 2022. Provided via email May 2, 2023.

Makah Tribe 2023. Makah businesses. Website directory. Available at https://makah.com/business/. Accessed March 22, 2023.

Makah Whaling Commission Charter. 2001. Makah Tribe, Neah Bay, WA.

Mallonée, J. S. 1991. Behavior of gray whales (Eschrichtius robustus) summering off the northern California coast, from Oatrick's Point to Crescent City. Canadian Journal of Zoology 69:681-690.

Malme, C. I., P. R. Miles, C. W. Clark, P. Tyack, and J. E. Bird. 1983. Investigations of the potential effects of underwater noise from petroleum industry activities on migrating gray whale behaviour: final report for the period of 7 June 1982–31 July 1983. Report No. 5366, prepared by

Bolt, Beranek and Newman Inc., Cambridge, MA, for U. S. Minerals Management Service, Alaska OCS Office, Anchorage, AK.

Malme, C.I., P. R. Miles, C. W. Clark, P. Tyack, and J. E. Bird. 1984. Investigations on the potential effects of underwater noise from petroleum industry activities on migrating gray whale behavior. Phase II: January 1984 migration. BBN Laboratories Inc., Cambridge, MA for U.S. Minerals Management Service, Washington, D.C.

Malme, C. I., B. Wursig, J. E. Bird, and P. Tyack. 1988. Observations of feeding gray whale response to controlled industrial noise exposure. Pages 55-73 *in* Sackinger, W. M., M. O. Jeffries, J. L. Imm, and S. D. Treacy, editors. Port and ocean engineering under arctic conditions, Volume III. University of Alaska, Fairbanks, AK.

Malme, C. I., P. R. Miles, G. S. Miller, W. J. Richardson, D. O. Roseneau, D. H. Thomson, and C. R. Green, Jr. 1989. Analysis and ranking of the acoustic disturbance potential of Petroleum Industry Activities and Other Sources of Noise in the Environment of Marine Mammals in Alaska. Report No. 6945, OCS Study MMS 89-0006. Final Report, Contract No. 14-12-0001-30365. August 1989.

Manci, K. M., D. N. Gladwin, R. Villella, and M. G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. USFWS, National Ecology Research, Ft. Collins, CO.

Mann, K. H. and J. R. N. Lazier. 1991. Dynamics of marine ecosystems: Biological-physical interactions in the oceans. Blackwell Scientific Publications, Boston, MA.

Mantua, N. 2002. Pacific-Decadal Oscillation (PDO). Pages 592-594 *in* MacCracken, M. C., and J.,S. Perry, editors. Encyclopedia of global environmental change. Volume 1: The earth system: Physical and chemical dimensions of global environmental change. John Wiley & Sons, Ltd., Chichester, England.

Mantua, N. J. and S. R. Hare. 2002. The Pacific Decadal Oscillation. Journal of Oceanography 58:35-44.

Mantua, N. J., S. R. Hare, Y. Zhang, J. M. Wallace, and R. C. Francis. 1997. A Pacific interdecadal climate oscillation with impacts on salmon production. Bulletin of the American

Mapes, L. V. 1998a. The whale-waiting game -- protesters, Makah hunters play cat-and- mouse. The Seattle Times October 8, 1998. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 1998b. Foe of Makah Hunt Flees Reservation. The Seattle Times November 3, 1998. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 1998c. Some Makahs Oppose Hunt – Their Quiet Dissent Makes Few Friends. The Seattle Times October 30, 1998. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 1998d. Feds have whale of conflict — Makah hunt puts some government agencies in a dilemma. The Seattle Times October 15, 1998. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 1998e. Protocol Holds Up Makah Whale Hunt — It's a Waiting Game as Tribal Members and Federal Officials Decide When Migration is Under Way and Pursuit can Begin. The Seattle Times, October 2, 1998. Available at http://archives.seattletimes.nwsource.com

Mapes, L.V. 1998f. Rock-throwing and jeers in battle over whaling – protest group decries treatment by tribe. The Seattle Times November 2, 1998. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 1998g. Standoff at Makah Border Gets Ugly. The Seattle Times, November 1, 1998. Available at http://archives.seattletimes.nwsource.com

Mapes, L. V. 1999. Boycotters target apple growers – Australian group protests Makah whale-hunt plan. The Seattle Times March 15, 1999. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 2002. Makah Leaders Say More Pressing Needs than Whale Hunts Face their People. The Seattle Times April 15, 2002. Available at http://seattletimes.nwsource.com/

Mapes, L. V. 2007. Makah tribal officials dismayed over whale kill; whaler captain has no regrets. The Seattle Times news article dated September 9, 2007. Available at http://seattletimes.nwsource.com/cgi-bin/PrintStory.pl?document_id=2003876639&zsection_id=2002111777&slug=webwhale09&date=20070909

Mapes, L. V. 2018. Whale killed by ship near Neah Bay now a harvest celebration as Makah Nation prepares feast. The Seattle Times news article dated August 24, 2018. Available at https://www.seattletimes.com/seattle-news/whale-killed-by-ship-near-neah-bay-now-a-harvest-celebration-as-makah-nation-prepares-feast/

Mapes, L. V. and C. Solomon. 1999a. 2nd hunt fails to land a whale -- Makah get close in all-day effort but can't connect; Coast Guard halts protests and seizes three boats. The Seattle Times May 16, 1999. Available at http://seattletimes.nwsource.com/

Mapes, L. V. and C. Solomon. 1999b. Frustrated whaling foes can only fling jeers. The Seattle Times May 12, 1999. Available at http://seattletimes.nwsource.com/

Maragos, J. E. 2000. Hawaiian Islands (U.S.A.). Pages 791-812 *in* Sheppard, C. R. C., editor. Seas at the millennium: An environmental evaluation. Volume 2: Regional chapters: The Indian Ocean to the Pacific. Pergamon Press, Amsterdam, Netherlands.

Marine Mammal Commission et al. 2009. Working with Marine Mammals and Your Health. A guide for marine mammal workers and rehabilitation volunteers. Informational brochure prepared by U.S. Marine Mammal Commission, National Marine Fisheries Service, and U.C. Davis Wildlife Health Center.

Marine Mammal Institute. 2012a. Update Western Gray Whales information posted at http://mmi.oregonstate.edu/Sakhalin2011 and accessed November 18, 2013.

Marine Mammal Institute. 2012b. Update Western Gray Whales information posted at http://mmi.oregonstate.edu/Sakhalin2011 and accessed on January 17 and March 19, 2012.

Maritime Administration. 2023. Trade statistics: U.S. waterborne foreign trade by U.S. Custom Districts. U.S. Department of Transportation, Maritime Administration, Washington, DC. Available at https://www.maritime.dot.gov/data-reports/data-statistics/data-statistics. Accessed March 23, 2023.Martinez-Aguilar, S. 2014. Report of 22 March 2014 Disentanglement of Gray Whale Calf in Laguna San Ignacio, B.C.S., Mexico. Available at https://www.sanignaciograywhales.org/wp-content/uploads/2017/01/desenmallamientocria-ENGLISH-LSI-2014.pdf.

Martínez-Aguilar, S., P. Casanovas-Gamba, M. Farriols-García, A. González-Cisneros, J.D. Heaven, F. Castillo-Romero, G.A Zaragoza-Aguilar, J. Rivera-Rodríguez, E. Mariano-Meléndez, N. López-Paz, R. Huerta-Patiño, S. Swartz, L. Viloria-Gómora, and J. Urbán R. 2020. Gray whale stranding records in Mexico during the 2020 winter breeding season. International Whaling Commission, IWC-SC/68B/CMP13. Available at

https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=17217&ext=pdf&k=. Accessed April 7, 2023.

Martínez-Aguilar, S., J. Urbán R., D. Weller, O. Tyurneva, A. Bradford, A. Burdin, A. Lang, S. Swartz, O. Sychenko, L. Viloria-Gómora, E. Hernández, and Y. Yakovlev. 2022a. Gray whale (Eschrichtius robustus) migratory movements between the western North Pacific and the Mexican breeding grounds. International Whaling Commission, SC/68D/CMP/09. Available at https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/SC_68D_CMP_09-Mart%C3%ADnez-et-al-movements-west-east.pdf. Accessed April 7, 2023.

Martínez-Aguilar, S., González-Cisneros, A., Valerio-Conchas, M., Rodríguez-González, F. M., Lobo-Barrera, R., Zamora-Zavala, L. A., Olguín-Hernández, J. A., Castillo-Romero, F., Zaragoza-Aguilar, G. A., Rivera-Rodríguez, J., Mariano-Me, E. 2022b. Gray whale stranding records in Mexico, during the 2022 winter breeding season. Paper SC/68D/CMP10 presented to the International Whaling Commission's Scientific Committee. 12 pp. Available at https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/SC_68D_CMP_10-Mart%C3%ADnez-et-al-strandings.pdf. Accessed April 7, 2023.

Martinez-Aguilar, S. 2022c. Disentanglement of a gray whale calf on February 9, 2022 in Laguna San Ignacio. Available at https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/DISENTANGLEMENT-REPORT-9-FEB-2022.pdf.

Masson D and P.F. Cummins. 2007. Temperature trends and interannual variability in the Strait of Georgia, British Columbia. Continental Shelf Research, 27(5):634–49. doi: 10.1016/j.csr.2006.10.009

Mate, B. R. and A. Poff, A. 1999. The southbound migration of gray whales, winter 1998/99. Unpublished document submitted to the Workshop to Review the Status of the Eastern North Pacific Gray Whales, March 16-17, 1999, Seattle, WA. Page 48 *in* Rugh et al. 1999, NOAA Technical Memorandum NMFS-AFSC-103.

Mate, B. R. and J. Urbán-Ramirez. 2003. A note on the route and speed of a gray whale on its northern migration from Mexico to central California, tracked by satellite-monitored radio tag. Journal of Cetacean Research and Management, 5:155-157.

Mate, B., B. Lagerquist, and L. Irvine. 2010. Feeding Habits, Migrations and Winter Reproductive Range Movements Derived from Satellite-Monitored Radio Tags on Eastern North Pacific Gray Whales. Paper SC/62/BRG21 presented to the IWC Scientific Committee.

Mate, B., A. L. Bradford, G. Tsidulko, V. Vertyankin, and V. Ilyashenko. 2011. Late-feeding season movements of a western North Pacific gray whale off Sakhalin Island, Russia and subsequent migration into the Eastern North Pacific. Paper SC/63/BRG23 presented to the IWC Scientific Committee.

Mate B. R., V. Y. Ilyashenko, A. L. Bradford, V. V. Vertyankin, G. A. Tsidulko, V. V. Rozhnov, L. M. Irvine. 2015. Critically endangered western gray whales migrate to the eastern North Pacific. Biol. Lett. 11: 20150071.

Matkin, C. O., L. G. Barrett-Lennard, H. Yurk, D. Ellifrit, and A. W. Trites. 2007. Ecotypic variation and predatory behavior among killer whales (Orcinus orca) off the eastern Aleutian Islands, Alaska. Fish. Bull. 105: 74-87.

Mato, Y., T. Isobe, H. Takada, H. Kanehiro, C. Ohtake, and T. Kaminuma. 2001. Plastic resin pellets as a transport medium for toxic chemicals in the marine environment. Environmental Science Technology, 35 (2), 318-324.

May, C., C. Luce, J. Casola, M. Chang, J. Cuhaciyan, M. Dalton, S. Lowe, G. Morishima, P. Mote, A. Petersen, G. Roesch-McNally, and E. York, 2018: Northwest. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 1036–1100. doi: 10.7930/NCA4.2018.CH24

May, J. 2001. Washington State helps focus on tourism. Indian Country Today November 15, 2001. Available at http://www.indiancountry.com/content.cfm?id=2820

Maybaum, H. L. 1993. Responses of humpback whales to sonar sounds. Journal of the Acoustical Society of America 94:1848-1849.

McCabe, R. M., B. M. Hickey, R. M. Kudela, K. A. Lefebvre, N. G. Adams, B. D. Bill, F. M. D. Gulland, R. E. Thomson, W. P. Cochlan, and V. L. Trainer. 2016. An Unprecedented Coastwide Toxic Algal Bloom Linked to Anomalous Ocean Conditions. Geophysical Research Letters, 43(19): 10,366–10,376. doi:10.1002/2016GL070023.

McDonald, L. 1972. Swan among the Indians: life of James G. Swan, 1818-1900. Binfords & Mort, Portland, Oregon.

McDonald, M., 2006. Increases in deep ocean ambient noise in the Northeast Pacific west of San Nicolas Island, California. Acoust. Soc. Am. 120 (2), 711-718.

McFadden, K. 1999. Northwest Cable, KING-TV on target with live whale-hunt coverage. The Seattle Times May 16, 1999. Available at http://seattletimes.nwsource.com/

McGarigal, K., R.G. Anthony, and F.B. Isaacs. 1991. Interactions of humans and bald eagles on the Columbia River estuary. Wildl. Monogr. 115.

McHuron, E. A., L. Aerts, G. Gailey, O. Sychenko, D. P. Costa, M. Mangel, and L. K. Schwarz. 2021. Predicting the population consequences of acoustic disturbance, with application to an endangered gray whale population. *Ecological Applications* 31, no. 8: e02440.

McLaughlin, J., J. Middaugh, D. Boudreau, G. Malcom, S. Parry, R. Tracy, and W. Newman. 2005. Adipose tissue triglyceride fatty acids and artherosclerosis in Alaska Natives and non-Natives. Atherosclerosis 181:353-362.

Mead, J. G. and E. D. Mitchell. 1984. Atlantic gray whales. Pages 33-53 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press Inc., Orlando, FL.

Melillo, J. M., T. C. Richmond, and G. W. Yohe, Editors., 2014: Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

Melnikov, V. V. and I. A. Zagrebin. 2005. Killer whale predation in coastal waters of the Chukotka Peninsula. Marine Mammal Science. 21: 550-556.

Memorandum of Cooperation. 2014. Conservation Measures for the Western Gray Whale Population. Memorandum signed September 2014 by the U.S., Russian Federation, and Japan.

Mendez, L., S. T. Alvarez-Castaneda, B. Acosta, and A. P. Sierra-Beltran. 2002. Trace metals in tissues of gray whale (Eschrichtius robustus) carcasses from the Northern Pacific Mexican Coast. Marine Pollution Bulletin 44:217-221.

Menge, B. A. and J. P. Sutherland. 1987. Community regulation: Variation in disturbance, competition, and predation in relation to environmental stress and recruitment. American Naturalist 130:730-757.

Meschersky, I. G., M. A. Kuleshova, D. I. Litovka, V. N. Burkanov, R. D. Andrews, G. A. Tsidulko, V. Yu Ilyashenko, and V. V. Rozhnov. 2012. Mitochondrial lines composition of gray whale (Eschrichtius robustus) in Russian Far Eastern seas: the control region and protein-coding fragments. Pp. 445-450 in Marine Mammals of the Holarctic: Collection of Scientific Papers after the Seventh International Conference, Suzdal, Russia, 24-28 September 2012.

Meschersky, I. G., M. A. Kuleshova, D. I. Litovka, V. N. Burkanov, R. D. Andrews, G. A. Tsidulko, V. V. Rozhnov, and V. Y. Ilyashenko. 2015. Occurrence and Distribution of Mitochondrial Lineages of Gray Whales (*Eschrichtius rodustus*) in Russian Far Eastern Seas. Biology Bulletin, 42(1): 34-42.

MICOR. 2013. Product specification sheet for Leader 50 rifle. Available at http://www.micordefense.com/Leader-50_ep_41.html

Mikola, J., M. Miettinen, E. Lehikoinen, and K. Lehtil. 1994. The effects of disturbance caused by boating on survival and behavior of velvet scoter melanitta fusca ducklings. Biological Conservation 67:119-124.

Miller, A. J. 1996. Recent advances in California Current modeling: Decadal and interannual thermocline variations. CalCOFI Reports 37:69-79.

Miller, R. V., J. H. Johnson, and N. V. Doroshenko. 1985. Gray whales (Eschrichtius robustus) in the Western Chukchi and East Siberian Seas. Arctic 38(1):56-60.

Miller, A. J., D. R. Cayan, T. P. Barnett, N. E. Graham, and J. M. Oberhuber. 1994. Interdecadal variability of the Pacific Ocean: model response to observed heat flux and wind stress anomalies. Climate Dynamic 9:287–302.

Miller, P. J., N. Biassonia, A. Samuels, and P. L. Tyack. 2000. Whale songs lengthen in response to sonar. Nature 405(6789):903.

Mineta, N. 2000. Press briefing by Chief of Staff John Podesta, Secretary of Commerce Norman Mineta, NOAA Administrator D. James baker, and NOAA Deputy Assistant Secretary for International Affairs, Rolland Schmitten on U.S. Actions on Japanese Whaling. Septermber 13, 2000.

Minobe, S. 1997. A 50-70 year climatic oscillation over the North Pacific and North America. Geophysical Research Letters 24(6):683-686.

Minobe, S. 1999. Resonance in bidecadal and pentadecadal climate oscillations over the North Pacific: Role in climatic regime shifts. Geophysical Research Letters 26(7):855-858.

Minobe, S., A. Sako, and M. Nakamura. 2004. Interannual to interdecadal variability in the Japan Sea based on a new gridded upper water temperature dataset. Journal of Physical Oceanography 34:2382-2397.

Missildine, B. R., R. J. Peters, G. Chin-Leo, and D. Houck. 2005. Polychlorinated Biphenyl Concentrations in Adult Chinook Salmon (Oncorhynchus tshawytscha) Returning to Coastal and Puget Sound Hatcheries of Washington State. Environ. Sci. Technol. 39:6944-6951.

Mizue, K. 1951. Grey whales in the East Sea of Korea. The Scientific Reports of the Whales Research Institute, Tokyo 5:71-9.

Monterey Bay Aquarium. 2003. Brown Pelicans. Available at http://www.mbayaq.org/efc/living_species/print.asp?inhab=508. Accessed November 7, 2005.

Moore, E. 1997. Background paper: Impacts of overflights on resources of Pacific Regional National Marine Sanctuaries. National Marine Sanctuaries, internal unpublished report.

Moore, J. E., and R. Merrick. (Ed.). 2011. Guidelines for Assessing Marine Mammal Stocks: Report of the GAMMS III Workshop, February 15 – 18, 2011, La Jolla, California. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-OPR-47.

Moore, J. E. 2021. Final report of the California Current Ecosystem Survey (CCES) 2018: a PacMAPPS study. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-013. 187 pp. Available at https://espis.boem.gov/final%20reports/BOEM_2021-013.pdf.

Moore, J. E. and D. W. Weller. 2013. Probability of taking a western North Pacific gray whale during the proposed Makah hunt. NOAA Technical Memorandum NMFS-SWFSC-506. January 2013.

Moore, J.E., D.W. Weller, and A.R. Lang. 2023. Estimates of the probability of striking a western North Pacific gray whale during the proposed Makah hunt: 2023 update. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-682. https://doi.org/10.25923/hxhv-sb94.

Moore, S. E. 2000. Variability of cetacean distribution and habitat selection in the Alaskan Arctic, Autumn 1982-91. Arctic 53(4):448-460.

Moore, S. E. 2005. Long-term environmental change and marine mammals. Pages 137-147 *in* Reynolds, J. E. III, W. F. Perrin, R. R. Reeves, S. Montgomery, and T. J. Ragan, editors. Marine Mammal Research, Conservation Beyond Crisis. Johns Hopkins University Press, Baltimore, MD.

Moore, S.E. 2016. Is it 'boom times' for baleen whales in the Pacific Arctic region? *Biology Letters*, *12*(9), p.20160251.

Moore, S. E. and J. T. Clarke. 2002. Potential impact of offshore human activities on gray whales. Journal of Cetacean Research and Management, 4(1): 19-25.

Moore, S. E. and H. P. Huntington. 2008. Arctic marine mammals and climate change: impacts and resilience. Ecological Applications 18(Suppl.):157–165.

Moore, S. E., D. K. Ljungblad, and D. R. Van Schiok. 1986. Annual patterns of gray whale (Eschrichtius robustus) distribution, abundance and behavior in the northern Bering and eastern Chukchi Seas, July 1980–83. Report to the International Whaling Commission Spec. Issue 8: 231–242.

Moore, S. E., J. M. Grebmeier and J. R. Davies. 2000. Gray whale foraging habitat in the northern Bering Sea: A GIS Based retrospective summary. Report presented to the International Whaling Commission SC/52/E3.

Moore, S. E., J. Urbán Ramirez, W. L. Perryman, F. Gulland, M. H. Pérez-Cortés, P. R. Wade, L. Rojas Bracho, and T. Rowles. 2001. Are gray whales hitting 'K' hard? Marine Mammal Science 17: 954–958.

Moore, S. E., J. M. Grebmeier, and J.R. Davies. 2003. Gray whale distribution relative to forage habitat in the northern Bering Sea: current conditions and retrospective summary. Canadian Journal of Zoology 81:734-742.

Moore, S. E., K. M. Wynne, J. C. Kinney, and J. M. Grebmeier. 2007. Gray whale occurrence and forage southeast of Kodiak Island, Alaska. Marine Mammal Science 23(2): 419-428.

Moore, S.E., J.T. Clarke, S.R. Okkonen, J.M. Grebmeier, C.L. Berchok, and K.M. Stafford. 2022. Changes in gray whale phenology and distribution related to prey variability and ocean biophysics in the northern Bering and eastern Chukchi seas. *Plos one* 17(4): e0265934.

Moritz, C. 1994. Defining 'evolutionary significant units' for conservation. Trends Ecol. Evol. 9:373–375.

Moser, H. G., R. L. Charter, W. Watson, D. A. Ambrose, J. L. Butler, S. R. Charter, and E. M. Sandknop. 2000. Abundance and distribution of rockfish (Sebastes) larvae in the Southern California Bight in relation to environmental conditions and fishery exploitation. CalCOFl Reports 41:132-147.

Mosig R, P. 1998. Efectos del turismo en la abundancia y comportamiento de la ballena gris, Eschrictius robustus, en Laguna San Ignacio, BCS, México. Bachelor Thesis, Universidad Nacional Autónoma de México, México. 139pp.

Mote, P., A. Petersen, S. Reeder, H. Shipman, and L.W. Binder. 2008. Sea Level Rise in the Coastal Waters of Washington State. A report by the University of Washington Climate Impacts Group and the Washington Department of Ecology. January 2008.

Mueter, F. J., R. R. Peterman, and B. J. Pyper. 2002. Opposite effects of ocean temperature on survival rates of 120 stocks of Pacific salmon (Oncorhynchus spp.) in northern and southern areas. Can. J. Fish. Aquat. Sci. 59:456-463.

Murison, L.D., D.J. Murie, K.R. Morin, and J. da Silva Curiel. 1984. Foraging of the gray whale along the west coast of Vancouver Island, British Columbia. Pages 451-464 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Murphy, S. 2014. Fattened Gray Whales In Low-Ice Arctic Set To Journey South. KPBS online news article dated October 13, 2014. Available at http://www.kpbs.org/news/2014/oct/13/fattened-gray-whales-low-ice-arctic-set-journey-so/

Murray, P. 1988. The vagabond fleet: a chronicle of the North Pacific sealing schooner trade. Sono Nis Press, Victoria, BC.

Myrberg, A. 1990. The effects of man-made noise on the behavior of marine animals. Environment International 16: 575-586.

Nakamura, G., H. Katsumata, Y. Kim, M. Akagi, A. Hirose, K. Arai, and H. Kato. 2017. Matching of the Gray Whales off of Sakhalin and the Pacific Coast of Japan, with a Note on the Stranding at Wadaura, Japan in March, 2016. Open Journal of Animal Sciences, 7, 168-178. https://doi.org/10.4236/ojas.2017.72014.

Nakamura, G., H. Yoshida, R. Terai, K. Konishi, T. Isodo, S. Nishiwaki, H. Taru, S. Suzuki, and H. Kato. 2019. Status report of conservation and researches on the western North Pacific gray whales in Japan, May 2018 - April 2019. Paper SC/68a/CMP2 presented to the Scientific Committee of the International Whaling Commission.

Nakamura, G., T. Lida, H. Yoshida, T. Katsumata, K. Matsuoka, T. Bando, and H. Kato. 2022. Status report of conservation and research on the western North Pacific gray whales in Japan, May 2021 - April 2022. Paper SC/68d/CMP07 presented to the International Whaling Commission's Scientific Committee. 5 pp. Available at https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=19482&ext=pdf&k=52b35dc844.

Nasby-Lucas, N. M., S. G. Merle, B. W. Embley, B. N. Tissot, M. A. Hixon, and D. J. Wright. 2002. Integration of submersible transect data and high-resolution multibeam sonar imagery for a habitat-based groundfish assessment of Heceta Bank, Oregon. Fishery Bulletin 100:739-751.

National Academy of Sciences. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. Chapter 8: Dietary fats: total fat and fatty acids. Food and Nutrition Board, Institute of Medicine of the National Academies. National Academies Press, Washington, D.C.

National Academy of Sciences. 2008. Ecological impacts of climate change. National Academy of Sciences Committee on Ecological Impacts of Climate Change. Available at http://www.nap.edu/catalog/12491/ecological-impacts-of-climate-change

National Academy of Sciences. 2013. Dietary reference intakes tables and application. Institute of Medicine of the National Academies. Accessed August 29, 2013. Available at http://www.iom.edu/Activities/Nutrition/SummaryDRIs/DRI-Tables.aspx

National Marine Fisheries Service (NMFS). 1992a. Proposed Regime to Govern Interactions Between Marine Mammals and Commercial Fishing Operations. Legislative Proposal prepared by NMFS/NOAA/DOC. November 1992.

National Marine Fisheries Service (NMFS). 1992b. Report to Congress on Washington State marine mammals. DOC/NOAA/NMFS report.

National Marine Fisheries Service (NMFS). 1995. Memorandum for the Files: Gray Whale Consumed by Makah Tribe, Joe Scordino, Aug.8, 1995. On file at NMFS Northwest Regional Office, 7600 Sand Point Way, Seattle, WA.

National Marine Fisheries Service (NMFS). 1999. Preliminary report on the Makah Tribe gray whale hunt. Internal memorandum, May 25, 1999. National Marine Fisheries Service, Northwest Region, Seattle, Washington.

National Marine Fisheries Service (NMFS). 2001a. Environmental assessment on issuing a quota to the Makah Indian Tribe for a subsistence hunt on gray whales for the years 2001 and 2002. U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Washington, D.C.

National Marine Fisheries Service (NMFS). 2001b. Conclusion of the Gray Whale Unusual Mortality Event. Memoranda from NMFS Assistant Administrator for Fisheries to Alaska, Northwest, and Southwest Regional Administrators, Dec. 7, 2001.

National Marine Fisheries Service (NMFS). 2005a. April 22, 2005, Memo for D. Robert Lohn from T. Hogarth re: Delegation of Authority for NEPA Compliance and Federal Register Signature Authority Regarding the Makah Indian Tribe's Request for a Waiver of the Marine Mammal Protection Act Moratorium.

National Marine Fisheries Service (NMFS). 2005b. Revisions to Guidelines for Assessing Marine Mammal Stocks. 24 pp. Available at http://www.nmfs.noaa.gov/pr/pdfs/sars/gamms2005.pdf

National Marine Fisheries Service (NMFS). 2005c. Pacific coast groundfish fishery management plan. Essential fish habitat designation and minimization of adverse impacts. Final environmental impact statement. National Marine Fisheries Service Northwest Region, Seattle, WA.

National Marine Fisheries Service (NMFS). 2005d. Proposed Conservation Plan for Southern resident Killer Whales (Orcinus orca). National Marine Fisheries Service, Northwest Region, Seattle, WA.

National Marine Fisheries Service (NMFS). 2007. Conservation plan for the Eastern Pacific stock of northern fur seal (Callorhinus ursinus). National Marine Fisheries Service, Juneau, Alaska.

National Marine Fisheries Service (NMFS). 2008a. Draft Environmental Impact Statement for Proposed Authorization of the Makah Whale Hunt. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Region. May 2008.

National Marine Fisheries Service (NMFS). 2008b. Final Environmental Assessment: Reducing the Impact on At-risk Salmon and Steelhead by California Sea Lions in the Area Downstream of Bonneville Dam on the Columbia River, Oregon and Washington. National marine Fisheries Service, March 12, 2008. Available at http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/pinnipeds/sea_lion_removals/sec-120-final-ea-08.pdf

National Marine Fisheries Service (NMFS). 2008c. Endangered Species Act section 7 consultation on issuance of license to Neptune LNG by MARAD to construct, own, and operate an LNG deepwater port. F/NER/2006/0400. Available at www.regulations.gov

National Marine Fisheries Service (NMFS). 2010. Full case report for Humpback Whale on Long Island. Case Number NY4236-10. NMFS Northeast Regional Office, Protected Resources Division.

National Marine Fisheries Service (NMFS). 2012a. NOAA Fisheries News Release – Whaling Commission Updates Aboriginal Catch Limits. July 5, 2012. Available at http://alaskafisheries.noaa.gov/newsreleases/

National Marine Fisheries Service (NMFS). 2012b. National Marine Fisheries Service's Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish habitat Response for the Reedsport Ocean Power Technologies (OPT) 10-PowerBuoy Wave Park, 2.5 miles offshore of Reedsport, Oregon, in the Eastern Pacific Ocean (FERC Docket No. P-12713-002). June 7, 2012.

National Marine Fisheries Service (NMFS). 2012c. National Marine Fisheries Service's Endangered Species Act Section 7 Biological Opinion and Marine Mammal Protection Act Letters of Authorization on U.S. Navy Northwest Training Range Complex from November 2012 through November 2015. October 16, 2012.

National Marine Fisheries Service (NMFS). 2012d. Annual Landings by Species for Alaska. Data available at http://www.st.nmfs.noaa.gov/pls/webpls/mf_lndngs_grp.data_in

National Marine Fisheries Service (NMFS). 2013a. Gray whale freed from rope entanglement thanks to international collaboration. News article. Available at www.westcoast.fisheries.noaa.gov/stories/2013/

National Marine Fisheries Service (NMFS). 2013b. National Marine Fisheries Service's Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Section 7(a)(4) Conference Report, Section 7(a)(2) Letter of Concurrence with "Not Likely to Adversely Affect" Determination, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH)

Consultation for the Admiralty Inlet Pilot Tidal Project, FERC No. 12690. NMFS Consultation Number NWR-2013-9742. December 3, 2013.

National Marine Fisheries Service (NMFS). 2013c. National Marine Fisheries Service. 2013. Status Review of The Eastern Distinct Population Segment of Steller Sea Lion (Eumetopias jubatus). 144pp + Appendices. Protected Resources Division, Alaska Region, National Marine Fisheries Service, 709 West 9th St, Juneau, Alaska 99802.

National Marine Fisheries Service (NMFS). 2013d. National Marine Fisheries Service's Endangered Species Act Section 7 Biological Opinion and Conference Report and Marine Mammal Protection Act Letters of Authorization on U.S. Navy Hawaii-Southern California Training and Testing 2013-2018. NMFS Consultation Number FPR-2012-9026. December 13, 2013.

National Marine Fisheries Service (NMFS). 2013e. National Marine Fisheries Service's Marine Mammal Protection Act Letter of Authorization on U.S. Navy Training in the Gulf of Alaska Temporary Maritime Activities Area 2013-2016. May 14, 2013.

National Marine Fisheries Service (NMFS). 2013f. National Marine Fisheries Service's Draft Programmatic Environmental Assessment for Fisheries Research Conducted and Funded by the Southwest Fisheries Science Center. Prepared for the National Marine Fisheries Service by: URS Group 700 G Street, Suite 500, Anchorage, Alaska, 99501. April 2013.

National Marine Fisheries Service (NMFS). 2014a. Estimated Enforcement Costs for the 2015 Draft Environmental Impact Statement (DEIS) Regarding an Authorized Makah Whaling Hunt. Memorandum from Steve Stone to Protected Resources Division files. February 20, 2014. Available from NMFS West Coast Region, Protected Resources Division, 1201 NE Lloyd Blvd, Ste. 1100, Portland, OR, 97232.

National Marine Fisheries Service (NMFS). 2014b. U.S. west coast large whale entanglement information sharing workshop report November 13-14, 2013, Portland, Oregon. Prepared by the NMFS West Coast Regional Office March 28, 2014.

National Marine Fisheries Service (NMFS). 2014c. California Current Ecosystem Surveys for Whales, Dolphins and Porpoises: Mandates and Research Overview. Southwest Fisheries Science Center web posting dated 12/24/14. Available at https://swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Programs/Photogrammetry/California_Current_Cruise_Overview_Final_-_PRD_SWFSC.pdf

National Marine Fisheries Service (NMFS). 2014d. Evaluating killer whale predation on eastern North Pacific gray whales. Southwest Fisheries Science Center web posting dated 6/13/14. Available at https://swfsc.noaa.gov/textblock.aspx?Division=PRD&ParentMenuId=211&id=16064

National Marine Fisheries Service (NMFS). 2015a. Responses to Comments on the 2008 Draft Environmental Impact Statement on the Makah Tribe's Request to Hunt Gray Whales. Memorandum to the file from Steve Stone, NMFS Protected Resources Division. January 2015. Available from NMFS West Coast Region, Protected Resources Division, 1201 NE Lloyd Blvd, Ste. 1100, Portland, OR, 97232.

National Marine Fisheries Service (NMFS). 2015b. Scoping Report for Makah Whale Hunt Environmental Impact Statement. January 2015. Available from NMFS West Coast Region, Protected Resources Division, 1201 NE Lloyd Blvd, Ste. 1100, Portland, OR, 97232.

National Marine Fisheries Service (NMFS). 2015c. Species Information– Blue whale. Available at http://www.nmfs.noaa.gov/pr/species/. Accessed February 23, 2015.

National Marine Fisheries Service (NMFS). 2018a. 2018 Revision to 'Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0)': Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. Office of Protected Resources, Silver Spring, MD, 20910. NMFS-OPR-59. Available at https://media.fisheries.noaa.gov/dam-migration/tech_memo_acoustic_guidance_(20)_(pdf)_508.pdf. Accessed April 3, 2023.

National Marine Fisheries Service (NMFS). 2018b. Biological Opinion on U.S. Navy Hawaii-Southern California Training and Testing and the National Marine Fisheries Service's Promulgation of Regulations Pursuant to the Marine Mammal Protection Act for the Navy to "Take" Marine Mammals Incidental to Hawaii-Southern California Training and Testing. Available at https://media.fisheries.noaa.gov/dam-migration/phase_iii_hstt_biop_final.pdf.

National Marine Fisheries Service (NMFS). 2019a. Reviewing and Designating Stocks and Issuing Stock Assessment Reports under the Marine Mammal Protection Act. PD 02-204-03. Available at https://www.fisheries.noaa.gov/national/laws-and-policies/policy-directive-system.

National Marine Fisheries Service (NMFS). 2019b. ENP Biological Report on the Eastern North Pacific (ENP) Gray Whale Stock. March 2019. 88pp.

National Marine Fisheries Service (NMFS). 2020a. Biological and Conference Opinion on (1) U.S. Navy Northwest Training and Testing Activities (NWTT); and (2) the National Marine Fisheries Service's promulgation of regulations and issuance of a letter of authorization pursuant to the Marine Mammal Protection Act for the U.S. Navy to "take" marine mammals incidental to NWTT activities from November 2020 through November 2027. Available at https://nwtteis.com/portals/nwtteis/files/biological_opinion/NWTT_Phase_III_NMFS_BiOp_Oct_2020.pdf.

National Marine Fisheries Service (NMFS). 2020b. Final Supplemental Programmatic Environmental Assessment for Fisheries Research Conducted and Funded by the Southwest Fisheries Science Center. Available at https://repository.library.noaa.gov/view/noaa/27842.

National Marine Fisheries Service (NMFS). 2020c. Endangered Species Act Section 7(a)(2) Biological Opinion and Conference on the Continued Prosecution of Fisheries Research Conducted and Funded by the Southwest Fisheries Science Center, Including Issuance of a Letter of Authorization under the Marine Mammal Protect Act for the Incidental Take of Marine Mammals Pursuant to those Research Activities. NMFS Consultation Number: WCRO-2020-01302. 235p.

National Marine Fisheries Service (NMFS). 2021a. Memorandum for Protected Resources Division, West Coast Region From Chris Yates, Assistant Regional Administrator for Protected Resources. West Coast Region's revised Endangered Species Act implementation and considerations about "take" given the September 2016 humpback whale DPS status review, species-wide revision of listings, and updates to best available scientific information. July 15, 2021. 18 pp.

National Marine Fisheries Service (NMFS). 2021b. NOAA Fisheries Office of Science and Technology, Commercial Landings Query, Available at: www.fisheries.noaa.gov/foss, Accessed October 23, 2023.

National Marine Fisheries Service (NMFS). 2022a. 2021 West Coast Whale Entanglement Summary. U.S. Department of Commerce, NOAA. Available at https://media.fisheries.noaa.gov/2022-03/2021-west-coast-entanglements-summary.pdf.

National Marine Fisheries Service (NMFS). 2022b. Reinitiation of the Biological Opinion on (1) U.S. Navy Training Activities in the Gulf of Alaska Temporary Maritime Activities Area (TMAA) and Western Maneuver Area (WMA); and (2) the National Marine Fisheries Service's Promulgation of Regulations and Issuance of a Letter of Authorization Pursuant to the Marine Mammal Protection Act for the U.S. Navy to "Take" Marine Mammals Incidental to TMAA and WMA Activities from December 2022 through December 2029. Available at https://repository.library.noaa.gov/view/noaa/46471.

National Marine Fisheries Service (NMFS). 2023a. Letter of Concurrence. Endangered Species Act Section 7(a)(2) Concurrence Letter for the National Marine Fisheries. Service's Proposed Issuance of a Waiver under the Marine Mammal Protection Act to the Makah Tribe and Related Actions. Letter from Chris Yates, NMFS, to Trevor Spradlin, NOAA Fisheries, dated November 8, 2023.

National Marine Fisheries Service (NMFS). 2023b. Guidelines for Preparing Stock Assessment Reports Pursuant to the Marine Mammal Protection Act. Protected Resources Policy Directive Marine Mammal Protection Act 02-204. Available at https://www.fisheries.noaa.gov/s3/2023-05/02-204-01-Final-GAMMS-IV-Revisions-clean-1-kdr.pdf.

National Marine Fisheries Service (NMFS). 2023c. Gray Whale, Western North Pacific Distinct Population Segment (Eschrichtius robustus) 5-Year Review: Summary and Evaluation. Office of Protected Resources, Silver Spring, Maryland. Available athttps://www.fisheries.noaa.gov/resource/document/western-north-pacific-dps-gray-whale-5-year-review. Accessed April 6, 2023.

National Marine Fisheries Service (NMFS) and Makah Tribal Council. 2000. Cooperative report relating to the Makah Tribe's 1999 hunt. February 8, 2000.

National Marine Mammal Laboratory (NMML). 2005. Revisions to Guidelines for Assessing Marine Mammal Stocks (GAMMS II) (Stock Assessment Report Guidelines). June 2005. Available at http://www.nmfs.noaa.gov/pr/sars/

National Oceanic and Atmospheric Administration (NOAA). 1993. Olympic Coast National Marine Sanctuary: Final Environmental Impact Statement/Management Plan. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Sanctuaries and Reserves Division, Washington, D.C.

National Oceanic and Atmospheric Administration (NOAA). 1996. Press Release 96-r194. December 18, 1996. Commerce Department Certifies Canada under Pelly Amendment for Whaling. Available at http://www.publicaffairs.noaa.gov/pr96/dec96/noaa96-r194.html

National Oceanic and Atmospheric Administration (NOAA). 2006. Our National Marine Sanctuaries, 2005 – 2006 State of the Sanctuary Report. NOAA, National Ocean Service, National Marine Sanctuary Program, Silver Spring, MD. Available at http://sanctuaries.noaa.gov/sos05/sosreport2005.pdf

National Oceanic and Atmospheric Administration (NOAA). 2007. Our National Marine Sanctuaries, 2006-2007 State of the Sanctuary Report. NOAA, National Ocean Service, National Marine Sanctuaries Program, Silver Spring, MD. Available at http://sanctuaries.noaa.gov/sos2006/pdf/sos2006.pdf.

National Oceanic and Atmospheric Administration (NOAA). 2011. Olympic Coast National Marine Sanctuary Final Management Plan and Environmental Assessment. NOAA Office of National Marine Sanctuaries. September 2011. Available at http://olympiccoast.noaa.gov

National Oceanic and Atmospheric Administration (NOAA). 2012. Memorandum of Agreement between the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of National Marine Sanctuaries, and the Hoh Tribe, the Makah Tribe, the Quileute Tribe, the Quinault Indian Nation, and the State of Washington for the Purpose of Supporting the Olympic Coast Intergovernmental Policy Council. NOS Agreement Code: MOA-2012-056/8583.

National Oceanic and Atmospheric Administration (NOAA). 2013. Severe Marine Debris Event Report: Japan Tsunami Marine Debris. Overview and Update to Congress, August 2013. Available at https://marinedebris.noaa.gov/sites/default/files/Japan_Tsunami_Marine_Debris_Report.pdf

National Oceanic and Atmospheric Administration (NOAA). 2015. Detecting Japan Tsunami Marine Debris at Sea: A Synthesis of Efforts and Lessons Learned. NOAA Marine Debris Program. Technical Memorandum NOS-OR&R-51. January 2015. Available at http://marinedebris.noaa.gov/sites/default/files/JTMD_Detection_Report.pdf.

National Oceanic and Atmospheric Administration (NOAA). 2016. Ocean Noise Strategy: Ocean noise strategy roadmap. Silver Spring, Maryland. Available at https://cetsound.noaa.gov/index. Accessed April 6, 2023.

National Oceanic and Atmospheric Administration (NOAA). 2018. Memorandum of Agreement between the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of National Marine Sanctuaries, and the Hoh Tribe, the Makah Tribe, the Quileute Tribe, the Quinault Indian Nation, and the State of Washington for the Purpose of Supporting the Olympic Coast Intergovernmental Policy Council. Olympic Coast National Marine Sanctuary Section 3.1.1. NOS Agreement Code MOA-2017-136/11519.

National Oceanic and Atmospheric Administration (NOAA). 2022. Japan Tsunami Marine Debris. NOAA Marine Debris Program Fact Sheet. Available at https://marinedebris.noaa.gov/our-work/emergency-response/japan-tsunami-marine-debris.

National Oceanic and Atmospheric Administration (NOAA). 2023. "What is Marine Debris? Plastic." Office of Response and Restoration: NOAA Marine Debris Program. Updated March 29, 2023. Available at https://marinedebris.noaa.gov/what-marine-debris/plastic

National Oceanic and Atmospheric Administration (NOAA) and Makah Indian Tribe. 1989. Memorandum of Agreement. [Marine mammals incidentally taken by Makah tribal members in the course of fishing]. Signed by W.E. Lewis, Special Agent in Charge, NMFS Office of Law Enforcement, Northwest Region, by delegation from the NOAA Administrator, June 26, 1989 and Daniel Greene, Chairman, Makah Tribal Council, June 13, 1989. On file at NMFS Northwest Regional Office, 7600 Sand Point Way, Seattle, WA.

National Oceanic and Atmospheric Administration (NOAA) National Data Buoy Center. 2013. Climatic summary data and plots for the J Buoy. Data accessed September 9, 2013. Available at http://www.ndbc.noaa.gov/climatedesc.shtml.

National Oceanic and Atmospheric Administration (NOAA) Research. 2019. So what are marine heat waves?. (2019, October 8). NOAA Research News. Available at https://research.noaa.gov/article/ArtMID/587/ArticleID/2559/So-what-are-marine-heat-waves.

National Oceanic and Atmospheric Administration (NOAA) Research. 2021. Low-oxygen waters off Washington, Oregon coasts risks becoming large 'dead zones'. (2021, July 21). NOAA Research News. Available at https://research.noaa.gov/2021/07/21/low-oxygen-waters-off-washington-oregon-coasts-risk-becoming-large-dead-zones/

National Ocean Service (NOS). 2023. National Ocean Watch (ENOW) Explorer, Economic Data: Employment, Tourism and Recreation for Clallam County, Washington. Available at https://coast.noaa.gov/enowexplorer/#/employment/tourism/2020/53009. Accessed March 23, 2023.

National Park Service. 1995. Report on effects of aircraft overflights on the National Park System. Report to Congress, prepared pursuant to P.L. 100-91, The National Parks Overflights Act of 1987. Report NPS-D-1062. July 1995.

National Park Service. 2008. Olympic National Park Final General Management Plan/Environmental Impact Statement, Volume 1. National Park Service, U.S. Department of the Interior. Olympic National Park, Washington.

National Park Service. 2013. Olympic National Park weather. Online information accessed September 6, 2013. Available at http://www.nps.gov/olym/planyourvisit/weather.htm

National Park Service. 2022. National Park Service Visitor Use Statistics, Olympic National Park. Available at https://irma.nps.gov/Stats/Reports/Park/OLYM. Accessed March 20, 2023.

National Park Service. 2023. National Park Service Visitor Use Statistics, Olympic National Park. Available at https://irma.nps.gov/Stats/Reports/Park/OLYM. Accessed March 23, 2023

National Park Service and U.S. Fish and Wildlife Service USFWS). 1993. Memorandum of Understanding Between the National Park Service and the U.S. Fish and Wildlife Service (to coordinate management of the Flattery Rocks National Wildlife Refuge, The Quillayute Needles National Wildlife Refuge, and a portion of the coastal strip of Olympic National Park). National Park Service, Port Angeles, WA.

National Research Council. 2003. Ocean Noise and Marine Mammals. Committee on Potential Impacts of Ambient Noise in the Ocean on Marine Mammals, National Research Council of the National Academies. The National Academies Press, Washington D.C.

National Science Foundation. 2012. National Science Foundation launches Arctic research vessel. Press Release 12-192 dated October 13, 2012. Available at http://www.nsf.gov/news/news_summ.jsp?cntn_id=125707

National Weather Service. 2013. NOAA National Weather Service Glossary. Available at http://w1.weather.gov/glossary/=.

Neah Bay Chamber of Commerce. 2023a. About Neah Bay. Available at http://www.neahbaywa.com/about.htm. Accessed March 23, 2023

Neah Bay Chamber of Commerce. 2023b. What to Do. Available at http://www.neahbaywa.com/what.htm. Accessed March 24, 2023.

Neah Bay Chamber of Commerce. 2023c. Services/Members Directory. Available at http://www.neahbaywa.com/services.htm. Accessed March 22, 2023.

Neander, D. O. 2001. The California Current System: Comparison of Geostrophic Currents, ADCP Currents and Satellite Altimetry. Report of the OC3570 Summer Cruise, August 2-5, 2001.

Available at
http://www.weather.nps.navy.mil/~psguest/OC3570/CDROM/summer2001/Neander/report.pdf

Neel, J., C. Hart, D. Lynch, S. Chan, and J. Harris. 1997. Oil spills in Washington State: a historical analysis. Publication No. 97-252, Department of Ecology, Olympia, WA.

Nelson, C. H. and K. R. Johnson. 1987. Whales and walruses as tillers of the sea floor. Scientific American 256(2):112-117.

Nelson, K. S. 1997. Marbled Murrelet (Brachyramphus marmoratus). *In* Poole, A., and F. Gill, editors. The birds of North America, No. 276. The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, DC.

Nelson, T. A., D. A. Duffus, C. Robertson, and L. J. Feyrer. 2008. Spatial-temporal patterns in intra-annual gray whale foraging: characterizing interactions between predators and prey in Clayoquot Sound, British Columbia. Mar. Mammal Sci. 24(2):356-70. doi: 10.1111/j.1748-7692.2008.00190.x.

Nemoto, T. 1959. Food of baleen whales with reference to whale movements. The Scientific Reports of the Whales Research Institute 14:149-290.

Nemoto, T. 1970. Feeding pattern of baleen whales in the ocean. Pages 241-252 *in* Steele, J. H., editor. Marine Food Chains. Oliver & Boyd, Edinburgh, United Kingdom.

Nerini, M. 1984. A review of gray whale feeding ecology. Pages 423-450 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Newell, C. L. 2009. Ecological interrelationships between summer resident gray whales (Eschrichtius robustus) and their prey, mysid shrimp (Holmesimysis sculpta and Neomysis rayi) along the central Oregon coast. M.S. Thesis, Oregon State Univ.

Newkirk, J. and K. Casavant. 2002. Determining infrastructure needs for rural mobility: functions and benefits of rural airports in Washington. Report prepared for the Aviation Division, Washington State Department of Transportation. Department of Agricultural Economics, Washington State University, Pullman, WA.

Norman, K., J. Sepez, H. Lazrus, N. Milne, C. Package, S. Russell, K. Grant, R.P. Lewis, J. Primo, E. Springer, M. Styles, B. Tilt, and I. Vaccaro. 2007. Community profiles for West Coast and North Pacific fisheries–Washington, Oregon, California, and other U.S. states. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-85, 602 pp.

Norman, S. A., C. E. Bowlby, M. S. Brancato, J. Calambokidis, D. Duffield, P.J. Gearin, T. A. Gornall, M. E. Gosho, B. Hanson, J. Hodder, S. J. Jeffries, B. Lagerquist, D. M. Lambourn, B. Mate, B. Norberg, R. W. Osborne, J. A. Rash, S. Riemer, and J. Scordino. 2004. Cetacean strandings in Oregon and Washington between 1930 and 2002. Journal of Cetacean Research and Management, 6(1):87- 99.

Norman, S. A., M. M. Muto, D. J. Rugh and S. E. Moore. 2000. Gray whale strandings in 1999 and a review of stranding records in 1995-1998. Unpublished report presented to the International Whaling Commission (SC/52/AS5).

Norris, K. S., B. Villa-Ramirez, G. Nichols, B. Würsig, and K. Miller. 1983. Lagoon entrance and other aggregations of gray whales (Eschrichtius robustus). Pages 259-293 *in* Payne, R., editor. Communication and Behavior of whales. AAAS Sel. Symp. 76. Westview Press, Boulder, CO.

North Atlantic Marine Mammal Commission. 2004. Report of the NAMMCO Workshop on Hunting Methods for Seals and Walruses. Available at http://www.nammco.no/webcronize/images/Nammco/735.pdf

North Olympic Peninsula Visitor and Convention Bureau. 2005. North Olympic Peninsula visitor center counts. Available at http://www.northwestsecretplaces.com/vcb/tourismresources/Research.html. Accessed November 7, 2005.

Northwest Area Contingency Plan. (NWACP). 2020. The Northwest Area Contingency Plan (Also serving as the Region Ten Contingency Plan). January 1, 2020. Available at http://www.rrt10nwac.com/Files/NWACP/2020/Northwest%20Area%20Contingency%20Plan2020.pdf.

Northwest Area Foundation. 2005. Makah Tribe and Reservation profiles. Available at http://www.indicators.nwaf.org. Accessed October 25, 2005.

Northwest Fisheries Science Center. 2019. Marine Heatwave in the Pacific Shrinks from "Blob" in Size, Retreats Farther Offshore. (2019, November 7. Available at https://www.fisheries.noaa.gov/feature-story/marine-heatwave-pacific-shrinks-blob-size-retreats-farther-offshore.

Northwest Indian Fisheries Commission. 2023. About us. Available at https://nwifc.org/about-us/. Accessed August 8, 2023.

Northwest Portland Area Indian Health Board (NPAIHB). 2023. Northwest Member Tribes; Makah Tribe.
Available at
https://www.npaihb.org/member-tribes/makah-tribe/. Accessed March 23, 2023

Northwest Straits Foundation. 2013. Species encountered by type in 4,437 derelict nets removed from Puget Sound 2002 - September 30, 2013. Data file. Available at http://www.derelictgear.org/. Accessed October 22, 2013.

Nowacek, D. P., M. P. Johnson, and P. L. Tyack. 2004. North Atlantic right whales (Eubalaena glacialis) ignore ships but respond to alerting stimuli. Proceedings of the Royal Society B: Biological Sciences 271(1536):227 – 231. February 7, 2004.

Nowacek, D. P., L. H. Thorne, D. W. Johnston and P. L. Tyack. 2007. Responses of cetaceans to anthropogenic noise. Mammal Review 37:81-115.

Nowak, R. M. 2003. Walker's Marine Mammals of the World. Johns Hopkins University Press, Baltimore, MD.

Nysewander, D. R., J. R. Evenson, B. L. Murphie, and T. A. Cyra. 2004. Trends observed for selected marine bird species during 1993-2002 winter aerial surveys, conducted by PSAMP bird component (WDFW) in the inland marine waters of Washington state. Poster presentation pages 1-11 *in* Droscher, T. W., and D. A. Fraser, editors. Proceedings of the 2003 Georgia Basin/Puget Sound Research Conference, Vancouver, BC.

Nystuen, J. A. and D. M. Farmer. 1987. The influence of wind on the underwater sound generated by light rain. Journal of the Acoustical Society of America 82:270-274.

OBIS-SEAMAP. 2023. Ocean Biodiversity Information System– Spatial Ecological Analysis of Megavertebrate Populations. Accessed August 30, 2023. Available at https://seamap.env.duke.edu/.

O'Connor, S., R. Campbell, H. Cortez, and T. Knowles. 2009. Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits, a special report from the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

O'Hara, T.M., and T. J. O'Shea. 2005. Assessing impacts of environmental contaminants. Pages 63-83 *in* Reynolds III, J. E., W. F. Perrin, R. R. Reeves, S. Montgomery, and T. J. Ragen, editors. Marine mammal research: conservation beyond crisis. Johns Hopkins Press, Baltimore, MD.

O'Hara, T. M., T. E. Albert, E. O. Øen, L. M. Philo, J. C. George, and A. L. Ingling. 1999. The role of Eskimo hunters, veterinarians, and other biologists in improving the humane aspects of the subsistence harvest of bowhead whales. Journal of the American Veterinary Medical Association 124(8):1193-1198.

O'Leary, B. 1984. Aboriginal whaling from the Aleutian Island to Washington State. Pages 79-102 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

O'Shea, T. J. 1999. Environmental contaminants and marine mammals. Pages 485-563 *in* Reynolds III, J. E., and S. A. Rommel. Biology of marine mammals. Smithsonian Institution Press, Washington, D.C.

O'Shea, T. J. and A. Aguilar. 2001. Cetacea and Sirenia. Pages 427-496 *in* Shore, R. F., and B. A. Rattner, editors. Ecotoxicology of wild mammals. John Wiley & Sons, Chichester, United Kingdom.

Occupational Safety and Health Administration. 2013. OSHA Technical Manual (OTM) Section III: Chapter 5 – Noise. Updated 08/15/13. Available at https://www.osha.gov/dts/osta/otm/new_noise/index.html.

Ocean Power Technologies. 2013. News release by Ocean Power Technologies announcing results for the fiscal second quarter ended October 31, 2013. Available at http://www.oceanpowertechnologies.com.

Øen, E. O. 1995. A new penthrite grenade compared to the traditional black powder grenade: Effectiveness in the Alaskan Eskimos' hunt for bowhead whales. Arctic 48(2):177-185.

Øen, E. O. 2000. The penthrite projectile for the darting gun used by the Alaskan Eskimos in the hunt of bowhead whale: A brief description of design and function. Unpublished paper presented at the Alaska Eskimo Whaling Commission Mini Convention in Anchorage, AK on February 28-29, 2000.

Øen, E. O. 2006. Norwegian minke whaling: Research to improve hunting and killing methods for minke whales in Norway. Unpublished report, submitted to the International Whaling Commission's Workshop on Whale Killing Methods by Norway, St. Kitts & Nevis, June 2006 (IWC/58/WKM&AWI25). Available at http://www.iwcoffice.org/_documents/commission/IWC58docs/iwc58docs.htm.

Office of Superintendent of Public Instruction. 2022. Child Nutrition Program Reports: 2022-2023 Area Eligibility Report. Available at: https://www.k12.wa.us/policy-funding/child-nutrition/child-nutrition-program-reports. Accessed on April 5, 2023.

Office of Superintendent of Public Instruction. 2023. Preliminary School District Personnel Summary Reports: 2022–23 School Year. Available at https://www.k12.wa.us/sites/default/files/public/AllPersonnelSummaryReport2022-23.pdf. Accessed on April 5, 2023.

Office of the U.S. Press Secretary. 2011. Message from the President to Congress regarding the Pelly Amendment and Icelandic whaling. Presidential memorandum dated September 15, 2011.

Oldham, K. 2003. Makah whaling. Published online by HistoryLink.org: the online encyclopedia of Washington State history. Available at http://www.historylink.org/essays/

Oleson, E. M., J. Calambokidis, E. A. Falcone, G. S. Schorr, and J. A. Hildebrand. 2009. Acoustic and visual monitoring of cetaceans along the outer Washington Coast. Naval Postgraduate School report NPS-OC-09-001.

Oliver E.C., M.G. Donat, M.T. Burrows, P.J. Moore, D.A. Smale, L.V. Alexander, J.A. Benthuysen, M. Feng, A.S. Gupta, A.J. Hobday, and N.J. Holbrook. 2018. Longer and more frequent marine heatwaves over the past century. Nature communications. 9(1):1-2.

Oliver, J. S., and P. N. Slattery. 1985. Destruction and Opportunity on the Sea Floor: Effects of Gray Whale Feeding. Ecology 66(6): 1965-1975.

Oliver, J. S., P. N. Slattery, L. W. Hulberg, and J. W. Nybakken. 1980. Relationships between wave disturbance and zonation of benthic invertebrate communities along a subtidal high-energy beach. Fishery Bulletin 78(2): 437-454.

Oliver, J. S., P. N. Slattery, M. A. Silberstien, and E. F. O'Connor. 1984. Gray whale feeding on dense ampeliscid amphipod communities near Bamfield, British Columbia. Canadian Journal of Zoology 62:41-49.

Ollervides, F. J. 1997. Effects of boat traffic on the behavior of gray whales, Eschrichtius robustus, in Bahia Magdalena, Baja California Sur, Mexico: a bioacoustic assessment. Master's thesis, Texas A&M University.

Olsen, S. F., P. Grandjean, P. Weihe, and T. Videro. 1993. Frequency of seafood intake in pregnancy as a determinant of birth weight: evidence for a dose dependent relationship. Journal of Epidemiology and Community Health 47:436-440.

Olympic Coast National Marine Sanctuary (OCNMS). 2022. Vessel Transits through Olympic Coast National Marine Sanctuary and Area to be Avoided - 2021 Estimated Compliance. Office of National Marine Sanctuaries, NOAA. Available at https://nmsolympiccoast.blob.core.windows.net/olympiccoast-prod/media/docs/2021-atba-report pdf.

Olympic Peninsula Tourism Commission. 2023a. Available at https://olympicpeninsula.org/wp-content/uploads/2019/06/Clallam-Co-2018_One-Sheet-Data.pdf. Accessed March 24, 2023.

Olympic Peninsula Tourism Commission. 2023b. Things to Do Olympic Peninsula. Available at https://olympicpeninsula.org/things-to-do/. Accessed March 24, 2023.

Olympic Peninsula Tourism Commission. 2023c. Whale Trail. Available at https://olympicpeninsula.org/drive-the-loop/whales/. Accessed March 24, 2023.

Omura, H. 1984. History of gray whales in Japan. pp. 57-77. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood, editors. The Gray Whale, Eschrichtius robustus. Academic Press Inc., Orlando Florida. xxiv+600pp.

Orca Network. 2014. Recent sightings in the Salish Sea. Sighting summaries accessed April 23, 2014. Available at http://www.orcanetwork.org/Main/index.php?categories_file=Sightings.

Oregon Coast Visitors Association. 2014. What to do on the people's coast – Whale Watching. Online information accessed September 27, 2014. Available at http://visittheoregoncoast.com/whale-watching/.

Oregon Parks and Recreation Department. 2013. Whale Watching Center – Look for Whales During Watch Weeks. Accessed May 19, 2013. Available at http://www.oregonstateparks.org/index.cfm?do=thingstodo.dsp_whaleWatching.

Oregon State Parks. 2023. Oregon Whale Watch; Best Places to Watch Whales. Available at https://orwhalewatch.org/best-places/. Accessed March 24, 2023.

Organization for Economic Cooperation and Development. 2008. Background on the fisheries and aquaculture sector. Agriculture and Fisheries Policies in Mexico. Recent achievements, continuing the reform agenda. Available at http:/ldx doi.org/10 178V9789264030251-11-en

Orr, A. J., A. S. Banks, S. Mellman, H. R. Huber, R. L. DeLong, and R. F. Brown. 2004. Examination of the foraging habits of Pacific harbor seals (Phoca vitulina richardsi) to describe their use of the Umpqua River, Oregon, and their predation on salmonids. Fishery Bulletin 102:108-117.

Osterud, B., E. Elvevoll, H. Barstad, J. Brox, H. Halvorsen, K. Lia, J. P. Olsen, R. L. Olsen, C. Sissener, O. Rekdal, and E. Vognild. 1995. Effect of marine oils supplementation on coagulation and cellular activation in whole blood. Lipids 30(12):1111-1118.

Pacific Fishery Management Council (PFMC). 2013. Database of defunct hydrokinetic projects. Updated January 29, 2013. Available at http://www.pcouncil.org/habitat-and-communities/wave-tidal-and-offshore-wind-energy/.

Pacific Fishery Management Council (PFMC). 2019. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, Washington Groundfish Fishery: Groundfish Essential Fish Habitat and Life History Descriptions, Habitat Use Database Description, and Habitat Suitability Probability Information. Appendix B - Part 2. Available at https://www.pcouncil.org/documents/2019/06/groundfish-fmp-appendix-b-part-2.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC). 2021. Appendix D: Description and Identification of Essential Fish Habitat for the Coastal Pelagic Species Fishery Management Plan. Available at https://www.pcouncil.org/documents/2022/01/appendix-d-description-and-identification-of-efh-for-the-coastal-pelagic-species-fmp.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC). 2022a. Status of the Pacific Coast Coastal Pelagic Species Fishery and Recommended Acceptable Biological Catches, Stock Assessment and Fishery Evaluation 2021. Available at https://www.pcouncil.org/documents/2022/10/2021-cps-safe-september-2022.pdf/.

Pacific Fishery Management Council (PFMC). 2022b. Review of 2021 Ocean Salmon Fisheries: Stock assessment and fishery evaluation document for the Pacific Coast Salmon Fishery Management Plan.

Pacific Fishery Management Council (PFMC). 2022c. Pacific Coast Salmon Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California as Revised through Amendment 23. PFMC, Portland, OR. 84 p.

Pacific Fishery Management Council (PFMC). 2022d. Status of the U.S. West Coast Fisheries for Highly Migratory Species Through 2021: Stock Assessment and Fishery Evaluation. Agenda Item G.4, Attachment 1. Available at https://www.pcouncil.org/documents/2022/10/g-4-attachment-1-2021-hms-stock-assessment-and-fishery-evaluation-document-electronic-only.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC). 2022e. Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species: As Amended by Amendment 7. Available at https://www.pcouncil.org/documents/2022/07/fishery-management-plan-for-west-coast-fisheries-for-highly-migratory-species-through-amendment-5.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC). 2022f. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery: Appendix F. Available at https://www.pcouncil.org/documents/2022/08/pacific-coast-groundfish-fishery-management-plan.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC). 2022g. Preseason Report III Council Adopted Management Measures and Environmental Assessment Part 3 for 2022 Ocean Salmon Fishery Regulations. April 2022. Available at https://www.pcouncil.org/documents/2022/04/2022-preseason-report-iii-april-2022.pdf/. Accessed April 5, 2023.

Pacific Fishery Management Council (PFMC) and NMFS. 2006. Proposed acceptable biological catch and optimum yield specifications and management measures for the 2007-2008 Pacific Coast Groundfish Fishery and Amendment 16-4: rebuilding plans for depleted Pacific Coast Groundfish Species, final environmental impact statement, October 2006.

Pacific States Marine Fisheries Commission (PSMFC). 2023. Pacific Fisheries Information Network (PacFIN) Reports Dashboard. All Species Report: Monthly Commercial Landed Catch by Port Group: Metric-Tons (mt), Revenue, and Price-per-pound (Price/lbs). Pacific States Marine Fisheries Commission, Portland, Oregon. Available at https://reports.psmfc.org/pacfin/f?p=501:1000:33670092731308. Accessed April 5, 2023.

Paine, R. T. 1969. A note on trophic complexity and species diversity. American Naturalist 100:91–93

Paine, R. T. 1986. Benthic community-water column coupling during the 1982-1983 El Niño. Are community changes at high latitudes attributable to cause or coincidence? Limnol. Oceanogr., 31(2):351-360.

Pailthorp, B. 2022. Makah Tribe reopens and reflects after two years of strict protocols. Report for KNKX Public Radio, March 31, 2022. Available at
https://www.knkx.org/environment/2022-03-31/makah-tribe-reopens-and-reflects-after-two-years-of-strict-protocols.

Palsbøll, P. J., P. J. Clapham, D. K. Mattila, F. Larsen, R. Sears, H. R. Siegismund, J. Sigurjónsson, O. Vasquez, and P. Arctander. 1995. Distribution of mtDNA haplotypes in North Atlantic humpback whales: the influence of behavior on population structure. Marine Ecology Progress Series 116:1-10.

Palsbøll, P. J., J. Allen, M. Bérubé, P. J. Clapham, T. P. Feddersen, P. Hammond, R. R. Hudson, J. Jørgensen, S. Katona, A. H. Larsen, F. Larsen, J. Lien, D. K. Mattila, J. Sigurjónsson, R. Sears, T. Smith, R. Sponer, P. Stevick, and N. Øien. 1997. Genetic tagging of humpback whales. Nature 288: 767-769.

Palsbøll, P. J., M. Berube, M., and F. Larsen. 2007. Could genetic diversity in eastern North Pacific gray whales reflect global historic abundance? Proc. Natl. Acad. Sci. USA 104(52):E2.

Parametrix. 2007. Final Draft Comprehensive Solid Waste Management Plan Update. Prepared for Clallam County, Port Angeles, WA. January 2007.

Park, K.B. 1995. The history of whaling off Korean peninsula. Minjokmunhwa Press. 458 pp. [In Korean].

ParksWatch. 2004. Park Profile, Mexico: El Vizcaino Biosphere Reserve. Available at https://www.parkswatch.org/parkprofiles/pdf/vibr_eng.pdf. Accessed on: June 30, 2006 and March 23, 2023.

Parrish, J. K., P. Ayers, K. Litle, and J. Dolliver. 2005. Overflight monitoring in the west coast National Marine Sanctuaries. Unpublished report to NOAA National Ocean Service, National Marine Sanctuary Program. June 2005.

Patenaude, N., W. J. Richardson, M. A. Smultea, W. R. Koski, G. W. Miller, B. Wursig, and C. R. Greene, Jr. 2002. Aircraft sound and disturbance to bowhead and beluga whales during spring migration in the Alaskan Beaufort Sea. Marine Mammal Science 18(2): 309-335.

Patten, D. R. and W. F. Samaras. 1977. Unseasonable occurrences of gray whales. Southern California Academy of Science 76(3): 205-208.

Pendleton, E. A., Hammar-Klose, E. S., Thieler, E. R., and S. J. Williams. 2004. Coastal Vulnerability Assessment of Olympic National Park to Sea-Level Rise. U.S. Geological Survey Open-File Report 04-1021, Electronic Book. 2004. Available at http://woodshole.er.usgs.gov/project-pages/nps-cvi/

Peninsula Daily News. 1999. Letters, faxes, and e-mail. Opinion pages, May 21, 1999.

Pérez-Cortés Moreno, H., J. Urbán-Ramírez, F. Ollervides, and V. Sánchez. 1999. Gray whales stranded in Mexico, 1975-1999. Page 89 *in* Rugh, D. J., M. M Muto, S. E. Moore, and D. P. DeMaster. 1999. Status review of the Eastern North Pacific stock of gray whales. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-103.

Perrin, W. F. and R. L. Brownell, Jr. 2002. Minke whales. Pages 750-754 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. 2002. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Perryman, W. L. and D. W. Weller. 2012. Anomalous 2012 spring ice cover in the Bering Sea: predicted impacts on eastern North Pacific gray whales. Paper SC/64/BRG18rev presented to the IWC Scientific Committee.

Perryman, W. L., M. A. Donahue, S. B. Reilly, and P. C. Perkins. 1999. Annual calf production for the California stock of gray whales 1994-1997 [Preliminary analysis]. Report presented to the International Whaling Commission SC/49/AS13.

Perryman W.L., M.A. Donahue, P.C. Perkins, and S. B. Reilly. 2002. Gray Whale Calf Production 1994–2000: Are Observed Fluctuations Related to Changes in Seasonal Ice Cover?. Marine Mammal Science. 18(1): 121-144.

Perryman, W. L., G. M. Watters, L. K. Swartz, and R. A. Rowlett. 2004. Preliminary results from shore-based surveys of northbound gray whale calves in 2003 and 2004, with a comparison to predicted numbers based on the distribution of seasonal ice. SC/56/BRG43.

Perryman, W. L., S. B. Reilly, and R. A. Rowlett. 2011. Results of surveys of northbound gray whale calves 2001-2010 and examination of the full seventeen year series of estimates from Piedras Blancas Light Station. Paper SC/M11/AWMP3 presented to the IWC Scientific Committee.

Perryman, W.L., T. Joyce, D.W. Weller, and J.W. Durban. 2021. Environmental factors influencing Eastern North Pacific gray whale calf production 1994–2016. *Marine Mammal Science*, 37(2): 448–62. doi:10.1111/mms.12755.

Peterson, B. 2000. Singing to the Sound, Visions of Nature, Animals & Spirit. NewSage Press. Troutdale, Oregon.

Peterson, R. T. 1990. A field guide to western birds. Third edition. Houghton Mifflin Company.

Peterson, W. T. 1997. The food environment of juvenile salmonids: Year-to-year variations in zooplankton abundance over the inner-middle shelf off central Oregon: 1969-78. Pages 69-79 *in* Emmett, R. L., and M. H. Schiewe, editors. Estuarine and ocean survival of northeastern Pacific salmon: Proceedings of the workshop. NOAA Technical Memorandum NMFS-NWFSC-29.

Peterson, W. T. 1999. Hydrography and zooplankton off the central Oregon coast during the 1997-1998 El Nino event. Pages 45-50 *in* Proceedings of the 1998 Science Board Symposium on the impacts of the 1997/98 El Nino event on the North Pacific Ocean and its marginal seas. PICES Scientific Report No.10.

Peterson, W. T. and C. B. Miller. 1975. Year-to-year variations in the planktology of the Oregon upwelling zone. Fishery Bulletin 73(3):642-653.

Peterson, W. T. and C. B. Miller. 1977. Seasonal cycle of zooplankton abundance and species composition along the central Oregon coast. Fishery Bulletin 75(4):717-724.

Peterson, W. T. and F. B. Schwing. 2003. A new climate regime in northeast Pacific ecosystems. Geophysical Research Letters 30(17):1896.

Peterson, W. T. and J. E. Keister. 2003. Interannual variability in copepod community composition at a coastal station in the northern California Current: a multivariate approach. Deep Sea Research Part II: Topical Studies in Oceanography 50:2499-2517.

Pike, G. C. 1962. Migration and feeding of the gray whale (Eschrichtius gibbosus). Journal of the Fisheries Research Board of Canada 19:815-838.

Plotkin, P. T., editor. 1995. National Marine Fisheries Service and U. S. Fish and Wildlife Service Status Reviews for Sea Turtles Listed under the Endangered Species Act of 1973. National Marine Fisheries Service, Silver Spring, Maryland.

Point Reyes Bird Observatory (PRBO). 2005. The California Current Marine Bird Conservation Plan. Version 1.0. K. L. Millls, W. J. Sydeman, and P. J. Hodum, editors. April, 2005.

Polyakova, O., D. Mazur, V. Ilyashenko, and A. Lebedev. 2012. Contamination Problems of the Gray Whales. Paper IWC/64/CC10 presented to the IWC Scientific Committee.

Polyakova, O. V., O. A. Filatova, I. D. Fedutin, D. I. Litovka, B. Bukenov, V. B. Artaev, E. M. Humston-Fulmer, J. Binkley, D. S. Kosyakov, and A. T. Lebedev. 2023. Solving the mystery of the Chukotka stinky gray whales. Chemosphere: 137785.

Poole, M. M. 1984. Migration corridors of gray whales along the central California coast, 1980-1982. Pages 289-408 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Popeski, D., L. R. Ebbeling, P. B. Brown, G. Hornstra, and J. M. Gerrard. 1991. Blood pressure during pregnancy in Canadian Inuit: community differences related to diet. Canadian Medical Association Journal 145(5):445-454.

Port Angeles Police Department. 2001. Letter from the Port Angeles Chief of Police and Clallam County Sheriff to Joe Scordino, NMFS. January 9, 2001.

Porterfield, E. and R. Denn. 1999. At Sea and Ashore, Insults Fly in Furor Over the Hunt. The Seattle Post-Intelligencer May 12, 1999. Page A1.

Proctor, C. M., J. C. Garcia, D. V. Galvin, T. Joyner, G. B. Lewis, L. C. Loehr, and A. M. Massa. 1980. An ecological characterization of the Pacific Northwest coastal region. Volume 1 of 5: Conceptual Model. U.S. Fish and Wildlife Service, Biological Services Program. FWS/OBS-79/11 through 79/15. 233 pp.

Puget Sound Action Team. 2005. State of the Sound 2004. Puget Sound Action Team, Olympia, WA.

Puget Sound Partnership. 2019. State of the Sound Report. Olympia, Washington. November 2019. 79 pp. Available at www.stateofthesound.wa.gov.

Pulwarty, R. S. and K. T. Redmond. 1997. Climate and salmon restoration in the Columbia River basin: The role and usability of seasonal forecasts. Bulletin of the American Meteorological Society 78(3):381-397.

Punt, A. E., and G. P. Donovan. 2007. Developing management procedures that are robust to uncertainty: lessons from the International Whaling Commission. Int. Council Explor. Sea. 64:603-612.

Punt, A. E. and P. R. Wade. 2012. Population status of the eastern North Pacific stock of gray whales in 2009. Journal of Cetacean Research and Management, 12(1):15-28.

Punt, A. E., and J. E. Moore. 2013. Seasonal gray whales in the Pacific Northwest: An assessment of optimum sustainable population level for the Pacific Coast feeding Group. U.S. Department of Commerce. NOAA Technical Memorandum, NOAA-TM-NMFS-SWFSC-518. July 2013.

Punt, A.E., J. Scordino, J. Brandon, G. Donovan, T. Eguchi, G.H. Givens, A.R. Lang, P. Mahoney, and D.W. Weller. 2023. Preliminary Updated Gray Whale Assessment Models and Implications for the Performance of Gray Whale Strike Limit Algorithms. Unpublished report to the International Whaling Commission Scientific Committee 2023, SC/69A/IST/01.

Purdy, D. F. 1990. A summary of the physical oceanography of the Pacific northwest coast. OCS Information Report. MMS 91-0003. Camarillo, California: Minerals Management Service, Pacific Outer Continental Shelf Region, U.S. Department of the Interior. 45 pp.

Pyenson, N. D., and D. R. Lindberg. 2011. What happened to gray whales during the Pleistocene? The ecological impact of sea-level change on benthic feeding areas in the North Pacific Ocean. PLoS ONE 6(7): e21295. doi:10.1371/journal.pone.0021295.

Quan, J. 2000. Summer resident gray whales of Washington State: Policy, biological and management implications of Makah whaling. M.S. Thesis, School of Marine Affairs, University of Washington, Seattle, WA.

Quimby, G. 1970. James Swan among the Indians – the influence of a pioneer from New England on coastal Indian Art. Pacific Northwest Quarterly 61(4):212-216.

Ragen, T. J., H. P. Huntington, and G. K. Hovelsrud. 2008. Conservation of Arctic marine mammals faced with climate change. Ecological Applications 18(Supplement):S166-S174.

Ramakrishnan, U., and B. L. Taylor. 2001. Can gray whale management units be assessed using mitochondrial DNA?. Journal of Cetacean Research and Management, 3:13-18.

Ramakrishnan, U., R. LeDuc, J. Darling, B. L. Taylor, P. Gearin, M. Gosho, J. Calambokidis, R. L. Brownell, Jr., J. Hyde, and T.E. Steeves. 2001. Are the southern feeding group of eastern Pacific gray whales a maternal genetic isolate? Unpublished report presented to the International Whaling Commission SC/53/SD8.

Ramírez-García, P., J. Terrados, F. Ramos, A. Lot, D. Ocaña, and C. M. Duarte. 2002. Distribution and nutrient limitation of surfgrass, Phyllospadix scouleri and Phyllospadix torreyi, along the Pacific coast of Baja California (México). Aquatic Botany 74:121-131.

Raphael, M. G., J. Baldwin, G.A. Falxa, M. H. Huff, M. Lance, S. L. Miller, S. F. Pearson, C. J. Ralph, C. Strong, and C. Thompson. 2007. Regional population monitoring of the marbled murrelet: field and analytical methods. Gen. Tech. Rep. PNW-GTR-716. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 70 p. Available at http://www.fs.fed.us/pnw/pubs/pnw_gtr716.pdf

Raverty S., P. Duignan, D. Greig, J. Huggins, K. Burek, M. Garner, J. Calambokidis, P. Cottrel, K. Danil, D. D'Alessandro, D. Duffield, M. Flannery, F. Gulland, B. Halaska, et al. 2020. Post mortem findings of a 2019 gray whale Unusual Mortality Event in the Eastern North Pacific. International Whaling Commission. SC/68B/IST/05. Available at https://archive.iwc.int/pages/view.php?ref=17313&k=7265a465f7.

Read, A. J., P. Drinker, and S. Northridge. 2006. Bycatch of marine mammals in U.S. and global fisheries. Conservation Biology 20:163-169.

Reed, R. K., and D. Halpern. 1976. Observations of the California Undercurrent off Washington and Vancouver Island. Limnology and Oceanography 21(3):389-398.

Reese, D. C., T. W. Miller, and R. D. Brodeur. 2005. Community structure of near-surface zooplankton in the northern California Current in relation to oceanographic conditions. Deep-Sea Research II 52:29-50.

Reeves, R. R. 1977. The problem of gray whale (Eschrichtius robustus) harassment: At the breeding lagoons and during migration. U.S. Marine Mammal Commission MMC-76/06.

Reeves, R. R. 1984. Modern commercial pelagic whaling for gray whales. Pages 187-202 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Reeves, R. R. 2002. The origins and character of 'aboriginal subsistence' whaling: a global review. Mammal Review 32(2): 71-106.

Reeves, R. R., T. D. Smith, and E. A. Josephson. 2008. Observations of Western Gray Whales by Ship-based Whalers in the 19th Century. Paper SC/60/BRG7 presented to the International Whaling Commission.

Reeves, R. R., T. D. Smith, J. N. Lund, S. A. Lebo, and E.A. Josephson. 2010. Nineteenth-century ship-based catches of gray whales, Eschrichtius robustus, in the eastern North Pacific. Mar Fish Rev 72:26−65.

Reeves, R., and S. Leatherwood. 1994. Dolphins, Porpoises and Whales. IUCN, Gland, Switzerland.

Reijnders, P. J. H. and A. Aguilar. 2002. Pollution and marine mammals. Pages 948-957 *in* Perrin, W. F., B. Würsig, and J. G. M. Thewissen, editors. Encyclopedia of marine mammals. Academic Press, San Diego, CA.

Reilly, S. B. 1981. Population assessment and population dynamics of the California gray whale (Eschrichtius robustus). Ph.D. dissertation, University of Washington, Seattle, WA.

Reilly, S. B. 1984. Assessing gray whale abundance: a review. Pages 203-223 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Reilly, S. B., J. L. Bannister, P. B. Best, M. Brown, R. L. Brownell Jr., D. S. Butterworth, P. J. Clapham, J. Cooke, G. P. Donovan, J. Urbán R., and A. N. Zerbini. 2000. Eschrichtius robustus (western subpopulation). In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. Available at www.iucnredlist.org. Accessed January 31, 2013.

Reilly, S. B., J. L. Bannister, P. B. Best, M. Brown, R. L. Brownell Jr., D. S. Butterworth, P. J. Clapham, J. Cooke, G. P. Donovan, J. Urbán, and A. N. Zerbini. 2008. Eschrichtius robustus. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

Renker, A. M. 1996. Whale hunting and the Makah Tribe: A Needs Statement. Unpublished report to the International Whaling Commission 1996, IWC/48/AS1.

Renker, A. M. 2002. Whale hunting and the Makah Tribe: A Needs Statement. Unpublished report to the International Whaling Commission 2002, IWC/54/AS2.

Renker, A. M. 2007. Whale Hunting and the Makah Tribe: A Needs Statement. Report to the IWC, IWC/59/ASW9, Agenda Item 6.2. April 2007. Available at http://www.iwcoffice.org/_documents/commission/IWC59docs/59-ASW%209.pdf

Renker, A. M. 2012. Whale Hunting and the Makah Tribe: A Needs Statement. Paper IWC/64/ASW4 presented to the International Whaling Commission, May 2012, Panama City, Panama, 108 pp.

Renker, A. M. 2013. The Makah Tribe: People of the Sea and the Forest. Online essay by Ann M. Renker, Ph.D. Accessed April 26, 2013. Available at http://content.lib.washington.edu/aipnw/renker.html

Renker, A. M. 2018. Whale Hunting and the Makah Tribe: A Needs Statement. Unpublished report to the International Whaling Commission 2018, IWC67/ASW/03

Renker, A. M., and E. Gunther. 1990. Makah. Pages 422-430 in Northwest Coast, Vol. 7. Handbook of North American Indians. Smithsonian Institution, Washington D.C.

Renker, A. M., and M. P. Pascua. 1989. Makah Traditional Cultural Property Study. Report submitted to Office of Archaeology and Historic Preservation, State of Washington Department of Community Development in Fullfillment of Contract #2-88-701-28. October 1989.

Ressler, P. H., R. D. Brodeur, W. T. Peterson, S. D. Pierce, P. M. Vance, A. Røstad, and J. A. Barth. 2005. The spatial distribution of euphausiid aggregations in the Northern California Current during August 2000. Deep-Sea Research II 52:89-108.

Reuters. 2014. Mexican president signs landmark energy reform into law. Online news article date August 11, 2014. Available at http://www.reuters.com/article/2014/08/11/us-mexico-reforms-idUSKBN0GB26R20140811

Reynolds, J. E., D. L. Wetzel, and T. M. O'Hara. 2006. Human health implications of omega-3 and omega-6 fatty acids in blubber of the bowhead whale (Balaena mysticetus). Arctic 59(2):1-10.

Rice, D. W. 1965. Offshore southward migration of gray whales off southern California. Journal of Mammalogy 46:504-505.

Rice, D. W. 1974. Whales and whale research in the eastern North Pacific. Pages 170-195 *in* Schevill, W. E., editor. The Whale Problem. Harvard University Press, Cambridge, MA.

Rice, D. W. 1975. Status of the eastern Pacific (California) stock of gray whales. FAO Advisory Com. on Marine Resources Research, marine mammals symposium, ACMRR/MM/EC/14 December 1975. 9 p.

Rice, D. W. 1986. Gray whale. Pages 54-61 *in* Haley, D., editor. Marine mammals. Pacific Search Press. Seattle, WA.

Rice, D. W. and A. A. Wolman. 1971. Life history and ecology of the gray whale, Eschrichtius robustus. American Society of Mammalogists Special Publication 3.

Rice, D. W., A. A. Wolman, and H. W. Braham. 1984. The gray whale, Eschrichtius robustus. Marine Fisheries Review 46(4):7-14.

Richardson, M. C., Jr., A. G. Carey, and W. A. Colegate. 1977. Aquatic Disposal field investigations Columbia River Disposal Site, Oregon, appendix C: the Effects of Dredged Material Disposal on Benthic Assemblages. Technical Report D-77-30, Appendix C. U.S. Army Corps of Engineers, Waterways Experiment Station. Vicksburg, MS.

Richardson, W. J., B. Würsig, and C. R. Greene, Jr. 1986. Reactions of bowhead whales, Balaena mysticetus, to seismic exploration in the Canadian Beaufort Sea. Journal of the Acoustical Society of America 79: 1117–1128.

Richardson, W. J., C. R. Greene, Jr., C. I. Malme, and D. H. Thomson. 1995. Marine mammals and noise. Academic Press, San Diego, CA.

Richter, C., S. Dawson, and E. Slooten. 2006. Impacts of commercial whale watching on male sperm whales at Kaikoura, New Zealand. Marine Mammal Science 22: 46-63.

Ridolfi, B. 2013. New transfer station lifts Makahs out of the dumps. Daily Journal of Commerce article dated February 28, 2013. Available at http://www.djc.com/news/en/12050405.html?action=get&id=12050405&

Rios, L.M., C. Moore, and P. R. Jones. 2007. Persistent organic pollutants carried by synthetic polymers in the ocean environment. Marine Pollution Bulletin, 54(8), 1230, 30.

Rios, L. M., P. R. Jones, C. Moore, and U. V. Narayan. 2010. Quantitation of persistent organic pollutants adsorbed on plastic debris from the Northern Pacific Gyre's "eastern garbage patch." Journal of Environmental Monitoring, 12(12), 2226-2236.

Robles, C. D. and R. A. Desharnais. 2002. History and current developments of a paradigm of predation in rocky intertidal communities. Special Feature, Ecology 82: 1521-1536.

Rochman, C. M., M. A. Browne, B. S. Halpern, B. T. Hentschel, E. Hoh, H. K. Karapanagioti, L. M. Rios-Mendoza, H. C. Takada, S. Teh, and R. C. Thompson. 2013. Classify plastic debris as hazardous. Nature 494(7436): 169-171.

Rockwood, R. C., J. Calambokidis, and J. Jahncke. 2017. High Mortality of Blue, Humpback and Fin Whales from Modeling of Vessel Collisions on the U.S. West Coast Suggests Population Impacts and Insufficient Protection. PloS One, 13(7): e0201080. https://doi.org/10.1371/journal.pone.0183052.

Rodgers, J. A. and S. T. Schwikert. 2002. Buffer-zone distances to protect foraging and loafing waterbirds from distrubance by personal watercraft and outboard-powered boats. Conservation Biology 16(1):216-224.

Rodgers, J. A., and H. T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. Conservation Biology 9(1):89-99.

Rodriguez, S., A. R. T. Santiago, and G. Shenker. 2001. A public-access GIS-based model of potential species habitat distribution for the Santa Barbara Channel and the Channel Islands National Marine Sanctuary. Masters, Donald Bren School of Environmental Science and Management.

Rojek, N., M. Parker, H. Carter, and G. McChesney. 2007. Aircraft and vessel disturbances to Common Murres Uria aalge at breeding colonies in central California, 1997-1999. Marine Ornithology 35:61-69.

Ronconi, R. A. and C. C. St. Clair. 2002. Management options to reduce boat disturbance on foraging black guillemots (Cepphus grylle) in the Bay of Fundy. Biological Conservation 108: 265-271.

Ronzón-Contreras, F., S. Martínez-Aguilar, S. Swartz, J, J. Urbán-Ramírez. 2021. Gray whale's body condition in Laguna San Ignacio, BCS, Mexico, during 2021 breeding season. Paper SC/68c/CMP12 presented to the International Whaling Commission's Scientific Committee. 11 pp. Available at https://www.sanignaciograywhales.org/wp-content/uploads/2021/04/SC_68C_CMP_12-Condition-2021.pdf.

Rosales-Nanduca, H., J. Urbán R., S. L. Swartz, J. Robles-Mercado, L. Alonso-Lozano, and A. Gómez-Gallardo U. 2012. Gray whales at the Bahia Magdalena Lagoon Complex Mexico, During Winter 2012. Paper SC/64/BRG23 submitted to the International Whaling Commission Scientific Committee. 6 pp.

Rosenberg, E. 2007. Makah Tribe vows to punish whale killers. The Seattle Post-Intelligencer September 12, 2007. Available at http://seattlepi.nwsource.com/local/331408_makah13.html

Roughgarden, J., S. Gaines, and H. Possingham. 1988. Recruitment dynamics in complex life cycles. Science 241:1397-1560.

Rowles, T., and V. Ilyashenko. 2008. Summary of findings on the investigation of the stinky whale condition in eastern North Pacific gray whales. Submitted by the U.S. and the Russian Federation as IWC/59/CC 15, Agenda Item 4.1.1.

Royal Society. 2005. Ocean acidification due to increasing atmospheric carbon dioxide. Policy document 12/05. August05. (The Royal Society, London). Available at www.royalsoc.ac.uk

Ruelas-Inzunza, J., and F. Paez-Osuna. 2002. Distribution of Cd, Cu, Fe, Mn, Pb, and Zn in selected tissues of juvenile whales stranded in the SE Gulf of California (Mexico). Environment International 28:325-329.

Ruelas-Inzunza, J. R., M. Horvat, H. Perez-Cortes, and F. Paez-Osuna. 2003. Methylmercury and total mercury distribution in tissues of gray whales (Eschrichtius robustus) and spinner dolphins (Stenella longrirostris) stranded along the lower Gulf of California, Mexico. Ciencias Marinas 29(1):1-8.

Rugh, D. and M. Fraker. 1981. Gray Whale (Eschrichtius robustus) Sightings in Eastern Beaufort Sea. Arctic 34(2): 186-87.

Rugh, D. J., J. M. Breiwick, M. E. Dahlheim, and G. C. Boucher. 1993. A comparison of independent, concurrent sighting records from a shore-based count of gray whales. Wildlife Society Bulletin 21(4):427-37.

Rugh, D. J., M. M. Muto, S. E. Moore and D. P. DeMaster. 1999. Status review of the Eastern North Pacific stock of gray whales. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-103.

Rugh, D. J., K. E. W. Shelden, and A. Schulman-Jainger. 2001. Timing of the southbound migration of gray whales. Journal of Cetacean Research and Management, 3(1): 31-39.

Rugh, D. J., R. C. Hobbs, J. A. Lerczak, and J. M. Breiwick. 2005. Estimates of abundance of the eastern North Pacific stock of gray whales 1997-2002. Journal of Cetacean Research and Management, 7(1):1-12.

Rugh, D., J. Breiwick, M. Muto, R. Hobbs, K. Shelden, C. D'Vincent, I.M. Laursen, S. Reif, S. Maher, and S. Nilson. 2008. Report of the 2006-2007 census of the eastern North Pacific stock of gray whales. AFSC Processed Rep. 2008-03, 157 p., Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv.,7600 Sand Point Way NE, Seattle WA 98115.

RUSALCA. 2014. Russian-American Long-term Census of the Arctic (RUSALCA). Information accessed October 6, 2014. Available at http://www.arctic.noaa.gov/aro/russian-american/.

Rust, S. 2019. "A U.S. tribe wants to resume whale hunting. Should it revive this tradition?" *Los Angeles* Times, December 1, 2019. Available at https://www.latimes.com/environment/story/2019-12-01/whale-hunting-makah-tribe-tradition-washington-state.

Saez, L., D. Lawson, M. DeAngelis, E. Petras, S. Wilkin, C. Fahy. 2013. Understanding the co-occurrence of large whales and commercial fixed gear fisheries off the west coast of the United States. NOAA Technical Memorandum NOAA-TM-NMFS-SWR-044. Available at http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/noaa-tm-nmfs-swr-044_final.pdf

Salmon, T. P., and R. E. Marsh. 1991. Effectiveness and cost of minimizing bird use on agricultural evaporation ponds. Final report to California Department of Water Resources, Contract No. B-57211. University of California, Davis, CA, 118 pp.

Salvadeo, C. J., E. L. Salvador, M. O. Maravilla-chavez, S. T. Alvarez-Castaneda, M. Mercuri, and A. Ortega-Rubio. 2013. Impact of climate change on sustainable management of gray whale (Eschrichtius robustus) populations: whale-watching and conservation. Arch. Biol. Sci., Belgrade, 65(3):997-1005.

Sánchez-Pacheco, J. A. 1998. Gray whale mortality at Ojo de Liebre and Guerrero Negro lagoons, Baja California Sur, Mexico: 1984–1995. Marine Mammal Science 14(1):149– 155.

Sánchez-Pacheco, J. A., A. Vazquez-Hanckin, and R. DeSilva-Davila. 2001. Gray whales' mid-spring feeding at Bahia de los Angeles, Gulf of California, Mexico. Marine Mammal Science 17(1):186-191.

Sanford, E., J. L. Sones, M. García-Reyes, J. H. Goddard, and J. L. Largier. 2019. Widespread shifts in the coastal biota of northern California during the 2014–2016 marine heatwaves. Scientific reports, 9(1), 1-14.

Santora, J. A., W. J. Sydeman, I. D. Schroeder, B. K. Wells, and J. C. Field. 2011. Mesoscale structure and
oceanographic determinants of krill hotspots in the California Current: Implications for trophic transfer and conservation. Progress in Oceanography 91: 397-409.

Santora J. A., N. J. Mantua, I. D. Schroeder, J. C. Field, E. L. Hazen, S. J. Bograd, W. J. Sydeman, B. K. Wells, J. Calambokidis, L. Saez, D. Lawson. 2020. Habitat compression and ecosystem shifts as potential links between marine heatwave and record whale entanglements. Nature communications, 11(1):1-2.

Sapir, E. 1910-1914. "Notes on Whaling and Whaling Lore." American Philosophical Society Library, Philadelphia. Edward Sapir Papers. 497.3/B63c/W 2a.18. Reel 23, Item 2.

Sato, C. and G. J. Wiles. 2021. Periodic status review for the gray whale in Washington. Washington Department of Fish and Wildlife, Olympia, Washington. 32+ iii pp.

Scammon, C. M. 1874 [1968]. The marine mammals of the north-western coast of North America. John H. Carmany and Co., San Francisco, CA [Dover Publications, New York, NY].

Scannell, H. A., A. J. Pershing, M. A. Alexander, A. C. Thomas, and K. E. Mills. 2016. Frequency of marine heatwaves in the North Atlantic and North Pacific since 1950. Geophys. Res. Lett. 43, 2069–2076.

Scheffer, V. 1940. The sea otter on the Washington coast. Pacific Northwest Quarterly 31(Oct):370-388.

Scheffer, V. B. and J. W. Slipp. 1948. The whales and dolphins of Washington State with a key to the cetaceans of the west coast of North America. American Midland Naturalist 39:257-337.

Schlundt, C. E., J. J. Finneran, D. A. Carder, and S. H. Ridgway. 2000. Temporary shift in masked hearing thresholds of bottlenose dolphins and white whales after exposure to intense tones. Journal of the Acoustical Society of America 107:3496-3508.

Schmitten, R. A. 1994. Letter from R. Schmitten (NMFS) to J. Anderson (Northwest Indian Fisheries Commission) dated September 22, 1994.

Scholin, C. A., F. Gulland, G. J. Doucette, S. Benson, M. Busman, F. P. Chavez, J. Cordaro, R. DeLong, A. de Vogalaere, J. Harvey, M. Haulena, K. Lefebvre, T. Lipscomb, S. Loscutoff, L. J. Lowenstein, R. Martin III, P. E. Miller, W. A. McLellan, P. D. R. Moeller, C. L. Powell, T. Rowles, P. Silvagni, M. Silver, T. Spraker, V. Trainer, and F. M. Van Dolah. 2000. Mortality of sea lions along the central California coast linked to a toxic diatom bloom. Nature 403:80-84.

Schroeder, I. D., J. A. Santora, S. J. Bograd, E. L. Hazen, K. M. Sakuma, A. M. Moore, C. A. Edwards, B. K. Wells, and J. C. Field. 2019. Source Water Variability as a Driver of Rockfish Recruitment in the California Current Ecosystem: Implications for Climate Change and Fisheries Management. Canadian Journal of Fisheries and Aquatic Sciences, 76(6): 950–60. doi:10.1139/cjfas-2017-0480.

Schwarz, L. K. 2002. The impact of anthropogenic activities on the behavior of migrating eastern North Pacific gray whales (Eschrichtius robustus). Master thesis, San Diego State University, 101pp.

Schwing, F. B., M. O'Farrell, J. M. Steger, and K. Baltz. 1996. Coastal upwelling indices west coast of North America 1946-95. NOAA Technical Memorandum NMFS-SWFSC-231:1-33.

Schwing, F. B., C. S. Moore, S. Ralston, and K. M. Sakuma. 2000. Record coastal upwelling in the California Current in 1999. CalCOFI Reports 41:148-160.

Schwing, F. B., T. Murphree, L. Dewitt, and P. M. Green. 2002a. The evolution of oceanic and atmospheric anomalies in the northeast Pacific during the El Niño and La Niña events of 1995-2001. Progress in Oceanography 54:459-491.

Schwing, F. B., S. J. Bograd, C. A. Collins, G. Gaxiola-Castro, J. García, R. Goericke, J. Goméz-Valdéz, A. Huyer, K. D. Hyrenbach, P. M. Kosro, B. E. Lavaniegos, R. J. Lynn, A. W. Mantyla, M. D. Ohman, W. T. Peterson, R. L. Smith, W. J. Sydeman, E. Venrick, and P. A. Wheeler. 2002b. The state of the California Current, 2001-2002: Will the California Current System keep its cool, or is El Niño looming? CalCOFI Reports 43:31-68.

Scordino, J. 2007a. Memorandum dated November 15, 2007, from Jonathan Scordino (Makah Tribal Marine Mammal Biologist) to Donna Darm (NOAA Fisheries) re: Report on concerns raised at September 11[sic – actual date was Sept. 19], 2007 meeting on unauthorized whale hunt.

Scordino, J. 2007b. Memorandum dated September 11, 2007, from Jonathan Scordino (Makah Tribal Marine Mammal Biologist) to John Haupt (NOAA Fisheries Enforcement) re: Report on biological investigation of gray whale harpooned on September 8. 2007.

Scordino, J. and B. Mate. 2011. Bycatch and ship strikes of gray whales on US West Coast 1990-2010 and in British Columbia 1990-1995. Annex C of report of the 2011 AWMP Workshop with a focus on eastern gray whales. Workshop held March 27-April 1 in La Jolla, CA USA.

Scordino, J. J., P. J. Gearin, M. Gosho, J. Harris, Klimek, A., and J. Calambokidis. 2011a. Gray Whale Research in the Usual and Accustomed Fishing Grounds of the Makah Tribe. Paper SC/MK11AWMP5 presented to the International Whaling Commission.

Scordino, J. J., Bickham, J. Brandon, J., and A. Akmajian. 2011b. What is the PCFG? A review of available information. Paper SC/63/AWMP1 presented to the International Whaling Commission.

Scordino, J. J., A. M. Akmajian, P. J. Gearin, M. Gosho, and J. Calambokidis. 2013. Availability of Pacific Coast Feeding Group gray whales during the gray whale migratory season in the Makah Usual and Accustomed Fishing Grounds. Paper SC/65a/AWMP03 presented to the International Whaling Commission.

Scordino, J. J., M. Gosho, P. J. Gearin, A. Akmajian, J. Calambokidis, and N. Wright. 2014a. Gray Whale Use of Northwest Washington during the Feeding Season, 1984-2011. Paper SC/65b/BRG19 presented to the International Whaling Commission Scientific Committee. 28 pp.

Scordino, J. J., J. Carretta, and P. Cottrell. 2014b. Bycatch and ship strikes of gray whales in U.S. and Canadian waters, 2008-2012. Paper SC/65b/BRG21 presented to the International Whaling Commission Scientific Committee. 19 pp.

Scordino, J., D. Litovka, H. Woo Kim, J. Urbán, P. Cottrell. 2020. Ship strikes and entanglements of gray whales in the North Pacific Ocean, 1924-2018: Revised. Paper SC/68B/IST/08 presented to the International Whaling Commission.

SeaDoc Society. 2020. About the Salish Sea. Karen C. Drayer Wildlife Health Center. Available at https://www.seadocsociety.org/about-the-salish-sea.

Sea Turtle, Inc. 2005. Sea turtles. Available at http://www.seaturtleinc.com/turtles.html. Accessed November 7, 2005.

Sears, R. 2002. Blue whale. Pages 112-116 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 p.

Seattle Audubon Society. 2005. BirdWeb: Seattle Audubon's online guide to the birds of Washington State. Available at http://www.birdweb.org/birdweb/species.asp. Accessed November 7, 2005.

Seattle Post-Intelligencer. 1999. P-I readers offer opinions on hunt. Opinion pages, May 19, 1999. Accessed on May 19, 2006. Available at http://seattlepi.nwsource.com/archives.

Seattle Post Intelligencer. 2000. Protester dislocates shoulder trying to stop whale hunt. The Seattle-Post Intelligencer April 20, 2000. Available at http://seattlepi.nwsource.com.

Seattle Times. 1999. Letters to the Editor. The Seattle Times May 20, 1999. Available at http://seattlepi.nwsource.com/.

Seattle Times Staff. 1999. Many calls, messages oppose hunt. The Seattle Times May 18, 1999.

Sebens, K. P. 1987. Competition for space: effects of disturbance and indeterminate competitive success. Theoretical Population Biology 32:430-441.

Sepez, J. 2001. Political and social ecology of contemporary Makah subsistence hunting, fishing and shellfish collecting practices. Ph.D. dissertation. University of Washington, Seattle, WA.

Sepez, J. 2002. Treaty Rights and the Right to Culture: Native American Subsistence Issues in U.S. Law. Cultural Dynamics 14(2): 143-159.

Shaffer, N., R. B. Wainwright, J. P. Middaugh, and R. V. Tauxe. 1990. Botulism among Alaska natives: the role of changing food preparation and consumption practices. The Western Journal of Medicine 153(4):1-4.

Shelden, K. E. W., and J. L. Laake. 2002. Comparison of the offshore distribution of southbound migrating gray whales from aerial survey data collected off Granite Canyon, California, 1979-96. Journal of Cetacean Research and Management, 4(1):53-56.

Shelden, K. E. W., and D. J. Rugh. 2001. Gray whale calf sightings in California during southbound migrations, 1995-2001. Unpublished paper presented to the IWC Scientific Committee (SC/53/BRG4).

Shelden, K. E. W., D. J. Rugh, and S. A. Boeve. 1995. Gray whale calf sightings collected by the National Marine Mammal Laboratory during southbound migrations, 1952-95. Report presented to the International Whaling Commission SC/47/AS4.

Shelden, K.E.W., D.J. Rugh, J.L. Laake, J.M. Waite, P.J. Gearin, and T.R. Wahl. 2000. Winter observations of cetaceans off the northern Washington coast. Northwestern Naturalist 81:54-59.

Shelden, K. E. W., D. J. Rugh, and A. Schulman-Janiger. 2004. Gray whales born north of Mexico: indicator of recovery or consequence of regime shift? Ecological Applications 14(6):1789-1805.

Sherman K. and L. M. Alexander. (Ed.). 1989. Biomass Yields and Geography of Large Marine Ecosystems. Westview Press, Inc.

Sherr, E. B., B. F. Sherr, and P. A. Wheeler. 2005. Distribution of coccoid cyanobacteria and small eukaryotic phytoplankton in the upwelling ecosystem off the Oregon coast during 2001 and 2002. Deep-Sea Research II 52:317-330.

Short, K. 1992. Oceanographic methodologies, frontal zone analyses, and survey summaries. Pages ADD-1 to ADD-25 *in* Brueggeman, J. J., editor. Oregon and Washington marine mammal and seabird surveys. OCS Study MMS 91-0093. Los Angeles, California: Minerals Management Service.

Shukovsky, P. 1998a. Four protesters arrested in shoreline set-to with whalers. The Seattle Post-Intelligencer November 2, 1998. Available at http://seattlepi.nwsource.com/.

Shukovsky, P. 1998b. FBI Looks at Detentions by Makah During Protests. The Seattle Post Intelligencer. November 3, 1998. Available at http://seattlepi.nwsource.com/archives/1998/9811030003.asp

Shukovsky, P., and M. Barber. 1998. Cousteau Son Asks Makah Not to Whale. The Seattle Post Intelligencer. November 6, 1998. Available at http://seattlepi.nwsource.com/archives/1998/9811060018.asp.

Silber, G.K., D.W. Weller, R. R. Reeves, J.D. Adams, and T.J. Moore. 2021. Co-occurrence of gray whales and vessel traffic in the North Pacific Ocean. Endangered Species Research. 44, 177-201. https://doi.org/10.3354/esr01093.

Simon, J. 1998. Whaling protesters, police plot strategies – Makah hunters to face still global opposition. Published by the Seattle Times on Tuesday, May 19, 1998. Available at http://seattletimes.nwsource.com/.

Simopoulos, A. P. 1999. Essential fatty acids in health and chronic diseases. American Journal of Clinical Nutrition 70(Suppl):560S-569S.

Simopoulos, A. P. 2002. Omega-3 fatty acids in inflammation and autoimmune diseases. Journal of the American College of Nutrition 21(6):495-505.

Sirenko, B. I. and V. M. Koltun. 1992. Characteristics of benthic biocenoses of the Chukchi and Bering Seas. Pages 251-259 *in* Nagel, P. A., editor. Results of the Third U.S.-U.S.S.R. Being and Chukchi Sea expedition (BERPAC), summer 1988. U.S. Fish and Wildlife Service. Washington, D.C.

Smith, R. L., A. Huyer, P. M. Kosro, and J. A. Barth. 1999. Observations of El Niño off Oregon: July 1997 to present (October 1998). Pages *in* Freeland, H. J., W. T. Peterson, and A. Tyler, editors. Proceedings of the 1998 Science Board Symposium on the impacts of the 1997/98 El Niño event on the North Pacific Ocean and its marginal seas. North Pacific Marine Science Organization (PICES): PICES Scientific Report No. 10.

Smultea, M. A., J. R. Mobley, G. L. Fulling, and D. Fertl. 2008. An unusual reaction and other observations of sperm whales near fixed-wing aircraft. Gulf and Caribbean Research 20:75-80.

Snohomish Public Utilities District 2014. Rising Costs, Limited Funding for Project - Snohomish PUD Tidal Power Project Not to Advance. Snohomish Public Utility District No. 1 news release dated September 30, 2014. Available at https://www.snopud.com/community-environment/our-energy-future/projects/research/tidal-energy/. Accessed on March 24, 2023.

Sobel, J., N. Tucker, A. Sulka, J. McLaughlin, and S. Maslanka. 2004. Foodborne botulism in the United Sates, 1990-2000. Emerging Infectious Diseases 10(9):1606-1611.

Sorensen, E. 1999. Tradition vs. a full-blown PR problem – now come reactions to a very public death. The Seattle Times May 18, 1999. Available at http://seattletimes.nwsource.com/

Sousa-Lima, R. S. and C.W. Clark. 2009. Whale sound recording technology as a tool for assessing the effects of boat noise in a Brazilian marine park. Parkscience 26(1), Spring 2009.

Southall, B. L., R. J. Schusterman, and D. Kastak. 2003. Auditory masking in three pinnipeds: Aerial critical ratios and direct critical bandwidth measurements. J. Acoust. Soc. Am. 114: 1660-1666.

Speckman, S. G. 2004. Characterizing fish schools in relation to the marine environment and their use by seabirds in lower Cook Inlet, Alaska. Unpubl. Ph.D. thesis, University of Washington, Seattle, WA.

Speich, S. M. and T. R. Wahl. 1989. Catalog of Washington seabird colonies. U.S. Fish and Wildlife Service Biological Report 88(6), OCS Study MMS 89-0054.

Stafford, K. M., S. E. Moore, M. Spillane, and S. Wiggins. 2007. Gray whale calls recorded near Barrow, Alaska, throughout the winter of 2003-04. Arctic 60:167–172.

Stalmaster, M. K. and J. L. Kaiser 1997. Flushing responses of wintering bald eagles to military activity. Journal of Wildlife Management 61(4): 1307-1313.

State of Alaska Epidemiology. 1983. Seal Finger: An Enigma and a Challenge. Bulletin No. 17. August 5, 1983. Available at http://www.epi.hss.state.ak.us/bulletins/docs/b1983_17.html. Viewed August 29, 2013.

State of Washington. 2012. Washington State Marine Debris Response Plan. September 2012. Available at http://marinedebris.wa.gov/docs/responseplan_marinedebris_09182012.pdf

Steeves, T. E., J. D. Darling, P. E. Rosel, C. M. Schaeff and R. C. Fleischer. 2001. Preliminary analysis of mitochondrial DNA variation in a southern feeding group of eastern North Pacific gray whales. Conservation Genetics, 2:379-384.

Stelle, L. L., W. M. Megill, and M. R. Kinzel. 2008. Activity budget and diving behavior of gray whales (Eschrichtius robustus) in feeding grounds off coastal British Columbia. Mar. Mamm. Sci. 24(3):462-478.

Stevenson, M. G., A. Madson, and E. L. Maloney. 1997. The anthropology of community-based whaling in Greenland: A collection of papers submitted to the International Whaling Commission. Edmonton AB: Canadian Circumpolar Institute, University of Alberta. 277 pp.

Stevick, P. T., J. Allen, P. J. Clapham, S. K. Katona, F. Larsen, J. Lien, D. K. Mattila, P. J. Palsbøll, T. Sears, J. Sigurjønsson, T. D. Smith, G. Vikingsson, N. Øien, and P. S. Hammond. 2006. Population spatial structuring on the feeding grounds in North Atlantic humpback whales (Megaptera novaeangliae). Journal of Zoology 270 (2):244-255.

Stewart, J.D. and D.W. Weller. 2020. A Bayesian approach for estimating eastern North Pacific gray whale calf production. Paper SC/68b/IST/07 presented to the International Whaling Commission Scientific Committee. Available at https://archive.iwc.int/pages.

Stewart, J.D. and D.W. Weller. 2021a. Abundance of Eastern North Pacific Gray Whales 2019/2020. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-SWFSC-639. 5 pp.

Stewart, J D. and D.W. Weller. 2021b. Estimates of eastern North Pacific gray whale calf production 1994-2021. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-653. 8 pp.

Stewart, J.D., T.W. Joyce, J.W. Durban, J. Calambokidis, D. Fauquier, H. Fearnbach, J.M. Grebmeier, M. Lynn, M. Manizza, W.L. Perryman, M.T. Tinker, and D. Weller. 2023. Boom-bust cycles in gray whales associated with dynamic and changing Arctic conditions. Science, 382, 207-211. DOI:10.1126/science.adi1847.

Stimmelmayr, R. and F. M. D. Gulland. 2020. Gray Whale (Eschrichtius Robustus) Health and Disease: Review and Future Directions. Frontiers in Marine Science, 7.doi:10.3389/fmars.2020.588820.

Stinson, D. W., J. W. Watson, and K. R. McAllister. 2001. Washington state status report of the bald eagle. Washington Department of Fish and Wildlife, Olympia, WA.

Stoett, P. J. 1997. Whale Ethics: A Normative Discussion. Pages 103-130 *in* Stoett, P. J., editor. The International Politics of Whaling. University of British Columbia Press, Vancouver, BC.

Stoker, S. W. 1981. Benthic invertebrate macrofauna of the eastern Bering/Chukchi continental shelf. In: The eastern Bering Sea shelf: oceanography and resources. Vol. 2. Edited by D. W. Hood and J. A. Calder. University of Washington Press, Seattle. Pp. 1069–1090.

Stoker, S. W. 2001. Distribution and carrying capacity of gray whale food resources in the northern Bering and Chukchi Seas. Journal of Cetacean Research and Management, Special Issue 3.

Stoker, S. W., and I. I. Krupnik. 1993. Subsistence whaling. Pp. 579-629 *in* J. J. Burns, J. J. Montague, and C. J. Cowles, editors. The bowhead whale. Spec. Publ. No. 2, Soc. Mar. Mammalogy.

Stonham, J., compiler. 2005. A concise dictionary of the Nuuchahnulth language of Vancouver Island. Native American Studies, Vol. 17. The Edwin Mellen Press, Lewiston, NY.

Strickland, R. M. 1983. The fertile fjord--Plankton in Puget Sound. University of Washington, Seattle, Washington.

Strickland, R., and D.J. Chasan. 1989. Coastal Washington: A Synthesis of Information. Washington Sea Grant Program, University of Washington, Seattle, WA.

Strub, P. T. and C. James. 1988. Atmospheric conditions during the spring and fall transitions in the coastal ocean off western United States. Journal of Geophysical Research 93(C12):15561-15584.

Strub, P. T. and H. P. Batchelder. 2002. U.S. GLOBEC northeast Pacific program: Overview. Oceanography 15(2):30-35.

Sullivan, F. A. and L. G. Torres. 2018. Assessment of Vessel Disturbance to Gray Whales to Inform Sustainable Ecotourism. The Journal of Wildlife Management, 82(5): 896–905. doi:10.1002/jwmg.21462.

Sullivan, P. 2006. Signs of Hope, and Concern, in the Baja Peninsula. Whales Alive! Vol. XV No. 1, Jan. 2006. Available at http://csiwhalesalive.org/csi06101.html

Sullivan, R. 2000. A whale hunt: how a Native American village did what no one thought it could. Simon & Schuster, New York, NY.

Sumich, J. L. 1984. Gray Whales along the Oregon Coast in Summer, 1977-1980. The Murrelet, 65:33-40.

Sund, P. N. and J. L. O'Connor. 1974. Aerial observations of gray whales during 1973. Marine Fisheries Review 36(4):51-52.

Sunde, S., P. Shukovsky, and M. Barber. 1999. Makah harpoon misses first whale effort marks return to roots protesters intervene; 2 arrested. The Seattle Post-Intelligencer May 11, 1999. Available at http://seattlepi.nwsource.com/

Sutor, M. M., T. J. Cowles, W. T. Peterson, and S. D. Pierce. 2005. Acoustic observations of finescale zooplankton distributions in the Oregon upwelling region. Deep-Sea Research II 52(1-2):109-121.

Suzuki, T. 1993. The nutritional characteristics of minke whale meat. From : "ISANA", No. 8. Available at http://luna.pos.to/whale/jwa_v8_suzu.html. Accessed on February 13, 2007.

Swan, J. G. 1870. [1972] Indians of Cape Flattery, at the entrance to the Strait of Fuca, Washington Territory. Smithsonian Contributions to Knowledge, Washington, D.C.

Swan, J. G. 1883. Report of investigations at Neah Bay, Wash., respecting the habits of fur seals of that vicinity, and to arrange for procuring specimens of skeletons of Cetacea. Bulletin of the U.S. Fish Commission 3:201. Washington Govt. Printing Office.

Swan, J. G. 1887. The furs seal industry of Cape Flattery. Pages 393-400 *in* Goode, G. B., editor. The Fisheries and Fishery Industries of the United States. Sect. V, Vol. 2. Washington Govt. Printing Office.

Swartz, S. L., 1986. Gray whale migratory, social and breeding behavior. Pages 207-229 in Report of the International Whaling Commission, Special Issue 8. Cambridge, United Kingdom.

Swartz, S. L., and W. C. Cummings. 1978. Gray whales in Laguna San Ignacio, Baja California, Mexico. Report from the San Diego Natural History Museum for the U.S. Marine Mammal Commission, Washington, D.C. MMC-77/04. NTIS publication PB-276319.

Swartz, S. L., and M. L. Jones. 1978. The evaluation of human activities on gray whales (Eschrichtius robustus) in Laguna San Ignacio, Baja California, Mexico. U.S. Marine Mammal Commission, Washington, D.C. MMC-78/03. NTIS publication PB-289737.

Swartz, S. L., and M. L. Jones. 1981. Demographic studies and habitat assessment of gray whales (Eschrichtius robustus) in Laguna San Ignacio, Baja California, Sur, Mexico. U.S. Marine Mammal Commission, Washington D.C. MMC-81/05. NTIS publication PB82-123373.

Swartz, S. L., and M. L. Jones. 1983. Gray whale (Eschrichtius robustus) calf production and mortality in the winter range. Unpublished report of the International Whaling Commission 33: 503–507.

Swartz, S. L., M. L. Jones, J. Goodyear, D. E. Withrow, and R. V. Miller. 1987. Radio-telemetric studies of gray whale migration along the California coast: a preliminary comparison of day and night migration rates. Report to the International Whaling Commission 37:295-9.

Swartz, S. L., B. L. Taylor, and D. J. Rugh. 2000. Review of studies on stock identity in the gray whale (Eschrichtius robustus). Unpublished report presented to the International Whaling Commission (SC/52/SD3).

Swartz, S. L., B. L. Taylor, and D. J. Rugh. 2006. Gray whale Eschrichtius robustus population and stock identity. Mammal Review 36(1):66-84.

Swartz, S. L., J. Urbán R., A. Gomez Gallardo U., S. Gonzalez. C., B. Troyo V., and M. Najero C. 2007. Report of the 2007 gray whale studies at Laguna San Ignacio B.C.S. Mexico. July 2007. Available at http://www.sanignacioecosystem.org/content/1/2/11.html.

Swartz, S. L., J. Urbán R., A. Gómez-Gallardo U., S. Martínez, T. Olavarrieta G., D. C. Lopez A., L. Rodríguez J., M. Rodríguez, and L. Rojas-Bracho. 2012. Numbers of gray whales (Eschrichtius robustus) utilizing Laguna San Ignacio, Baja California Sur, Mexico. During the winter breeding seasons: 2007-2012. Paper SC/64/BRG14 presented to the International Whaling Commission Scientific Committee. 8 pp.

Swartz, S. L., J. Urbán R., U., S. Martínez A., L. Viloria Gomora, and A. Gómez-Gallardo. 2020. 2020 Research Report for Laguna San Ignacio & Bahia Magdalena, Baja California Sur, Mexico. Available at www.sanignaciograywhales.org.

Swartzman, G,. and B. Hickey. 2003. Evidence for a regime shift after the 1997-1998 El Niño, based on 1995, 1998, and 2001 acoustic surveys in the Pacific Eastern Boundary Current. Estuaries 26(4B):1032-1043.

Swartzman, G., B. Hickey, P. M. Kosro, and C. Wilson. 2005. Poleward and equatorward currents in the Pacific Eastern Boundary Current in summer 1995 and 1998 and their relationship to the distribution of euphausiids. Deep-Sea Research II 52(1-2):73-88.

Switzer, P. V. 1993. Site fidelity in predictable and unpredictable habitats. Evolutionary Ecology 7:533-555.

Sydeman W. J. and M. L. Elliott. 2008. Developing the California Current Integrated Ecosystem Assessment, Module I: Select Time-Series of Ecosystem State.

Szymanski, M. D., D. E. Bain, K. Kiehl, S. Pennington, S. Wong, and K. R. Henry. 1999. Killer whale (Orcinus orca) hearing: Auditory brainstem response and behavioral audiograms. Journal of the Acoustical Society of America 106:1134-1141.

Takeshita, R., L. Sullivan, C. Smith, T. Collier, A. Hall, T. Brosnan, T. Rowles, and L. Schwacke. 2017. The Deepwater Horizon Oil Spill Marine Mammal Injury Assessment. Endangered Species Research, 33: 95–106. doi:10.3354/esr00808.

Tanasichuk, R. W. 1999. Interannual variation in the availability and utilization of euphausiids as prey for Pacific hake (Meriuccius productus) along the south-west coast of Vancouver Island. Fisheries and Oceanography 8:150–156.

Ternullo, R. and N. Black. 2002. Predator behavior of transient killer whales in Monterey Bay, CA. Presented at the Fourth International Orca Symposium, Chize, France, September 2002.

The Edmonton Journal. 1998. Environmentalists leave hunt zone: Standoff over natives' whale hunting ends. Nov. 26, 1998. Available at http://www.elements.nb.ca/theme/marine/articles/article20.htm.

Thomas, A. and P. T. Strub. 2001. Cross-shelf phytoplankton pigment variability in the California Current. Continental Shelf Research 21(11-12):1157-1190.

Thomas, A. C., P. T. Strub, and P. Brickley. 2003. Anomalous satellite-measured chlorophyll concentrations in the northern California Current in 2001-2002. Geophysical Research Letters 30(15):8022.

Thompson, C. W. 1999. Distribution and abundance of marbled murrelets and common murres on the outer coast of Washington, May 15, 1999. Washington Department of Fish and Wildlife, Olympia, WA.

Thomson, R. E., B. M. Hickey, and P. H. LeBlond. 1989. The Vancouver Island Coastal Current: Fisheries barrier and conduit. Pages 265-296 *in* Beamish, R. J., and G. A. McFarlane, editors. Effects of ocean variability on recruitment and an evaluation of parameters used in stock assessment models. Special Publication of the Canadian Journal of Fisheries and Aquatic Sciences 108.

Thornton, R. 1994. Repatriation of human remains and artifacts. Pages 542-545 *in* Davis, M., editor. Native America in the Twentieth Century: an encyclopedia. Garland Publishers, Seattle, WA.

Tilbury, K. L., J. E. Stein, C. A. Krone, R. L. Brownell, Jr., S. A. Blokhin, J. L. Bolton, and D. W. Ernest. 2002. Chemical contaminants in juvenile gray whales (Eschrichtius robustus) from a subsistence harvest in Arctic feeding grounds. Chemosphere 47:554-564.

Tilt, W.C. 1985. Whales and Whalewatching in North America with Special Emphasis on the Issue of Harassment. Yale School of Forestry and Environmental Studies, New Haven, CT.

Tizon, A. 1998a. Makah Tribe moves to limit festival — bracing for protesters, it will charge admission. The Seattle Times August 28, 1998. Available at http://seattletimes.nwsource.com/

Tizon, A. 1998b. Sub part of plan to foil Makah hunt — group hopes it will scare off whales. The Seattle Times September 14, 1998. Available at http://seattletimes.nwsource.com/

Tizon, A., J. Broom, and R. Anderson. 2008. Overtures Of Payoff Don't Lure Whalers — Tribe Dismisses Rumors Of Deal With McCaw. Seattle Times online news article posted November 13, 2008 at http://community.seattletimes.nwsource.com/archive/?date=19981113&slug=2783289

Tofino-bc.com. 2012. Tofino whale watching: Tofino whale tours. Available at http://www.tofino-bc.com/whale-watching.php. Accessed on July 13, 2012.

Tolimieri, N. and P. S. Levin. 2006. Assemblage structure of eastern Pacific groundfishes on the U.S. continental slope in relation to physical and environmental variables. Transactions of the American Fisheries Society 135:317-332.

Torres, L.G., C. N. Bird, F. Rodríguez-González, F. Christiansen, L. Bejder, L. Lemos, J. Urbán R, S. Swartz, A. Willoughby, J. Hewitt, and K. C. Bierlich. 2022. Range-wide comparison of gray whale body condition reveals contrasting sub-population health characteristics and vulnerability to environmental change. Frontiers in Marine Science 9:511 https://doi.org/10.3389/fmars.2022.867258

Torres, L. G., S. M. Brander, J. I. Parker, E. M. Bloom, R. Norman, J. E. Van Brocklin, K. S. Lasdin, and L. Hildebrand. 2023. Zoop to poop: assessment of microparticle loads in gray whale zooplankton prey and fecal matter reveal high daily consumption rates. *Frontiers in Marine Science*, Volume 10.

Trainer, V. L. 2002. Marine mammals as sentinels of environmental biotoxins. Pages 351-363 *in* Massaro, E. J., editor. Neurotoxicology handbook. Humana Press Inc., Totowa, NJ.

Trainer, V. L. and D. G. Baden. 1999. High affinity binding of red neurotoxins to marine mammal brain. Aquatic Toxicology 46:139-148.

Trekaroo. 2014. Northern California Whale Watching Adventures from Sea. Online information accessed September 27, 2014. Available at http://www.trekaroo.com/list/northern-california-whale-watching-adventures-from-sea

Tremel, D. P., J. A. Thomas, K. T. Ramirez, G. S. Dye, W. A. Bachman, A. N. Orban, and K. K. Grimm. 1998. Underwater hearing sensitivity of a Pacific white-sided dolphin, Lagenorhynchus obliquidens. Aquatic Mammals 24(2):63-69.

Trenberth, K. E. 1997. The definition of El Niño. Bulletin of the American Meteorological Society 78(12):2771-2777.

Trimper, P. G., N. M. Standen, L. M. Lye, D. Lemon, T. E. Chubbs, and G. W. Humphries. 1998. Effects of low-level jet aircraft noise on the behaviour of nesting osprey. J. Appl. Ecology 35:122-130.

Trope, J. F. 1994. American Indian Religious Freedom Act. Pages 39-40 *in* Davis, M., editor. Native America in the Twentieth Century: an encyclopedia. Garland Publishers, Seattle, WA.

Truelove, J., and F. Iverson. 1994. Serum domoic acid clearance and clinical observations in the cynomolgus monkey and Sprague-Dawley rat following a single IV dose. Bulletin of Environmental Contamination and Toxicology 52(4):479-486.

Trust for Public Land. 2021. The economic benefits of conserved lands, trails, and parks on the North Olympic Peninsula. January 2021 report. Available at https://www.tpl.org/wp-content/uploads/2021/01/NOP-Economic-Benefits-Report.pdf.

Tryland, M., T. Nesbakken, L. Robertson, D. Grahek-Ogden, and B. T. Lunestad. 2014. Human pathogens in marine mammal meat–a northern perspective. Zoonoses and public health, *61*(6), pp.377-394. https://doi.org/10.1111/zph.12080.

Tucker, B., R. Rose-Redwood. 2015. Decolonizing the map? Toponymic politics and the rescaling of the Salish Sea. Canadian Association of Geographers, 59(2): 194–206.

Tully, J. P. 1942. Surface non-tidal currents in the approaches to Juan de Fuca strait. Journal of Fisheries Research Board of Canada 5(4):398-409.

Tweedie, A. M. 2002. Drawing back culture: the Makah struggle for repatriation. University of Washington Press, Seattle, WA.

Tyack, P. L. and C. W. Clark. 1998. Quick-look report: Playback of low-frequency sound to gray whales migrating past the central California coast. Woods Hole Oceanographic Institution, Woods Hole, MA.

Tyack, P. L. 1999. Responses of baleen whales to controlled exposures of low-frequency sounds from naval sonar (A). Journal of the Acoustical Society of America 106:2280-2280.

Tyack, P. L. 2000. Functional aspects of cetacean communication. Pp. 270-307 in Cetacean Societies: Field Studies of Dolphins and Whales. University of Chicago Press.

Tyack, P. 2009. Acoustic playback experiments to study behavioral responses of free-ranging marine animals to anthropogenic sound. Marine Ecology Progress Series 395:187-200.

Tynan, C. T., D. G. Ainley, J. A. Barth, T. J. Cowles, S. D. Pierce, and L. B. Spear. 2005. Cetacean distributions relative to ocean processes in the northern California Current System. Deep Sea Research Part II: Topical Studies in Oceanography 52:145-167.

Tyurneva, O. Y., Y. M. Yakovlev, V. V. Vertyankin, and N. I. Selin. 2010. The peculiarities of foraging migrations of the Korean-Okhotsk gray whale (Eschrichtius robustus) population in Russian waters of the Far Eastern seas. Rus. Jour. of Marine Biol. 36(2):117-124.

Tyurneva, O.Y., Y. M. Yakovlev, and V.V. Vertyankin. 2012. 2012 photo identification study of western gray whales (Eschrichtius robusts) offshore northeast Sakhalin Island and southeast Kamchatka Peninsula, Russia. Paper SC/65a/BRG08 submitted to IWC.

U.S. Army Corps of Engineers. 2014. BP Cherry Point Dock Draft Environmental Impact Statement. U.S. Army Corps of Engineers, Seattle District. May 2014. Available at http://www.nws.usace.army.mil/Portals/27/docs/regulatory/NewsUpdates/BPDock2014/BP%20Cherry%20Point%20Dock%20Draft%20EIS2.pdf.

U.S. Census Bureau. 2012a. 2006-2010 American Community Survey 5-year estimates. Table DP03, Selected Economic Characteristics. Available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table. Accessed June 6, 2012.

U.S. Census Bureau. 2012b. Census 2010 Population Finder. Demographic profile for Clallam County. Available at http://www.census.gov/popfinder/. Accessed June 6, 2012.

U.S. Census Bureau. 2012c. Census 2010 demographic profile data. Table DP-1, Profile of General population and Housing Characteristics, 2010. Available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1&prodType=table. Accessed June 6, 2012.

U.S. Census Bureau. 2020. 2020 Decennial Census Redistricting Data (Public Law 94-171). Table P1, Race for Forks, Washington. Available at: https://data.census.gov/table?g=160XX00US5324810&y=2020&tid=DECENNIALPL2020.P1. Accessed April 4, 2023.

U.S. Census Bureau. 2021a. 2020 Census Redistricting Data (Public Law 94-171). Table P1, Race for Clallam County, Washington. Available at https://data.census.gov/table?q=Clallam+County,+Washington&g=0500000US53009&tid=DECENNIALPL2020.P1. Accessed April 4, 2023.

U.S. Census Bureau. 2021b. QuickFacts: Clallam County, Washington. Available at https://www.census.gov/quickfacts/fact/table/clallamcountywashington,WA/POP010210#qf-headnote-b. Accessed April 4, 2023.

U.S. Census Bureau. 2021c. My Tribal Area: 2017-2021 American Community Survey 5-year estimatesfor Makah Indian Reservation, Washington. Available at https://www.census.gov/tribal/?st=53&aianihh=2085. Accessed April 4, 2023.

U.S. Census Bureau. 2021d. 2017-2021 American Community Survey 5-Year Estimates Subjects Table: Table S0101, Age and Sex for Clallam County, Washington. Available at https://data.census.gov/table?q=Clallam+County,+Washington&g=0500000US53009&tid=ACSST5Y2021.S0101. Accessed April 4, 2023.

U.S. Census Bureau. 2021e. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1002, Households and Families for Clallam County, Washington. Available at https://data.census.gov/table?q=Clallam+County,+Washington&g=0500000US53009&tid=ACSST5Y2021.S1101. Accessed April 4, 2023.

U.S. Census Bureau. 2021f. 2017-2021 American Community Survey 5-Year Estimates Data Profiles: Table DP05, ACS Demographic and Housing Estimates for Neah Bay CDP, Washington. Available at https://data.census.gov/table?q=Neah+Bay+CDP,+Washington&tid=ACSDP5Y2021.DP05. Accessed April 4, 2023.

U.S. Census Bureau. 2021g. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for Clallam County, Washington. Available at https://data.census.gov/table?q=Clallam+County,+Washington+income&g=050XX00US53009&tid=ACSST5Y2021.S1903.. Accessed April 4, 2023.

U.S. Census Bureau. 2021h. 2017-2021 American Community Survey 5-Year Estimates Subject Table: Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for Clallam County, Washington. Available at https://data.census.gov/table?q=Clallam+County,+Washington+income&g=0500000US53009&tid=ACSST5Y2021.S1903. Accessed April 4, 2023.

U.S. Census Bureau. 2021i. 2021 American Community Survey 1-year Estimates Subject Table: Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for Washington State. Available at https://data.census.gov/table?q=Median+household+income+Washington&tid=ACSST1Y2021.S1903. Accessed April 4, 2023.

U.S. Census Bureau. 2021j. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1902, Mean Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for Clallam County. Available at https://data.census.gov/table?q=clallam+county+per+capita+income&tid=ACSST1Y2021.S1902. Accessed April 4, 2023.

U.S. Census Bureau. 2021k. 2021 ACS 1-year Estimates Subject Tables: Table S1902, Mean Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for Washington State. Available at https://data.census.gov/table?q=Per+capita+income+Washington&tid=ACSST1Y2021.S1902. Accessed April 4, 2023.

U.S. Census Bureau. 2021l. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1701, Poverty Status in the Past 12 Months for Clallam County, Washington. Available at: https://data.census.gov/table?q=Clallam+County,+Washington+poverty&g=0500000US53009&tid=ACSST5Y2021.S1701. Accessed April, 7, 2023.

U.S. Census Bureau. 2021m. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the Makah Indian Reservation, Washington. Available at: https://data.census.gov/table?q=Makah+Indian+Reservation,+WA+income&tid=ACSST5Y2021.S1903. Accessed April 7, 2023.

U.S. Census Bureau. 2021n. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1902, Mean Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the Makah Indian Reservation, Washington. Available at: https://data.census.gov/table?q=Makah+Indian+Reservation,+WA+income&tid=ACSST5Y2021.S1902. Accessed April 7, 2023.

U.S. Census Bureau. 2021o. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the Quileute Reservation, Washington. Available at: https://data.census.gov/table?q=quilete+Reservation,+WA+income&tid=ACSST5Y2021.S1903. Accessed April 7, 2023.

U.S. Census Bureau. 2021p. 2017-2021 American Community Survey 5-Year Estimates Subject Tables Table S1902, Mean Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the Quileute Reservation. Available at:

https://data.census.gov/table?q=quilete+Reservation,+WA+income&tid=ACSST5Y2021.S1902. Accessed April 7, 2023.

U.S. Census Bureau. 2021q. 2017-2021 American Community Survey 5-Year Estimates Subject Tables:Table S1903, Median Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the Lower Elwha Reservation and Off-Reservation Trust Land, Washington. Available at: https://data.census.gov/table?q=Lower+Elwha+Reservation+and+Off-Reservation+Trust+Land,+WA+income&tid=ACSST5Y2021.S1903. Accessed April 7, 2023.

U.S. Census Bureau. 2021r. 2017-2021 American Community Survey 5-Year Estimates Subject Tables:Table S1902, Mean Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars)for the Lower Elwha Reservation and Off-Reservation Trust Land, Washington. Available at: https://data.census.gov/table?q=Lower+Elwha+Reservation+and+Off-Reservation+Trust+Land,+WA+income&tid=ACSST5Y2021.S1903. Accessed April 7, 2023.

U.S. Census Bureau. 2021s. 2017-2021 American Community Survey 5-Year Estimates Subject Tables: Table S1702 Poverty Status in the Past 12 Months of Families for Clallam County, Washington. Available at: https://data.census.gov/table?q=Clallam+County,+Washington+poverty&g=0500000US53009&tid=ACSST5Y2021.S1702. Accessed April 7, 2023.

U.S. Census Bureau. 2021t. 2021 ACS 1-year Estimates Subject Tables: Table S1903, Median Incomein the Past 12 Months (in 2021 Inflation-Adjusted Dollars) for the United States. Available at https://data.census.gov/table?q=median+household+income&tid=ACSST1Y2021.S1903. Accessed April 4, 2023.

U.S. Census Bureau. 2023a. My Tribal Area: 2017-2021 American Community Survey 5-year Estimates Subject Tables. Data Tables for Makah Indian Reservation, Washington. Available at https://www.census.gov/tribal/?aianihh=2085. Accessed March 22, 2023.

U.S. Census Bureau. 2023b. Census QuickFacts, Clallam County, Washington. Available at https://www.census.gov/quickfacts/fact/table/clallamcountywashington,WA/PST045222,PST045221. Accessed March 22, 2023.

U.S. Department of Agriculture. 2011. USDA national nutrient database for standard reference. Modified December 7, 2011. Available at http://ndb.nal.usda.gov/. Accessed July 18, 2012.

U.S. Department of Agriculture. 2013. Olympic National Forest climate information. Online information accessed September 6, 2013. Available at http://www.fs.usda.gov/detail/olympic/about-forest/?cid=fsbdev3_049559.

U.S. Department of Energy. 2014. North American LNG import/export terminals. U.S. Department of Energy Office of Energy Projects. September 22, 2014. Available at http://www.ferc.gov/industries/gas/indus-act/lng.asp.

U.S. Department of Energy. 2022. Available at https://www.energy.gov/sites/default/files/2022-03/FERC%2C%20N.%20American%20LNG%20export%20terminals_0.pdf.

U.S. Department of the Interior. 2010. Secretary Salazar Announces Comprehensive Strategy for Offshore Oil and Gas Development and Exploration. News release dated March 31, 2010. Available at http://www.doi.gov/news/pressreleases/2010_03_31_release.cfm?render.

U.S. Energy Information Administration. 2014. Report for Mexico, updated April 24, 2014. Available at http://www.eia.gov/countries/cab.cfm?fips=mx.

U.S. House of Representatives. 1999. Fifty caliber armor piercing military ammunition in the United States civilian market. Minority staff report, Committee on Government Reform, U.S. House of Representatives. Revised June 18, 1999.

U.S. Indo-Pacific Command. 2021. Canada, Mexico, U.S. Ships Conduct Combined Operations. News Release, May 17, 2021. Available at https://www.pacom.mil/Media/News/News-Article-View/Article/2620182/canada-mexico-us-ships-conduct-combined-operations/#:~:text=SAN%20DIEGO%20%2D%2D%20Ships%20from,among%20the%20nations'%20sea%20services.

U.S. Maritime Administration. 2023. Trade statistics: U.S. waterborne foreign trade by U.S. Custom Districts. U.S. Department of Transportation, Maritime Administration, Washington, DC. Available at https://www.maritime.dot.gov/data-reports/data-statistics/data-statistics. Accessed March 23, 2023.

U.S. Navy. 2010. Northwest Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement. Northwest Training Complex. Final EIS/OEIS September 2010. Available at http://nwtteis.com.

U.S. Navy. 2011. Gulf of Alaska Navy Training Activities Supplemental Draft Environmental Impact Statement/Overseas Environmental Impact Statement. March 2011. Available at http://goaeis.com/.

U.S. Navy. 2013. Hawaii-Southern California Training and testing EIS/OEIS. U.S. Department of the Navy final EIS/OEIS August 2013. Available at http://hstteis.com/.

U.S. Navy. 2014a. Northwest Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement. Northwest Training Complex. January 2014 draft. Available at http://nwtteis.com/.

U.S. Navy. 2014b. Gulf of Alaska Navy Training Activities Supplemental Draft Environmental Impact Statement/Overseas Environmental Impact Statement. August 2014. Available at http://goaeis.com/.

U.S. Navy. 2014c. Arctic Roadmap: 2014-2030. Navy Task Force Climate Change. February 2014.

U.S. Navy. 2019. Strategic outlook for the Arctic. January 2019. Available at https://media.defense.gov/2020/May/18/2002302034/-1/1/1/NAVY_STRATEGIC_OUTLOOK_ARCTIC_JAN2019.PDF.

U.S. Navy. 2020. Northwest Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement. Northwest Training Complex. Final Supplemental EIS/OEIS. Available at https://nwtteis.com/Documents/2020-Northwest-Training-and-Testing-Final-Supplemental-EIS-OEIS/Final-Supplemental-EIS-OEIS.

U.S. Navy. 2022. Gulf of Alaska Navy Training Activities Final Supplemental Environmental Impact Statement/Overseas Environmental Impact Statement. September2014. Available at https://goaeis.com/Documents/2022-Gulf-of-Alaska-Final-Supplemental-EIS-OEIS-Documents#9064203-2022-final-supplemental-eisoeis.

Udovydchenkov, I.A., T.F. Duda, S.C. Doney, and I.D. Lima. 2010. Modeling deep ocean shipping noise in varying acidity conditions. J. Acoust. Soc. Am., 128 EL130.

Uecker, M. 2014. Clallam County Comprehensive Solid Waste Management Plan Update 2014. Prepared for Clallam County, 223 East 4th Street, Port Angeles, WA 98362.

United Nations Educational, Scientific and Cultural Organization (UNESCO). 1976. Olympic Peninsula designation as a Biosphere Reserve. Available at http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/.

United Nations Educational, Scientific and Cultural Organization (UNESCO). 1981. Olympic National Park designation as a World Heritage Site. Available at http//whc.enesco.org. Accessed March 8, 2006.

United Nations. 1999. Report of the Mission to the Whale Sanctuary of El Vizcaino, Mexico, 23-28 August 1999. Available at http://whc.unesco.org/archive/99-208-inf6.pdf

United Nations. 2007. General assembly adopts declaration on rights of indigenous peoples. Press release GA/10612. Available at http://www.un.org/News/Press/docs/2007/ga10612.doc.htm.

United States Army. 1991. Browning Machine Gun Caliber .50 HB, M2. Field Manual 23-65. Headquarters, Department of the Army. Available at http://www.adtdl.army.mil/

United States Bureau of Reclamation. 2006. Fact sheet: Makah Community Water Source Project Feasibility Study, Makah Indian Reservation, Washington. April 2006. Available at http://www.usbr.gov/pn/programs/lcao_misc/makah/index.html.

United States Coast Guard (U.S. Coast Guard). 1998. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Port Angeles to District 13 Pacific Command Center Seattle, Wednesday, Nov. 11, 1998, 6:30 PM.

United States Coast Guard (U.S. Coast Guard). 1999a. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Neah Bay to District 13 Pacific Command Center, Tuesday, May 11, 1999, 4:34 AM.

United States Coast Guard (U.S. Coast Guard). 1999b. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Neah Bay to District 13 Pacific Command Center, Tuesday, May 18, 1999, 4:03 AM.

United States Coast Guard (U.S. Coast Guard). 1999c. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Neah Bay to District 13 Pacific Command Center, Wednesday, May 19, 1999, 8:23 PM.

United States Coast Guard (U.S. Coast Guard). 1999d. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Neah Bay to District 13 Pacific Command Center, Sunday, May 23, 1999, 2:14 AM.

United States Coast Guard (U.S. Coast Guard). 2000. Field Intelligence Report. Coast Guard Messaging System (CGMS) message from District 13 Command Center Port Angeles to District 13 Pacific Command Center, Friday, April 21, 2000, 5:27 AM.

United States Coast Guard (U.S. Coast Guard). 2010. Polluting Incidents In and Around U.S. Waters. A Spill/Release Compendium: 1969-2008. August 2010 report by United States Coast Guard, Office of Investigations & Compliance Analysis (CG-545), 2100 Second Street, S.W. Washington, D.C. 20593-0001.

United States Coast Guard (U.S. Coast Guard). 2012. Fact Sheet: USCG Station Neah Bay. Available at http://www.uscg.mil/d13/staneahbay/staNeahBay.asp. Accessed May 31, 2012.

United States Coast Guard News (U.S. Coast Guard News). 2011. Coast guard monitoring disabled container ship near Vancouver Island, B.C. News article posted on October 27, 2011 and accessed September 13, 2013. Available at http://coastguardnews.com/coast-guard-monitoring-disabled-container-ship-near-vancouver-island-b-c/2011/10/27/.

United States Congress. 1996. Congress of the United States, House of Representatives Press Release: Congressional Panel Approves Metcalf Resolution Opposing Gray Whale Hunt, June 26, 1996. Available at http://www.highnorth.no/Library/Hunts/Makah/re-op-gr.htm. Accessed March 28, 2007.

United States Fish and Wildlife Service (USFWS). 1985. Washington Islands National Wildlife Refuges - Annual Report 1985. Ilwaco, WA.

United States Fish and Wildlife Service (USFWS). 1997. Recovery plan for the marbled murrelet (Washington, Oregon, and California populations). Region 1. U.S. Fish and Wildlife Service, Portland, OR.

United States Fish and Wildlife Service (USFWS). 2003. Endangered Species Act – Section 7 consultation, biological opinion for the State Route 104 Hood Canal Bridge retrofit and east half replacement project. Consultation conducted by the Western Washington Fish Office.

United States Fish and Wildlife Service (USFWS). 2004. Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout (Salvelinus confluentus). May 2004. Available at http://www.fws.gov/pacific/bulltrout/jcs/vol_I.html.

United States Fish and Wildlife Service (USFWS). 2005a. Brown pelican, Pelecanus occidentalis. Available at http://ecos.fws.gov/docs/life_histories/B02L.html. Accessed on November 7, 2005.

United States Fish and Wildlife Service (USFWS). 2005b. Flattery Rocks National Wildlife Refuge. Available at http://www.fws.gov/pacific/refuges/field/wa_Flatteryrocks.htm. Accessed on November 7, 2005.

United States Fish and Wildlife Service (USFWS). 2007. Washington Islands National Wildlife Refuges - Flattery Rocks, Quillayute Needles, and Copalis National Wildlife Refuges Comprehensive Conservation Plan and Environmental Assessment. U.S. Fish and Wildlife Service, June 2007. Available at https://ecos.fws.gov/ServCat/DownloadFile/165813. Accessed March 31, 2023.

United States Fish and Wildlife Service (USFWS). 2018. Sea Otter (Enhydra lutris kenyoni) Washington Stock. Lacey, Washington, July 2018. Available at https://www.fws.gov/sites/default/files/documents/northern-sea-otter-washington-stock-assessment-report-july-2018.pdf.

United States Fish and Wildlife Service (USFWS). 2019. Marbled Murrelet (Brachyramphus marmoratus) 5-Year Status Review. Lacey, Washington, May 2019. Available at https://www.seattle.gov/light/skagit/relicensing/cs/groups/secure/@scl.skagit.team/documents/document/cm9k/ntcx/~edisp/prod571175.pdf.

United States Fish and Wildlife Service (USFWS). 2020. Short-tailed Albatross (Phoebastria albatrus) 5-Year Review: Status and Evaluation. Anchorage Fish and Wildlife Conservation Office, Anchorage, Alaska, June 2020. Available at https://ecos.fws.gov/docs/tess/species_nonpublish/3003.pdf.

United States Fish and Wildlife Service (USFWS). 2023a. Makah Indian Tribe Waiver Under the Marine Mammal Protection Act. Letter from Brad Thompso, USFWS, to Trevor Spradlin, NMFS. March 15, 2023.

United States Fish and Wildlife Service (USFWS). 2023b. Flattery Rocks National Wildlife Refuge. Available at https://www.fws.gov/refuge/flattery-rocks. Accessed April 6, 2023.

United States. 1996. Request of the United States for an Annual Catch of Five Gray Whales by the Makah Indian Tribe for Aboriginal and Subsistence Use: response by United States to issues raised during the meeting of the [IWC] Aboriginal Subsistence Whaling Subcommittee. IWC/48/28 (unpublished report).

Urbán-Ramírez, J. 2000. Environmental impact study San Ignacio saltworks project. Report to International Whaling Commission SC/52/ForInfo23.

Urbán-Ramírez, J., L. Rojas-Bracho, H. Pérez-Cortés, A Gómez-Gallardo, S.L. Swartz, S. Ludwig, and R. L. Brownell, Jr. 2003. A review of gray whales on their wintering grounds in Mexican waters. Journal of Cetacean Research and Management, 5(3): 281-295.

Urbán-Ramírez, J. and S. Swartz. 2007. An ecosystem approach for scientific monitoring and assessment of the Laguna San Ignacio Wetlands Complex. August 2007. Available at http://www.sanignacioecosystem.org/content/1/2/11.html.

Urbán-Ramírez, J., S. Swartz., and C. Presenti. 2007. Gray whales and the ecosystem scientific monitoring program for Laguna San Ignacio Wetlands Complex: 2007 accomplishments and 2008 work plan. June 2007. Available at http://www.sanignacioecosystem.org/content/1/2/11.html.

Urbán-Ramírez, J., A. Gómez-Gallardo U., L. Rojas-Bracho, and S. L. Swartz. 2010. Historical changes of gray whales abundance in San Ignacio and Ojo de Liebre breeding lagoons, Mexico. Paper SC/62/BRG36 submitted to the International Whaling Commission Scientific Committee. 11 pp.

Urbán-Ramírez, J., D. Weller, O. Tyurneva, S. Swartz, A. Bradford, Y. Yakovlev, O. Sychenko, H. Rosales N., A. S. Martínez, A. Burdin, and A. Gómez-Gallardo U. 2012. Report on the photographic comparison of the western and Mexican gray whale catalogues. Paper SC/64/BRG13 presented to the International Whaling Commission Scientific Committee. Available from http://www.iwcoffice.org/.

Urbán-Ramírez, J., D. Weller, O. Tyurneva, S. Swartz, A. Bradford, Y. Yakovlev, O. Sychenko, H. N. Rosales., S. A. Martínez, A. Burdin, and A. U. Gómez-Gallardo. 2013. Report on the Photographic Comparison of the Sakhalin Island and Kamchatka Peninsula with the Mexican Gray Whale Catalogues. International Whaling Commission Scientific Paper SC/65/BRG04. Available from https://archive.iwc.int/.

Urbán-Ramírez, J., S.L. Swartz, S. Martínez-Aguilar, L. Viloria-Gómora, and A. Gomez-Gallardo. 2018. 2018 Gray whale abundance in Laguna San Ignacio and Bahia Magdalena, Mexico. International Whaling Commission Scientific Paper SC/67B/CMP/09. Available from https://archive.iwc.int/.

Urbán-Ramírez, J., Weller D., Martínez A. S., Tyurneva O., Bradford A., Burdin A., Lang A., Swartz S., Sychenko O., Viloria-Gómora L., and Yakovlev Y. 2019. New information on the gray whale migratory movements between the western and eastern North Pacific. IWC Scientific Committee doc. SC/68a/CMP/11. portal.iwc.int/e/sc68a/documents.

Urbán-Ramírez, J., S. Martínez-Aguilar, L. Viloria-Gómora, S.L. Swartz. 2022. San Ignacio and Bahía Magdalena lagoon complex, B.C.S., México for 2022 breeding season. Paper SC/68d/CMP12 presented to the International Whaling Commission's Scientific Committee. 15 pp. Available at https://archive.iwc.int/pages/view.php?ref=19477&search=%21last1000&offset=0&order_by=field74&sort=ASC&archive=0&k=&.

Urick, R. J. 1983. Principles of Underwater Sound, 3rd Edition. Peninsula Publishing, Los Altos, CA.

Valiela, I. 1995. Marine ecological processes. 2d ed. Springer-Verlag, New York, NY.

Van Dolah, F. M. 2005. Effects of Harmful Algal Blooms. Pages 85-99 *in* Reynolds, J. E. III, J. E. Perrin, R. R. Reeves, S. Montgomery, and T. J. Ragan, editors. Marine Mammal Research, Conservation Beyond Crisis. Johns Hopkins University Press, Baltimore, MD.

Vancouver Sun. 2012. Did offshore war games kill endangered West Coast orca? Article by Douglas Quan dated April 10, 2012. Accessed January 16, 2015. Available at http://www.vancouversun.com/story_print.html?id=6436437.

Vancouver Sun. 2014. Investigation clears Canadian navy exercises in Washington state killer whale death. Article by the Canadian Press dated February 26, 2014. Accessed January 16, 2015. Available at http://www.vancouversun.com/technology/Investigation+clears+Canadian+navy+exercises+Washington+state+killer+whale+death/9554216/story.html.

Vancouver Whale Watch. 2014. Vancouver Whale Watch Sight Unseen Guarantee. Accessed April 23, 2014. Available at http://www.vancouverwhalewatch.com/guarantee.html.

Van Deren, M., J. Mojica, J. Martin, C. Armistead, C. Koefod. 2019. The Whales in Our Waters: The Economic Benefits of Whale Watching in San Juan County. Earth Economics. Tacoma, WA.

VanWaerebeek, K. 2002. Pacific White-Sided Dolphin and Dusky Dolphin - Lagenorhynchus obliquidens and L. obscurus. Pages 859-861 *in* Perrin, W. F., B. Würsig, and J. G. M. Thewissen, editors. Encyclopedia of marine mammals. Academic Press, San Diego, CA.

Varanasi, U., J.E. Stein, K.L. Tilbury, J.P. Meador, C.A. Sloan, R.C. Clark, and S.L. Chan. 1994. Chemical contaminants in gray whales (Eschrichtius robustus) stranded along the west coast of North America. The Science of the Total Environment 145:29-53.

Vaughan, T.A. (Ed.). 1978. Mammology, Second Edition. Saunders College Publishing, Philadelphia, PA.

Veirs, S. and V. Veirs. 2006. Vessel noise measurements underwater in the Haro Strait, WA J. Acoust. Soc. Am. 120:3382.

Verbrugge, L. A. and J. P. Middaugh. 2004. Use of traditional foods in a healthy diet in Alaska : risks in perspective. Second edition: Volume 1. Polychlorinated Biphenyls (PCBs) and Related Compounds. Bulletin of the Alaska Division of Public Health, Section of Epidemiology dated October 25, 2004. Available at http://www.epi.hss.state.ak.us/bulletins/docs/rr2004_08.pdf.

Vertyankin, V.V., Nikulin, V.S., Bednykh, A.M. and Kononov, A.P. 2004. Sightings of grey whale (Eschrichtius robustus) near southeastern Kamchatka. pp.126-28. Marine mammals of the Holarctic: collection of scientific papers, 3rd International Conference, Koktebel, Crimea, Ukraine, 11-17 October 2004.

Vetter, E. W. and P. K. Dayton. 1998. Macrofaunal Communities within and adjacent to a Detritus-Rich Submarine Canyon System. Deep-Sea Research II 45: 25-54.

Vetter, E. W. and P. K. Dayton. 1999. Organic enrichment by macrophyte detritus, and abundance patterns of megafaunal populations in submarine canyons. Marine Ecology Progress Series 186:137-148.

Victoria Times Colonist. 1998. Makah Whale Hunt Protestors Could Find Themselves in Jail. October 13, 1998. Available at http://www.elements.nb.ca/theme/marine/articles/article5.htm.

Villegas-Amtmann, S., L. K. Schwarz, J. L. Sumich, and D. P. Costa. 2015. A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales." *Ecosphere* 6, no. 10: 1-19.

Villegas-Amtmann, S., L. K. Schwarz, G. Gailey, O. Sychenko, and D. P. Costa. 2017. East or west: the energetic cost of being a gray whale and the consequence of losing energy to disturbance. *Endangered Species Research* 34: 167-183.

Visit California. 2023. Top Places for Whale Watching in California. Available at https://www.visitcalifornia.com/experience/top-places-whale-watching-california/?gclid=Cj0KCQjwlPWgBhDHARIsAH2xdNfF7qubs5PlbQcqTL7KakaP8t9twa6jkTZV0ffG7zJsKPyYALQvdY8aAvTDEALw_wcB. Accessed March 24, 2023.

Vladimirov, V. A., S. P. Starodymov, and M. S. Kornienko. 2012. Distribution and abundance of western gray whales and their prey off northeast Sakhalin Island, Russia, 2011 (with retrospective comparisons). Paper SC/64/BRG19 presented to the IWC SC. 20 pp.

Vleming, J. 2022. Clallam county profile. Washington State Employment Security Department. Online report updated May 2022. Available at https://www.esd.wa.gov/labormarketinfo/county-profiles/clallam.

Wade, P. R. 1994. Estimates of population parameters for the eastern Pacific gray whale, Eschrichtius robustus, using a Bayesian method. Report to the International Whaling Commission SC/46/AS16.

Wade, P. R. 1998. Calculating limits to the allowable human-caused mortality of cetaceans and pinnipeds. Marine Mammal Science 14(1):1-37.

Wade, P. R. 2002. A Bayesian stock assessment of the eastern Pacific gray whale using abundance and harvest data from 1967-1996. Journal of Cetacean Research and Management, 4:85-98.

Wade, P. R. 2017. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas revision of estimates in SC/66b/IA21. IWC Scientific Committee Report SC/A17/NP/11. Available at https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=6798&ext=pdf&k=1d01436544. Accessed April 6, 2023.

Wade, P. R. 2021. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas. International Whaling Commission. SC/68c/IA/03. 32 pp.

Wade, P. R. and R. Angliss. 1997. Guidelines for assessing marine mammal stocks: report of the GAMMS workshop April 3-5, 1996, Seattle, Washington. U.S. Department of Commerce, NOAA Technical Memorandum MNFS-OPR-12.

Wade, P. R. and W. Perryman. 2002. An assessment of the eastern gray whale population in 2002. Unpublished paper presented to the International Whaling Commission May 2002. SC/54/BRG7.

Wade, P. R., V. N. Burkanov, M. E. Dahlheim, N. A. Friday, L. W. Fritz, T. R. Loughlin, S. A. Mizroch, M. M. Muto, D. W. Rice, L. G. Barrett-Lennard, N. A. Black, A. M. Burdin, J. Calambokidis, S. Cerchio, J. K. B. Ford, J. K. Jacobsen, C. O. Matkin, D. R. Matkin, A. V. Mehta, R. J. Small, J. M. Straley, S. M. McCluskey, and G. R. VanBlaricom. 2007. Killer whales and marine mammal trends in the North Pacific—a re-examination of evidence for sequential megafauna collapse and the prey-switching hypothesis. Mar. Mammal Sci. 23(4):766–802.

Wade, P. R., A. DeRobertis, K. R. Hough, R. Booth, A. Kennedy, R. G. DeLuc, L. Munger, J. Napp, K. E. W. Shelden, S. Rankin, O. Vasquez, and C. Wilson. 2011. Rare detections of North Pacific right whales in the Gulf of Alaska, with observations of their potential prey. Endangered Species Research, 13:99-109. doi: 10.3354/esr00324.

Wade, P. R., T. J. Quinn II, J. Barlow, C. S. Baker, A. M. Burdin, J. Calambokidis, P. J. Clapham, E. A. Falcone, J. K. B. Ford, C. M. Gabriele, D. K. Matilla, L. Rojas-Bracho, J. M. Straley, B. Taylor, J. Urbán R., D. Weller, B. H. Witteveen, and M. Yamaguchi. 2016. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas. IWC Scientific Committee Report SC/66b/IA/21. Available at https://archive.iwc.int/pages/download.php?direct=1&noattach=true&ref=6042&ext=pdf&k=. Accessed April 6, 2023.

Walker, W., S. Fitzgerald, and P.W. Collins. 2015. Stomach contents of seven Short-tailed Albatross (Phoebastria albatrus) in the Eastern North Pacific and Bering Sea. Marine Ornithology 43:169–172.

Wang, M. and J. E. Overland. 2009. A sea ice free summer Arctic within 30 years? Geophys. Res. Lett., 36, L07502, doi:10.1029/2009GL037820.

Wang, M. and J. E. Overland. 2012. A sea ice free summer Arctic within 30 years: An update from CMIP5 models. Geophys. Res. Lett., 39, L18501, doi:10.1029/2012GL052868, 2012.

Wang, P. 1984. Distribution of the gray whale (Eschrichtius gibbosus) off the coast of China. Acta Ther. Sinica 4(1):21-6. [In Chinese with English summary].

Waples, R. S., T. Antao, and G. Luikart. 2014. Effects of Overlapping Generations on Linkage Disequilibrium Estimates of Effective Population Size. Genetics 197(2): 769–780. https://doi.org/10.1534/genetics.114.164822.

Ward, D. H., R. A. Stehn, W. P. Erickson, and D. V. Dirksen. 1999. Response of fall-staging brant and Canada geese to aircraft overflights in Southwestern Alaska. Journal of Wildlife Management 63(10): 373-381.

Wartzok, D. and D. R. Ketten. 1999. Marine mammal sensory systems. Pages 117-175 *in* Reynolds, J. E. III, and S. A. Rommel, editors. Biology of Marine Mammals. Smithsonian Institution Press, Washington, D.C.

Wartzok, D., W. A. Watkins, B. Wursig, and C. I. Malme. 1989. Movements and behaviors of bowhead whales in response to repeated exposures to noises associated with industrial activities in the Beaufort Sea. Unpub. report. Available at Amoco Production Company, 1670 Broadway, Denver, CO 80202. 228 p.

Washington Department of Fish and Wildlife (WDFW). 2004. Scientists investigate marine toxin plaguing razor clam fishery. Fish and Wildlife Science, February 2004. Available at http://wdfw.wa.gov/science/articles/razor_clams/index.html

Washington Department of Fish and Wildlife (WDFW). 2006a. Shellfish Regulations Recreational Shellfish Harvest Marine Area 4 - Neah Bay. Agency Website last updated June 22, 2006. Available at http://wdfw.wa.gov/fish/shelfish/crabreg/area04.shtml

Washington Department of Fish and Wildlife (WDFW). 2006b. Director's Report to the Fish and Wildlife Commission, "A Sound Stewardship of Fish and Wildlife," August 5-6, 2006.

Washington Department of Fish and Wildlife (WDFW). 2011. Summary of Washington Pacific halibut fisheries management in 2011. Available at http://wdfw.wa.gov/publications/01347/wdfw01347.pdf. Accessed June 11, 2012.

Washington Department of Fish and Wildlife (WDFW). 2012a. Threatened and Endangered Wildlife in Washington: 2011 Annual Report. Endangered Species Section, Wildlife Program. Washington Department of Fish and Wildlife, Olympia. 180 pp.

Washington Department of Fish and Wildlife (WDFW). 2012b. Value of commercial fishing landings by species, 2005-2011. Data summarized by Marjorie Morningstar and transmitted via e-mail by Carol Turcotte, Public Disclosure Officer, June 26, 2012.

Washington Department of Fish and Wildlife (WDFW). 2013. Commercial catch database information available from Greg Konkel (WDFW), PACFIN liaison, 206-498-4455.

Washington Department of Fish and Wildlife (WDFW). 2015. Shellfish Regulations and Map of Shellfish Beaches in Washington. Available at http://wdfw.wa.gov/fishing/shellfish/beaches/230150/. Accessed February 25, 2015.

Washington Department of Fish and Wildlife (WDFW). 2023a. Fishing and Shellfishing: Fishing Regulations, Recreational bottomfish and halibut. Available at https://wdfw.wa.gov/fishing/regulations/halibut. Accessed April 5, 2023.

Washington Department of Fish and Wildlife (WDFW). 2023b. Fishing and Shellfishing: Fishing Regulations, North coast halibut and bottomfish season and regulations. Available at https://wdfw.wa.gov/fishing/regulations/halibut/north-coast. Accessed April 5, 2023.

Washington Department of Fish and Wildlife (WDFW). 2023c. Estimates of Vessel Traffic Associated with Recreational Fishing, 2012-2022. Data summarized by Erica Weyland and transmitted via e-mail by Kyle Van de Graaf, Washington Ocean Sampling Program, March 24, 2023.

Washington Department of Fish and Wildlife (WDFW). 2023ddddd. Estimates of Vessel Traffic Associated with Commercial Fishing, 2012-2022. Data summarized by Heidi Rutherford and transmitted via e-mail by Christina Iverson, Fish Program, April 5, 2023.

Washington Department of Licensing. 2012. Adjustment report: Vessel fees. Vehicle/vessel fee collection and vehicle counts program. Available at http://www.dol.wa.gov/about/vehvesselreports.html. Accessed June 26, 2012.

Washington Department of Licensing. 2023. Statistics At-A-Glance: Calendar Year 2022. Available at https://www.dol.wa.gov/about/docs/2022-CY-stats-at-a-glance.pdf. Accessed April 6, 2023.

Washington Department of Transportation. 2005. Transportation, Information, and Planning Support (TRIPS) system data for recorder number R073 for the years 1998, 1999, and 2000. Transmitted via e-mail by Jim Hawkins, October 26, 2005.

Washington Department of Transportation. 2012. 2012 Annual Traffic Report. Available at http://www.wsdot.wa.gov/mapsdata/travel/annualtrafficreport.htm.

Washington Department of Transportation Traffic Count Database System (TCDS). 2023. Available at https://wsdot.public.ms2soft.com/tcds/tsearch.asp?loc=Wsdot&mod=TCDS. Accessed March 10, 2023 and April 10, 2023.

Washington State Department of Health. 2005. Recreational Shellfish Beach Closures Due to Biotoxins or Pollution. Available at http://ww4.doh.wa.gov/scripts/esrimap.dll?name=BIOVIEW&Left=587799&Bottom=337200&Right=1337201&Top=1360000&Co=Select+a+County&Beach=Select+a+Beach&Step=1&click.x=50&click.y=117. Accessed October 26 and December 1, 2005.

Washington State Department of Health. 2008. Sanitary Survey of Neah Bay. April 2008. Washington State Department of Health, Office of Shellfish and Water Protection.

Washington State Department of Health. 2012a. Annual Growing Area Review (Neah Bay). Washington State Department of Health, Office of Shellfish and Water Protection.

Washington State Department of Health. 2012b. Human Health Evaluation of Contaminants in Upper Columbia River Fish. Washington State Department of Health, DOH 334-317. August 2012.

Washington State Department of Health. 2021a. Makah Bay: Annual Shellfish Growing Area Review. Washington State Department of Health. December 2021. Available at https://doh.wa.gov/sites/default/files/legacy/Documents/4400/makah.pdf.

Washington State Department of Health. 2021b. Neah Bay: Annual Shellfish Growing Area Review. Washington State Department of Health. December 2021. Available at https://doh.wa.gov/sites/default/files/legacy/Documents/4400/neah.pdf.

Washington State Department of Health. 2022. Commercial and Recreational Shellfish Growing Areas. Washington State Department of Health, Office of Environmental Health and Safety. January 2022. Available at https://doh.wa.gov/sites/default/files/legacy/Documents/4400//ai-map.pdf.

Washington State Employment Security Department. 2023a. Clallam County Labor area summaries page; Nonfarm industry employment data tables. Available at https://esd.wa.gov/labormarketinfo/labor-area-summaries. Accessed March 21, 2023.

Washington State Employment Security Department. 2023b. Labor market report library; County data tables. Available at https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Regional-reports/County-Data-Tables/All%20County%20Data%20Tables%20Links%20.xlsx. Accessed March 21, 2023

Washington State Parks. 2004. Hoko River State Park initial public access development planning final report, July 29, 2004. Olympia, WA.

Washington State Patrol. 2023. Traffic Citations and Collisions on Specified State Routes and Mileposts. January 1, 2018 to December 31, 2022. Records request dated March 1, 2023.

Washington State Senate. 1999. Fiscal Matters. Engrossed Substitute Senate Bill 5180. State of Washington 56th Legislature, 1999 Regular Session. Available at http://apps.leg.wa.gov/billinfo/.

Waterman, T. T. 1920. The whaling equipment of the Makah Indians. University of Washington Publications in Anthropology 1(2). Seattle, WA.

Watkins, W. A., and W. E. Schevill. 1977. Sperm whale codas. Journal of the Acoustical Society of America 26:1485-1490.

Watkins, W. A., and D. Wartzok. 1985. Sensory biophysics of marine mammals. Marine Mammal Science 1(3):219–260.

Watkins, W. A. 1986. Whale reactions to human activities in Cape Cod waters. Marine Mammal Science 2:251-262.

Watson, J. W. 1993. Responses of Nesting Bald Eagles to Helicopter Surveys. Wildl. Soc. Bull. 21(2):171-178.

Watson, P. 2002. Makah aren't the target. The Seattle Times April 13, 2002. Available at http://seattletimes.nwsource.com/.

Webb, R. L. 1988. On the northwest coast: commercial whaling in the Pacific Northwest 1790-1967. University of British Columbia Press, Vancouver, BC.

Weiss, K. R. 2007. A giant of the sea finds slimmer pickings. Los Angeles Times, July 6, 2007. Available at http://www.heraldnet.com/article/20070707/NEWS02/707070344.

Weitkamp, L. A., R. C. Wissman, C. A. Simenstad, K. I. Fresh, and J. G. Odell. 1992. Gray whale foraging on ghost shrimp in littoral sand flats of Puget Sound, USA. Canadian Journal of Zoology 70:2275-2280.

Welch, C. 2000. Familiar lines drawn in whaling fight. The Seattle Times April 23, 2000. Available at http://seattletimes.nwsource.com/.

Welch, C. 2001. Bitter words ring out at whaling hearing. The Seattle Times February 2, 2001. Available at http://seattletimes.nwsource.com/.

Welch, C., and K. Morris. 2000. Protesters are back as whale hunt nears. The Seattle Times April 12, 2000. Available at http://seattletimes.nwsource.com/.

Weller, D. W. 2008. Report of the large whale tagging workshop. Final contract report to the U.S. Marine Mammal Commission and International Union for Conservation of Nature. 32 pp.

Weller, D. W. and R.L. Brownell Jr. 2012. A re-evaluation of gray whale records in the western North Pacific. Paper SC/64/BRG10 presented to the International Whaling Commission Scientific Committee. Available at http://www.iwcoffice.org/.

Weller, D. W. and W. L. Perryman. 2019. Eastern North Pacific gray whale calf production estimates 1994-2018. *Paper SC/68a/CMP17 presented to International Whaling Commission Scientific Committee*.

Weller, D. W., A.M. Burdin, A. L. Bradford, and B. Würsig. 2001. Gray Whales off Sakhalin Island, Russia: June – September 2000. A joint U.S.-Russia Scientific Investigation. Final Contract Report Sakhalin Marine Mammal Monitoring and Research Program. Sakhalin Energy Investment Company.

Weller, D. W., Y. V. Ivashchenko, G. A. Tsidulko, A. M. Burdin, and R. L. Brownell, Jr. 2002. Influence of seismic surveys on western gray whales off Sakhalin Island, Russia in 2001. Paper SC/54/BRG14 presented to the International Whaling Commission Scientific Committee (unpublished).

Weller, D. W., A. M. Burdin, A. L. Bradford, Y. I. Ivashchenko, G. A. Tsidulko, A. R. Lang, and R. L. Brownell. 2005. Status of western gray whales off northeastern Sakhalin Island, Russia, in 2004. Paper SC/57/ BRG1 presented to the International. Whaling Commission Scientific Committee (unpublished).

Weller, D. W., G. A. Tsidulko, Y. V. Ivashchenko, A. M. Burdin, and R. L. Brownell, Jr. 2006a. A reevaluation of the influence of 2001 seismic surveys on western gray whales off Sakhalin Island, Russia. Paper SC/58/E5 presented to the International Whaling Commission Scientific Committee.

Weller, D.W., S.H. Rickards, A.L. Bradford, A.M. Burdin, and R.L. Brownell, Jr. 2006b. The influence of 1997 seismic surveys on the behavior of western gray whales off Sakhalin Island, Russia. Paper SC/58/E4 presented to the International Whaling Commission Scientific Committee.

Weller D.W, Bradford AL, H. Kato, T. Bando, S. Ohtani, A. M. Burdin, R. L. Brownell Jr. 2008. Photographic match of a west-ern gray whale between Sakhalin Island, Russia, andHonshu, Japan: first link between feeding ground and migratory corridor. Journal of Cetacean Research and Management, 10: 89−9.

Weller, D.W., A.L. Bradford, A.R. Lang, A.M. Burdin, and R.L. Brownell, Jr. 2009. Birth-intervals and sex composition of western gray whales summering off Sakhalin Island, Russia. Paper SC/61/BRG9 presented to the IWC Scientific Committee.

Weller, D. W., A. Klimek, A. L. Bradford, J. Calambokidis, A. R. Lang, B. Gisborne, A. M. Burdin, W. Szaniszlo, and R. L. Brownell Jr. 2011. Movements of western gray whales from the Okhotsk Sea to the eastern North Pacific. Paper SC/63/BRG6 presented to the IWC Scientific Committee.

Weller, D. W., A. Klimek, A.L. Bradford, J. Calambokidis, A.R. Lang, B. Gisborne, A.M. Burdin, W. Szaniszlo, J. Urbán R., A.G.G. Unzeta, S. Swartz, and R. L. Brownell Jr. 2012. Movements of gray whales between the western and eastern North Pacific. Endangered Species Research, 18(3), 193-199.

Weller, D. W., S. Bettridge, R. L. Brownell Jr., J. L. Laake, J. E. Moore, P. E. Rosel, B. L. Taylor, P. R. Wade. 2013. Report of the National Marine Fisheries Service gray whale stock identification workshop. March 2013. NOAA Technical memorandum NOAA-TM-NMFS-SWFSC-507.

Weller, D.W., N. Takanawa, H. Ohizumi, N. Funahashi, O. A. Sychenko, A. M. Burdin, A. R. Lang and R. L. Brownell Jr. 2016. Gray whale migration in the western North Pacific: further support for a Russia-Japan connection. Paper SC/66b/BRG16 presented to the IWC Scientific Committee, June 2016. Western Gray Whale Advisory Panel; WGWAP 2018.

Weller, D. W., A. L. Bradford, A. R. Lang, A. M. Burdin, and R. L. Brownell Jr. 2018. Prevalence of killer whale tooth rake marks on gray whales off Sakhalin Island, Russia. Aquatic Mammals 44(6): 643-652.

Weller, D. W., R. Anderson, B. Easley-Appleyard, G. Ferrara, A. R. Lang, J. Moore, P. E. Rosel, B. Taylor, and N. C. Young. 2023. Distinct population segment analysis of western North Pacific gray whales (Eschrichtius robustus) under the Endangered Species Act. U.S. Department of

Commerce, NOAA Technical Memorandum NMFS-SWFSC-679. https://doi.org/10.25923/7ggf-9817.

Wells, B. K., I. D. Schroeder, S. J. Bograd, E. L. Hazen, M. G. Jacox, A.W. Leising, N. J. Mantua, J. A. Santora, J. L. Fisher, W. T. Peterson, E. P. Bjorkstedt, R. R. Robertson, F.P. Chavez, R. Goericke, R. M. Kudela, C. R. Anderson, B. E. Lavaniegos, J. Gomez-Valdes, R. D. Brodeur,...and B.J. Thayre. 2017. State of the California Current 2016-17: Still Anything but "Normal" in the North. California Cooperative Oceanic Fisheries Investigations Reports, 58. 55 pp.

Wenz, G. M. 1962. Acoustic ambient noise in the ocean: Spectra and sources. Journal of the Acoustical Society of America 34:1936-1956.

Werner, F. E., and B. M. Hickey. 1983. The role of a longshore pressure gradient in Pacific Northwest coastal dynamics. Journal of Physical Oceanography 13:395-410.

Wessen, G. 1981. Shell Middens as Cultural Deposits: a case study from Ozette. Ph.D. dissertation, Washington State University, Pullman, WA.

Western Regional Climate Center. 2013. Precipitation data for Tatoosh Island. Available at http://www.wrcc.dri.edu/lcoopmap/.Accessed September 10, 2013.

Western Regional Climate Center. 2023. Local Climate data for Quillayute Airport, Washington. Available at https://wrcc.dri.edu/cgi-bin/clilcd.pl?wa94240. Accessed Mach 9, 2023.

Western Washington University. 2020. Description of the Salish Sea. Salish Sea Institute. Available at https://wp.wwu.edu/salishsea/description-of-the-salish-sea/.

Westneat, S. 1997. Makah whaling OK'd – international commission meeting in Monaco says Washington tribe can kill four gray whales, but lawsuits and protests could delay hunt. The Seattle Times, October 23, 1997. Available at http://seattletimes.nwsource.com/.

Westport-Grayland Chamber of Commerce. 2023. Westport-Grayland Chamber of Commerce and Visitors Center: Fishing Information and Watchable Wildlife. Available at: https://westportgrayland-chamber.org/fishing_info.php. Accessed March 24, 2023.

Wheeler, P. A. and J. Hill. 1999. Biological effects of the 1997-1998 El Niño event off Oregon: Nutrient and chlorophyll distributions. In: Freeland, H.J., W.T. Peterson, and A. Tyler, editors. Proceedings of the 1998 Science Board Symposium on the impacts of the 1997/98 El Niño event on the North Pacific Ocean and its marginal seas. North Pacific Marine Science Organization (PICES): PICES Scientific Report No. 10.

White, R. D. 2008. West Coast ports have sinking feeling. Los Angeles Times, March 5, 2008. Available at http://www.latimes.com/business/la-fi-ports5mar05,1,5119895.story.

Wiese, F. K., and G. J. Robertson. 2004. Assessing seabird mortality from chronic oil discharges at sea. Journal of Wildlife Management 68: 627-638.

Wilke, F., and C. H. Fiscus. 1961. Gray whale observations. J. Mammal. 42:108-109.

Williams, E. H. and S. Ralston. 2002. Distribution and co-occurrence of rockfishes (family: Sebastidae) over trawlable shelf and slope habitats of California and southern Oregon. Fisheries Bulletin 100:836-855.

Williams, R., D. E. Bain, J. C. Smith, and D. Lusseau. 2009. Effects of vessels on behaviour patterns of individual Southern Resident killer whales (Orcinus orca). Endangered Species Research 6:199-209.

Willoughby, A. L., R. Stimmelmayr, A. A. Brower, J. T. Clarke, and M. C. Ferguson. 2022. Gray whale (Eschrichtius robustus) and killer whale (Orcinus orca) co-occurrence in the eastern Chukchi Sea, 2009–2019: evidence from gray whale carcasses observed during aerial surveys. Polar Biology 45, 737–748. https://doi.org/10.1007/s00300-022-03015-6.

Wilson, K. J., J. Falkingham, H. Melling, and R. De Abreu. 2004. Shipping in the Canadian Arctic - Other Possible Climate Change Scenarios. Proceedings IGARSS International Geoscience and Remote Sensing Symposium, Anchorage, Alaska.

Wilson, O. B. J., S. N. Wolf, and F. Ingenito. 1985. Measurements of acoustic ambient noise in shallow water due to breaking surf. Journal of the Acoustical Society of America 78(1):190-195.

Wise, J. P. Sr., R. Payne, S. S. Wise, C. LaCerte, J. Wise, C. Gianios Jr., W. D. Thompson, C. Perkins, T. Zheng, C. Zhu, L. Bendict, and I. Kerr. 2009. A global assessment of chromium pollution using sperm whales (Physeter macrocephalus) as an indicator species. Chemosphere 75: 1461-1467.

Wolfson, F. H. 1977. Gray whale behavior. Science 195(4278):534-5.

Woods Hole Oceanographic Institution. 2014. FAQ: Radiation from Fukushima. Available at http://www.whoi.edu/page.do?pid=83397&tid=3622&cid=94989.

Wulff, R. and V. Ilyashenko. 2014. Monitoring in 2014 by the United States and the Russian Federation of the Aboriginal Subsistence Quota for Bowhead Whales Set by the International Whaling Commission. Agreement signed 2/12/14.

Würsig, B. and W. J. Richardson. 2002. Noise, effects of. Pages 794-802 *in* Perrin, W. F., B. Wursig, and H. G. M. Thewissen, editors. Encyclopedia of Marine Mammals. Academic Press, San Diego, CA. 1,414 pp.

Würsig, B., S. K. Lynn, T. A. Jefferson, and K. D. Mullin. 1998. Behavior of cetaceans in the northern Gulf of Mexico relative to survey ships and aircraft. Aquatic Mammals 24:41-50.

Yablokov, A. V., and L. S. Bogoslovskaya. 1984. The Gray Whale (*Exchrichtius* robustus), Chapter 20: A review of Russian research on the biology and commercial whaling of the gray whale. Pages 465-485 *in* Jones, M. L., S. L. Swartz, and S. Leatherwood, editors. The Gray Whale Eschrichtius robustus. Academic Press, Inc., Orlando, FL.

Yankovsky, A. E., B. M. Hickey, and A. K. Münchow. 2001. Impact of variable inflow on the dynamics of a coastal buoyant plume. Journal of Geophysical Research 106(C9):19809-19824.

Ylitalo, G. 2008. Measuring chemical tracers in the tissues of Eastern North Pacific gray whales (Eschrichtius robustus). Abstract from the workshop on "Gray Whales and Climate Change: Sentinels of the North Pacific/Arctic Ecosystems," held November 17, 2008, in conjunction with the American Cetacean Society Conference.

Ylitalo, G. M., L. Hufnagle, M. Gosho, P. Gearin, M. M. Krahn and J. Stein. 1999. Contaminant analyses of Makah gray whale tissues. Report to NMFS/NWR.

Ylitalo, G., J. Bolton, D. Boyd, and K. Hayes. 2018. Analyses of Persistent Organic Pollutants in Gray Whales from the West Coast of North America. Northwest Fisheries Science Center Technical Report.

Young, N. C., Brower, A. A., Muto, M. M., Freed, J. C., Angliss, R. P., Friday, N. A., Boveng, P. L., Brost, B. M., Cameron, M. F., Crance, J. L., Dahle, S. P., Fadely, B. S., Ferguson, M. C., Goetz, K. T., London, Oleson, E. M., J. M., Ream, R. R., Richmond, E. L., Shelden, K. E. W., Sweeney, K. L., Towell, R. G., Wade, P. R., Waite, J. M., and Zerbini, A. N. 2023. Alaska marine mammal stock assessments, 2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-474, 316 p.

Young, S. Y. 2011. USCG and SEMAR: Shared border, shared missions. Coast Guard Compass online article dated September 13, 2011. Available at http://coastguard.dodlive.mil/2011/09/uscg-and-semar-shared-border-shared-missions/.

Zamon, J. E. and D. W. Welch. 2005. Rapid shift in zooplankton community composition on the northeast Pacific shelf during the 1998-1999 El Niño - La Niña event. Canadian Journal of Fisheries and Aquatic Sciences 62:133-144.

Zerbini, A. N., J. M. Waite, J. L. Laake, and P. R. Wade. 2006. Abundance, trends and distribution of baleen whales off western Alaska and the Aleutian Islands. Deep-Sea Research I 53:1772-1790.

Zhao Y. 1997. The grey whale stranded at the Liaoning coast in the north of the Yellow Sea. Fisheries Science 16:8-10.

Zhu, Q. 2012. Gray whale bycaught in Pingtan, China. Ceto-ken Newsl 29: 1–9.

Zimushko, V. V. and M. V. Ivanshin. 1980. Some results of Soviet investigations and whaling of gray whales (Eschrichtius robustus). Report of the International Whaling Commission 30:237-246.

Distribution List

Federal Agencies

Council on Environmental Quality
Federal Emergency Management Agency Region X
Fisheries and Oceans Canada
Marine Mammal Commission
National Parks Service Library
NOAA Habitat Conservation Division
NOAA National Marine Fisheries Service
NOAA National Marine Mammal Laboratory
NOAA National Marine Sanctuary Program
NOAA Olympic Coast National Marine Sanctuary
Olympic National Forest
Olympic National Park
U.S. Army Corps of Engineers
U.S. Coast Guard
U.S. Department of the Interior, Bureau of Indian Affairs
U.S. Department of the Interior, Office of Environmental Policy and Compliance
U.S. Environmental Protection Agency (EPA) Region X
U.S. Fish and Wildlife Service
U.S. Representative, State of Washington, 1st, 2nd, 3rd, 6th, 7th, 8th, and 9th Districts
U.S. Senator, State of Washington, Seats 1 & 2

State Agencies & Elected Officials

Office of the Governor, State of Washington
Office of the Lieutenant Governor, State of Washington
Washington State Attorney General's Office
Washington State Department of Ecology
Washington State Department of Fish and Wildlife
Washington State Department of Health
Washington State Department of Natural Resources
Washington State House of Representatives
Standing Committees-
Economic Development, Agriculture, and Trade Committee
Natural Resources, Ecology, and Parks Committee
Rules Committee
Washington State House of Representatives, 1st, 2nd, 5th, 10th, 11th, 19th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, and 48th Districts
Speaker, Washington State House of Representatives
Majority Leader, Washington State House of Representatives
Minority Leader, Washington State House of Representatives
Washington State Senate, Standing Committees - International Trade & Economic Development Committee, Natural Resources, Ocean, Recreation Committee, Rules Committee, Water, Energy & Environment Committee, and Ways & Means Committee
Majority Leader, Washington State Senate
Minority Leader, Washington State Senate
Washington State Senator, 1st, 2nd, 5th, 10th, 11th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, and 48th Districts

County & Local Agencies

Clallam Conservation District
Clallam County Commissioners
Clallam County Economic Development Council
Grays Harbor County Commissioners
Island County Commissioners
Jefferson County Commissioners
King County, Department of Natural Resources and Parks
Kitsap County Commissioners
Mason County Commissioners
Pacific County Commissioners
Pierce County Council
Pierce County Planning Department
Port Angeles Chamber of Commerce
San Juan County Commissioners
San Juan County Planning Department
Skagit County Commissioners
Snohomish County Commissioners
Thurston County Commissioners
Washington State Association of Counties
Whatcom County Council

Native American Tribes & Organizations

Affiliated Tribes of Northwest Indians
Chehalis Tribe
Chinook Indian Tribe
Coeur D'Alene Tribe
Columbia River Intertribal Fish Commission
Colville Confederated Tribes
Confederated Tribes and Bands of the Yakama Nation
Confederated Tribes of Grand Ronde
Confederated Tribes of Warm Springs
Cowlitz Indian Tribe
Hoh Indian Tribe
Indigenous Environmental Network
International Indian Treaty Council
Jamestown S'Klallam Tribe
Kalispell Tribe
Lower Elwha Klallam Tribe
Lummi DNR
Lummi Indian Business Council
Makah Fisheries Management
Makah Indian Tribe
Muckleshoot Tribe
Muckleshoot Tribe Fisheries Department
National Congress of American Indians
National Indian Gaming Association
Native Movement
Nez Perce Tribe
Nisqually Indian Tribe
Nooksack Indian Tribe
Northwest Indian College
Northwest Indian Fisheries Commission
Point-No-Point Treaty Council
Port Gamble S'Klallam Tribe
Puyallup Tribe
Puyallup Tribe Fisheries Department
Quileute Indian Tribe
Quileute Natural Resources
Quinault Indian Nation
Samish Indian Nation
Sauk-Suiattle Tribe
Shoalwater Bay Tribe
Skagit System Cooperative
Skokomish DNR
Snoqualmie Tribe
Spokane Tribe
Squaxin Island Tribe
Stillaguamish Indian Tribe
Suquamish Tribe
Suquamish Tribe Fisheries Department
Swinomish Tribe
Tulalip Tribes
Umatilla Confederated Tribes
United Indians of All Tribes Foundation
Upper Columbia United Tribes
Upper Skagit Indian Tribe
Washington State Indian Education Association
Yakama Indian Nation
Yakama Nation TFW

Organizations

Advocate of Animals
Advocates for Animals
American Cetacean Society
American Lands
Animal Legal Defense Fund
Animal Protection Institute
Animal Voices
Animal Welfare Institute
Australians for Animals
Breach Marine Protection
California Gray Whale Coalition
Cascadia Research Collective
CASH (Committee to Abolish Sport Hunting Inc)
Cetacea Defense
Cetacean Society International
Civitas (Citizens for Planetary Health)
Coastal Waters Project
Concerned Citizens of Planet Earth
Defenders of Wildlife National Headquarters
Earth Island Institute International Marine Mammal Project
Green Vegans
Humane Education Network
Humane Society of Canada
Humane Society of the United States
International Community of Concerned Citizens on Animal Welfare
League of Animal Protection Voters
League of Women Voters
National Wildlife Federation
Nature Conservancy of Washington
Ocean Advocates
Ocean Defense International
Olympic Peninsula Audubon Society
ORCA
Pacific States Marine Fisheries Commission
Peninsula Citizens for the Protection of Whales
Sea Sanctuary
Sea Shepherd Conservation Society, Inc
Seattle Audubon Society
Sierra Club - Cascade Chapter
Sierra Club - National Headquarters
The Fund for Animals
The Humane Society of the United States
The Mountaineers
The Peaceful Kingdom Alliance 4 Animals, Inc
The Pegasus Foundation
The Peninsula Citizens for the Protection of Whales
The Whaleman Foundation
The Wildlife Society
Washington Association of Conservation Districts
Washington Citizens' Coastal Alliance
Washington Environmental Council
Washington Forest Law Center
Washington State Natural Resources Committee
Western Environmental Law Center Northwest Office
Wildlife Advocacy Project
Williamsburg & Greenpoint Dog Owners Group
World Whale Police

Businesses

Hirschkop & Associates
Meyer & Glitzenstein
MORI-ko L.L.C.
Parametrix
San Juan Safaris
Schubert & Associates
Sea Wolf Adventures
Whale Watch Operators Association Northwest
Ziontz, Chestnut, Varnell, Berley & Slonim

Media

Forks Forum
KING Television (Seattle)
KIRO Television (Seattle)
KOMO Television and Radio (Seattle)
KONP Radio (Port Angeles)
Native American Times
Peninsula Daily News - West End
Seattle Post-Intelligencer
Seattle Times
Tacoma News Tribune
The Chronicle
The Northern Light
The Olympian
TVW Washington State Public Affairs Network

Libraries

Anacortes Public Library
Enumclaw Public Library
Jefferson County Library
King County Library System
Kitsap Regional Library
North Olympic Library System Clallam Bay Branch Library
North Olympic Library System Forks Branch Library
North Olympic Library System Sequim Branch Library
Olympia Timberland Library
Orcas Island Public Library
Pierce County Library System
San Juan Library
Seattle Public Library, Govt Publications Department
Sno-Isle Regional Library
Tacoma Public Library
Whatcom County Library

Public Scoping Commenters*

Chuck & Margaret Owens (Peninsula Citizens for the Protection of Whales)
D.J. Schubert (Animal Welfare Institute)
Eric Peterson (EPA)
Naomi Rose (Animal Welfare Institute)
Sue Arnold (California Gray Whale Coalition)
Peter Thomas (Marine Mammal Commission)
Will Anderson and Tamara Drake (Green Vegans)

ALJ Hearing Parties

Makah Tribe
Marine Mammal Commission (MMC),
Peninsula Citizens for the Protection of Whales (PCPW)
Animal Welfare Institute (AWI)
Sea Shepherd Legal
NOAA Fisheries West Coast Region

* Other public scoping comments were received via electronic mail; however, no mailing addresses were provided for FEIS distribution.

List of Preparers and Agencies Consulted

PREPARER	EDUCATION
Grace Ferrara NMFS Project Manager	M.M.A., University of Washington B.S., Biology, University of Puget Sound
Megan Wallen NMFS Project Manager	Ph.D., Biology, Georgetown University B.S., Ecology & Evolutionary Biology, University of Michigan
Ellen Keane NMFS Project Manager	M.S., University of Rhode Island M.M.A, University of Rhode Island B.S., University of Massachusetts
Laurie Beale Attorney Advisor	J.D., University of Washington School of Law B.A., University of Notre Dame
Rachel Morris Attorney Advisor	J.D., Lewis & Clark Law School B.A., The College of New Jersey
Joe Heckwolf Attorney Advisor	J.D., University of Baltimore School of Law B.A., St. Mary's College of Maryland
Shelby Mendez West Coast Region NEPA Coordinator	M.M.A., Master of Marine Affairs B.S., Biology
Donna Darm NMFS Project Manager	J.D., University of Washington B.S., History, Portland State University
Kate Engel Parametrix Project Manager	M.S., Wildlife Ecology, University of Wisconsin, Madison Post-baccalaureate, Wildlife Science, Oregon State University B.S., Wildlife Science, Oregon State University
Sarah Biegel West Coast Region NEPA Coordinator	M.S., Biological Sciences, Boston University B.S., Biology, University of Notre Dame
Steve Braund Cultural Resources/Ceremonial and Subsistence Resources	M.A., Anthropology, University of Alaska, Fairbanks B.A., Northern Studies/English, University of Alaska, Fairbanks
Kassandra Brown Public Safety	J.D., University of Oregon B.S., Fisheries Resources Management, University of Idaho
Mariann K. Brown Other Wildlife	Post-Graduate Work, Animal Behavior, University of California, Davis B.S., Wildlife Management, Humboldt State University
Jay Brueggeman Other Wildlife	M.S., Wildlife Biology, University of Washington B.S., Wildlife Biology, University of Idaho
Diana Dishman Economics	M.S., Biology, Portland State University B.A., Organismal Biology, Scripps College

PREPARER	EDUCATION
Jhenevieve Cabasal Environmental Justice	B.S., Marine Biology, California State University Long Beach
Hanna Miller Marine Habitat and Species, Water Quality, Aesthetics, Transportation, Public Service, Human Health	M.M.A., School of Marine and Environmental Affairs, University of Washington B.A., Integrative Biology, University of California Berkeley
Susan Burke Economics/Environmental Justice	Ph.D., Economics, Oregon State University M.S., Economics, University of California, Davis B.S., Business Administration/Finance, California State University, Hayward
Karen Cantillon Technical Editor	B.A., English Literature, John Carroll University
Jenna Friebel Water Quality	M.S., Environmental Engineering and Science, University of Washington B.S., Biology and Environmental Science, Oregon State University
Julie Grialou Other Wildlife	M.S., Wildlife Science, University of Washington B.A., Biological Anthropology, Harvard University
Laura Casali Transportation, Noise	M.S., Environment & Natural Resource Science, Cal Poly Humboldt B.S., Oceanography, Cal Poly Humboldt
Chris Harvey Marine Habitat and Species	Ph,D., in Limnology and Marine Science, University of Wisconsin M.S., Fisheries, University of Washington B.S., Biology, Wake Forest University
Michael Hall Noise, Aesthetics, Transportation, Public Services	B.A., University of Washington
Erika Harris Social Environment	B.A., Economics, Pacific Lutheran University Certification, Environmental Regulation, University of Washington
Dorothy Kennedy Cultural Resources/Ceremonial and Subsistence Resources	D.Phil., Anthropology, Oxford University M.A., Anthropology, University of Victoria B.A., Anthropology, University of Victoria
Jeff Laake Gray Whales	Ph.D., Wildlife Science, Colorado State University M.S., Wildlife Science, Utah State University B.S., Wildlife Biology, Colorado State University
Tina Loucks-Jaret Technical Editor	B.S. Environmental Studies, University of Washington B.S. Botany, University of Washington M.S. Technical Communication, University of Washington
Thomas R. Loughlin Gray Whales Other Wildlife	Ph.D., Biology, University of California, Los Angeles M.A., Biology, Humboldt State University B.A., Biology, University of California, Santa Barbara

PREPARER	EDUCATION
Dave Mayfield Human Health	M.S., Environmental Health, University of Washington B.S., Biology, University of Kansas
Todd O'Hara Human Health Gray Whales	D.V.M., University of Wisconsin, Madison Ph.D., Pharmacology/Toxicology, The Medical College of Virginia M.S., Biology, Villanova University B.S., Biology, Villanova University
Lynne Barre Human Health	M.S., Animal Behavior, San Diego State University B.S., Biology, Georgetown University
Sue Robinson Human Health	M.S., Environmental Toxicology, Western Washington University B.S., Biology (Marine), Western Washington University
Scott Rumsey Marine Habitat and Species	Ph.D., Biological Oceanography, Scripps Institution of Oceanography B.S., Biology with a marine emphasis, University of California, Los Angeles
Donald Schug Economics/Environmental Justice	Ph.D., Geography, University of Hawaii M.S., Agricultural and Resource Economics, University of Hawaii M.S., Oceanography, University of South Florida
Ann Sihler Technical Editor	B.A., English and German Literature, Pomona College
Steve Stone DEIS Updates and Production and Project Coordination	M.S., Fisheries Science, Oregon State University B.S., Fisheries Science, Oregon State University
Tom Wegge Economics	M.S., Environmental Economics, California State University, Fullerton B.A., Urban Studies, University of Southern California
Aimée Lang Gray Whales, Marine Habitat and Dependent Species	Ph.D., Marine Biology, Scripps Institution of Oceanography M.S. Animal Behavior, San Diego State University B.S. Auburn University
Jeff Moore Gray Whales, Marine Habitat and Dependent Species	Ph.D., Wildlife Science, Purdue University M.S. Wildlife Biology, Humboldt State University B.S., University of California at Davis
Dave Weller Gray Whales, Marine Habitat and Dependent Species	Ph.D., Wildlife and Fisheries Science, Texas A&M University M.S., San Diego State University B.S., University of Hawaii
Charlie Wisdom Water Quality	Ph.D., Chemical Ecology, University of California, Irvine B.A., Biology, University of California, San Diego A.A., Biology, Orange Coast College

During FEIS development, NMFS also consulted with the following agencies and organizations: Cascadia Research Collective; Clallam County Environmental Health; Clallam County Sheriff's Department; Makah Tribe; Departamento de Biologia Marina, Universidad Autonoma de Baja California Sur, La Paz, B.C.S.,

Mexico; Marine Mammal Institute, Oregon State University; NMFS National Marine Mammal Laboratory; NMFS Office of Law Enforcement; NMFS Southwest Fisheries Science Center; NOAA National Marine Sanctuary Program; Northwest Indian Fisheries Commission; U.S. Army; U.S. Bureau of Indian Affairs; U.S. Coast Guard; U.S. Department of the Interior; U.S. Fish and Wildlife Service; Washington Department of Fish and Wildlife; Washington State Department of Health; and Washington State Police.

Index

O

P

R

S

T

U

W

Appendix A

Makah Tribe's 2005 Request for a Waiver of the MMPA Take Moratorium (including Needs Statement and 2001 Management Plan)

MAKAH TRIBE
P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

February 11, 2005

William T. Hogarth, Ph.D.
Assistant Administrator
National Oceanic and
Atmospheric Administration
Room 14636
1315 East-West Hwy
Silver Spring, MD 20910

Re: Makah Tribe's Request for a Waiver of the Marine Mammal Protection Act (MMPA) Take Moratorium

Dear Dr. Hogarth,

Under the 1855 Treaty of Neah Bay, the Makah Tribe secured an express right to hunt whales throughout its usual and accustomed grounds and stations. The Makah Tribe's express whaling rights have not been abrogated by any subsequent statute including the Marine Mammal Protection Act (MMPA). Nevertheless, the Ninth Circuit Court of Appeals has held that, notwithstanding the Makah Tribe's express whaling rights under the Treaty of Neah Bay, the National Oceanic and Atmospheric Administration (NOAA) must waive the MMPA take moratorium before the Tribe may exercise its Treaty whaling rights. *Anderson v. Evans*, 371 F.3d 475 (9th Cir. 2004).

Consider this letter and the attached application the Tribe's formal request for a waiver of the take moratorium under Section 101(a)(3) of the MMPA, 16 U.S.C. § 1371(a)(3), to allow a ceremonial and subsistence (C&S) harvest from the Eastern North Pacific stock of gray whales (*Eschrichtius robustus*) within the Makah Tribe's adjudicated usual and accustomed grounds. *See United States v. Washington*, 626 F.Supp. 1405, 1467 (W.D.Wash. 1985). The total take of gray whales for which the Tribe seeks a waiver is up to 20 gray whales in any five-year period subject to a maximum of five gray whales in any calendar year.

In accordance with Section 101(a)(3) of the MMPA, the Tribe asks you to determine that it is compatible with the Act to waive the moratorium to allow for the taking of whales requested in this letter and attached application, and to adopt suitable regulations and make determinations in accordance with Sections 102, 103, and 104 of the Act. We also ask you to simultaneously undertake a National Environmental Policy Act review of the Tribe's request.

The Tribe believes that approval of this request is consistent with the purposes and policies set forth in Section 2 of the MMPA and is necessary for the United States to fulfill its fiduciary obligations to the Tribe under the Treaty of Neah Bay. As shown in the attached

application, the Tribe's requested harvest of gray whales will ensure that gray whales remain a significant functioning element in the ecosystem and will not permit the Eastern North Pacific gray whale stock to fall below its optimum sustainable population.

The Tribe thanks you in advance for your attention to this important matter.

Sincerely,

MAKAH TRIBAL COUNCIL

Ben Johnson, Jr.
Chairman

CC: Rolland Schmitten, U.S. IWC Commissioner
Laurie Allen, Director, NOAA Office of Protected Resources
Karl Gleaves, General Counsel for NOAA/NMFS/OPR
Robert Lohn, NOAA Fisheries Northwest Regional Administrator
Joe Scordino, NOAA Fisheries Northwest Deputy Regional Administrator
David Cottingham, Executive Director, Marine Mammal Commission
Michael Gosliner, General Counsel, Marine Mammal Commission
Stanley Speaks, BIA Northwest Regional Director

APPLICATION FOR A WAIVER OF THE MARINE MAMMAL PROTECTION ACT TAKE MORATORIUM TO EXERCISE GRAY WHALE HUNTING RIGHTS SECURED IN THE TREATY OF NEAH BAY

February 11, 2005

Makah Tribal Council
P.O. Box 115
Neah Bay, WA 98357

Table of Contents

Executive Summary

This document constitutes the application of the Makah Indian Tribe (the "Tribe") under Section 101(a)(3) of the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1371(a)(3), for a waiver of the moratorium on the taking of marine mammals which would allow the Tribe to conduct a Treaty ceremonial and subsistence (C&S) harvest of up to 20 gray whales from the Eastern North Pacific (ENP) stock in any five-year period, with a maximum of five whales per year. The proposed waiver would be subject to permanent regulations adopted by the Secretary of Commerce under Section 103 of the MMPA, 16 U.S.C. § 1373, which would authorize the National Oceanic and Atmospheric Administration (NOAA) to issue the Tribe a renewable whaling permit of up to five years in duration under Section 104 of the MMPA, 16 U.S.C. § 1374, provided that the Tribe enacts, implements, and enforces Tribal regulations which meet minimum standards necessary to conserve the ENP stock, avoid local depletion, and ensure a safe and humane hunt. These standards will include:

- Limits on the total number of gray whales that may be struck in a calendar year;
- Time and area restrictions designed to avoid any intentional harvest of gray whales comprising the Pacific Coast Feeding Aggregation (PCFA);
- Monitoring and adaptive management measures designed to ensure that any incidental harvest of gray whales from the PCFA remains below an annual allowable bycatch level (ABL) that will be conservatively established by applying the MMPA's potential biological removal (PBR) methodology to a conservative abundance estimate which is based on the number of gray whales that exhibit inter-annual site fidelity to the Oregon to Southern Vancouver Island (ORSVI) survey area;
- Measures that will ensure that the hunt is as humane as practicable consistent with the continued use of traditional hunting methods; and
- Measures to protect public safety.

The Makah Tribe has at least a 1,500-year-old whaling tradition and secured an express right to take whales under Article IV of the 1855 Treaty of Neah Bay. The Tribe's Treaty whaling rights have not been abrogated by the MMPA or any other federal statute. Under well-established case law, these rights are subject to restriction only where necessary to prevent demonstrable harm to a particular stock or species of whales.

Nevertheless, in *Anderson v. Evans*, 371 F.3d 475 (9th Cir. 2004), the Ninth Circuit Court of Appeals decided that the Tribe must obtain a waiver of the MMPA's take moratorium before it may exercise its Treaty whaling rights. The Tribe strongly disagrees with the Court's holding, but is filing this application to provide a legal framework that will allow for long-term exercise of its Treaty whaling rights consistent with the conservation needs of the gray whale. Approval of this waiver request is needed to meet the Tribe's cultural and subsistence needs and to fulfill the

United States government's Treaty and trust obligations to the Tribe.

The population of Eastern North Pacific stock of gray whales is at its historic levels and within its optimum sustainable population (OSP). After accounting for the Makah whale hunt, the total human-caused mortality, which includes aboriginal subsistence harvest by native groups in Russia, will be just over a third of the stock's PBR level of 366 whales. The Scientific Committee of the IWC provided management advice in 2002 that a take of up to 463 whales per year is sustainable for at least the medium term (~30 years). This level of harvest is over 350 percent higher than the average annual joint US-Russian quota of 124 whales per year. Because there is no likelihood that the Makah whale hunt will cause the Eastern North Pacific stock to fall below OSP in the foreseeable future, the Tribe's waiver request is well within the Tribe's rights under the Treaty of Neah Bay and is consistent with the policies and requirements of the MMPA.

For the purposes of this application, the Pacific Coast Feeding Aggregation (PCFA) is defined as any whale found in NOAA's photo-identification database which has been observed south of Alaska from June 1 through November 30 in any year. The PCFA is not a discrete stock of whales for the purposes of the MMPA. Nevertheless, the Tribe has agreed to safeguards that will prevent any intentional harvest of gray whales that exhibit inter-annual site fidelity to the Pacific coast south of Alaska. The Tribe will allow whale hunting only during established gray whale migration periods (December 1 through May 31) and prohibit hunting in gray whale feeding grounds in the Strait of Juan de Fuca.

To minimize the risk of incidental harvest of whales from the PCFA and ensure that gray whales remain a functioning element of the ecosystem, the Tribe in consultation with NOAA will compare photographs of all landed whales with NOAA's photo-identification database for the PCFA. The Tribe will suspend the hunt in a calendar year if necessary to prevent the harvest of whales found in the PCFA database from exceeding an annual allowable bycatch level (ABL). The ABL will be calculated by applying the MMPA's PBR methodology to a conservative abundance estimate based on the number of gray whales that are seen in more than one year in the Oregon-Southern Vancouver Island (ORSVI) survey area between June 1 and November 30.

NOAA should approve the Tribe's request for a waiver and adopt regulations that permit the Tribe to exercise its treaty rights in the manner specified in this application. The proposed waiver is necessary for the United States government to fulfill its legal obligations to the Tribe under the Treaty of Neah Bay, will not disadvantage the ENP stock of gray whales, and will be consistent with the purposes and policies of the MMPA.

Definitions.

Allowable Bycatch Level (ABL): the number of whales from the PCFA that may be taken incidental to a hunt directed at the migratory portion of the ENP stock of gray whales. The ABL is calculated using the MMPA's PBR approach but the minimum population estimate is calculated from the number of previously seen whales in the Oregon-Southern Vancouver Island (ORSVI) survey area.

Harassment: any act of pursuit, torment, or annoyance which— (i) has the potential to injure a marine mammal or marine mammal stock in the wild (referred to as Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavorial patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (referred to as Level B harassment). 16 U.S.C. § 1362(18).

Humane Killing: that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved. 16 U.S.C. § 1362(4).

Optimum Sustainable Population (OSP): is defined as "with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." 16 U.S.C. § 1362(9). NOAA has quantified OSP as a population size which ranges between a stock's maximum net productivity level (MNPL) and its carrying capacity (K). *See* 50 C.F.R. § 216.3.

Oregon-Southern Vancouver Island (ORSVI) survey area: the gray whale survey region from Oregon to Southern Vancouver Island for which abundance estimates of returning whales are used to develop the allowable bycatch level (ABL). This area was identified in Calambokidis et al. (2004) as the appropriate range to evaluate abundance estimates for the purposes of management of a Makah whale harvest and is based on gray whale interchange rates to survey areas adjacent to the Makah U&A.

Pacific Coast Feeding Aggregation (PCFA): any ENP gray whale found in the photo-identification database maintained by NOAA's National Marine Mammal Laboratory (NMML) which has been observed south of Alaska from June 1 through November 30 in any year.

Potential Biological Removal (PBR): the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population 16 U.S.C. § 1362(20). A total level of human-caused mortality that is less than the PBR is considered sustainable and consistent with the MMPA's goal of managing marine mammal stocks to achieve their OSP level. Under 16 U.S.C. § 1362(2), the PBR for a particular marine mammals stock is calculated by taking the product of the following factors: the minimum population of the stock (N_{min}); one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size (R_{max}); and a recovery factor (F_r) between 0.1 and 1.0.

Strike: means any blow or blows delivered to a whale by a harpoon, rifle or other weapon which may result in death to a whale. A harpoon blow counts as a strike if the harpoon is embedded in the whale. Any rifle shot which hits a whale counts as a strike. For the purpose of this request, multiple strikes on a single whale count as a single strike.

Take: as applied to the number of whales that may be harvested, "take" is defined in accordance with the regulations of the International Whaling Commission, "to flag, buoy or make fast to a whale catcher." For all other purposes, "take" is defined according to the definition in the MMPA, which means to harass, hunt, capture, or kill, or attempt to harass, hunt capture, or kill any marine mammal. 16 U.S.C. § 1362(13).

Acronyms.

ABL	Allowable Bycatch Level
C&S	Ceremonial and Subsistence
CV	Coefficient of Variation
ENP	Eastern North Pacific
F_r	Recovery factor
ICRW	International Convention on the Regulation of Whaling
IWC	International Whaling Commission
K	Carrying capacity
km	Kilometers
m	Meters
MMPA	Marine Mammal Protection Act
MNPL	Maximum Net Productivity Level
MRT	Minimum Residency Tenure
MSY	Maximum Sustained Yield
MSYL	Maximum Sustained Yield Level
n	Sample size
N	Population estimate
N_{min}	Minimum population estimate
NEPA	National Environmental Policy Act
NMML	National Marine Mammal Laboratory
NOAA	National Oceanic and Atmospheric Administration

ORSVI	Oregon-Southern Vancouver Island
OSP	Optimum Sustainable Population
PBR	Potential Biological Removal
PCFA	Pacific Coast Feeding Aggregation
R_{max}	Maximum theoretical or estimated net productivity rate of a stock at small population size
SARs	Stock Assessment Reports
U&A	Makah Usual and Accustomed grounds and stations
WCA	Whaling Convention Act

I. Request for Waiver and Proposed Regulations.

This document constitutes the application of the Makah Indian Tribe (the "Tribe") under Section 101(a)(3) of the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1371(a)(3), for a waiver of the moratorium on the taking of marine mammals which would allow the Tribe to conduct a Treaty ceremonial and subsistence (C&S) harvest of up to 20 gray whales from the Eastern North Pacific (ENP) stock in any five-year period, with a maximum of five whales per year. The proposed waiver would be subject to permanent regulations adopted by the Secretary of Commerce under Section 103 of the MMPA, 16 U.S.C. § 1373, which would authorize the National Oceanic and Atmospheric Administration (NOAA) to issue the Tribe a renewable whaling permit of up to five years in duration under Section 104 of the MMPA, 16 U.S.C. § 1374, provided that the Tribe enacts, implements, and enforces Tribal regulations which meet minimum standards necessary to conserve the ENP stock, to avoid local depletion, and to ensure a safe and humane hunt. The term of the initial permit should coincide with the current aboriginal subsistence quota for gray whales approved by the International Whaling Commission (IWC), which runs though 2007. Future permits would be issued in synchrony with IWC aboriginal quotas, which are currently set at five-year intervals.

As discussed in greater detail in Parts II and III of this application, the Makah Tribe has at least a 1,500-year-old whaling tradition and secured an express right to take whales under Article IV of the 1855 Treaty of Neah Bay. The Tribe's Treaty whaling rights have not been abrogated by the MMPA or any other federal statute. Under well-established case law, these rights are subject to restriction only where necessary to prevent demonstrable harm to a particular stock or species of whales.

Nevertheless, in *Anderson v. Evans*, 371 F.3d 475 (9th Cir. 2004), the Ninth Circuit Court of Appeals decided that the Tribe must obtain a waiver of the MMPA's take moratorium before it may exercise its Treaty whaling rights. The Tribe strongly disagrees with the Court's holding but is filing this application to provide a legal framework that will allow for long-term exercise of its treaty whaling rights consistent with the conservation needs of the gray whale. Approval of this waiver request is needed to meet the Tribe's cultural and subsistence needs and to fulfill the United States government's Treaty and trust obligations to the Tribe.

The Tribe proposes to manage the whale hunt under Tribal regulations which meet the following minimum standards:

A. Number of Gray Whales that May Be Taken.

The Tribe's regulations will limit the number of gray whales that may be "taken," as that term is defined in IWC regulations, to no more than five in any calendar year, and to no more than 20 in any five-year period.[1] In addition, Tribal regulations will limit the number of gray whales that may be "struck," a more inclusive term that encompasses all whales that are "taken," to no

[1] Under the IWC Schedule, the term "take" means to flag, buoy or make fast to a whale catcher.

more than seven in any calendar year.[2] The Tribe's regulations will limit the number of struck and lost whales to no more than three in any calendar year. The number of gray whale takes and strikes allowed by Tribal regulation will be subject to reduction if necessary to meet the international treaty obligations of the United States under the International Convention for the Regulation of Whaling (ICRW) or to prevent the abundance of the ENP stock from falling below its optimum sustainable population level (OSP). Tribal regulations will not allow the taking of any other species of whales except gray whales.

B. Age, Size, and Sex of Gray Whales that May Be Taken.

Tribal regulations will prohibit the striking of a whale calf, or any whale accompanied by a calf.

C. Season When Gray Whales May Be Taken.

The Tribe's regulations will prohibit the striking of a gray whale between June 1 and November 30 of any calendar year. The purpose of this restriction is to prevent the intentional harvest of whales that may be part of the Pacific Coast Feeding Aggregation (PCFA).

D. Manner and Location in which Gray Whales May Be Taken.

The Tribe's regulations will prohibit the striking of a gray whale outside of the Tribe's usual and accustomed (U&A) grounds as adjudicated in *United States v. Washington*, 626 F.Supp. 1405, 1467 (W.D. Wash. 1985). The Tribal regulations will also prohibit the striking of a gray whale within the Strait of Juan de Fuca. Hunting will only occur in the waters of the Pacific Ocean bounded by the following line: a line beginning at the northwestern tip of Cape Flattery running to the Tatoosh Island Lighthouse; from the Tatoosh Island Lighthouse to the buoy adjacent to Duntze Rock; from the buoy adjacent to Duntze Rock following a straight line to Bonilla Point on Vancouver Island but stopping at the Exclusive Economic Zone (EEZ); tracking the EEZ boundary westward to 125° 44'00" longitude; south along 125° 44'00" longitude to 48° 02'15" latitude; east along 48° 02'15" latitude to shore; and then track the shoreline northward to point of origin at Cape Flattery.

To further reduce the risk of local depletion, Tribal regulations will provide for detailed photographic monitoring of all landed whales. As soon as practicable after a successful hunt, in consultation with scientists from NOAA's National Marine Mammal Laboratory (NMML) the Tribe will compare photographs of landed whales with the NMML photo-identification catalog for the Pacific Coast Feeding Aggregation (PCFA), which includes any gray whale that has been photographed south of Alaska between June 1 and November 30 in any year. The Tribe will cease hunting in a calendar year when photographic analysis indicates that suspension of the hunt

[2] For the purposes of this request, the term "strike" means any blow or blows delivered to a whale by a harpoon, rifle or other weapon which may result in death to a whale. A harpoon blow counts as a strike if the harpoon is embedded in the whale. Any rifle shot which hits a whale counts as a strike. (Makah Tribal Council 2001).

is necessary to prevent the number of harvested whales from the PCFA catalog from exceeding an annual allowable bycatch level (ABL) for that year. The ABL will be calculated by applying the MMPA's PBR methodology to a conservative abundance estimate based on the number of gray whales that exhibit site fidelity (i.e., seen in more than one year) in the Oregon to Southern Vancouver Island (ORSVI) survey area between June 1 and November 30.

The Tribe's regulations will also include measures that will ensure that the hunt is conducted in the most humane manner practicable consistent with the Tribe's goal of providing opportunities for a traditional ceremonial and subsistence hunt. To this end, all whales will be harpooned with a toggle-point harpoon with floats attached before being dispatched with a .50 caliber rifle shot to the central nervous system (brain and upper spinal cord). During the 1999 hunt these methods resulted in a time to death of approximately 8 minutes. The Tribe anticipates that the time to death will improve as its hunters gain additional experience.

To address concerns about impacts to nesting seabirds, no whale may be struck within 200 yards of Tatoosh Island or White Rock during the month of May. The Tribal regulations will also include measures to ensure that the hunt is conducted in a manner which is at least as protective of public safety as the measures provided for in the Tribe's 2001 Gray Whale Management Plan (Makah Tribal Council 2001).[3] Further management measures to address public safety and possible impacts to other species may be developed based on the outcome of NOAA's National Environmental Policy Act (NEPA) review of the Tribe's request.

E. Other requirements.

The Tribe's regulations will restrict the use of whale products to local consumption and ceremonial purposes in accordance with section 102(f) of the MMPA. 16 U.S.C. § 1372(f). No whale products will be sold or offered for sale, except that traditional handicrafts (including artwork) made from non-edible whale products may be sold or offered for sale within the United States. The Tribe requests a limited waiver from the MMPA's prohibition on the sale of marine mammal products for the purposes of selling such traditional handcrafts. The requested waiver would be similar to, but more restrictive than, the exemption for Alaska native handicrafts provided in Section 101(b)(2) of the MMPA, 16 U.S.C. § 1371(b)(2).

The Tribe's regulations will include a permit system which provides that no Tribal member may engage in whaling except under the control of a whaling captain who is in possession of a valid whaling permit issued by the Makah Tribal Council. Whaling permits issued by the Council must incorporate and require compliance with all of the requirements of the Tribe's regulations.

Tribal regulations will provide for a training and certification process for all members who

[3] These measures authorized the discharge of firearms when whaling only when the shooter was within 30 feet of the target area of the whale and the shooter's field of view was clear of all persons, vessels and other objects that could result in injury or loss of human life. The measures also set minimum visibility standards for the hunt. (Makah Tribal Council 2001).

participate in whaling.

Tribal regulations will offer accommodations for a NOAA Fisheries observer during all hunts, including providing the designated observer from NOAA Fisheries with at least 24 hours notice of the issuance of any whaling permit unless the observer is already present on the Makah Reservation. The regulations will also allow NOAA Fisheries to collect specimen material from landed whales, including ovaries, ear plugs, baleen plates, stomach contents, and other tissue samples.

Tribal regulations will include provisions for Tribal monitoring of all hunts and annual reporting of all monitoring data to NOAA Fisheries. At a minimum, Tribal monitoring will include maintaining accurate records of the time, date, and location of all strikes; the body length, fluke width, and sex of all landed whales and any fetus found in a landed whale; and the time to death for all whales killed. As indicated previously, all landed whales will be photographed to allow comparison with the NMML photographic database compiled for the PCFA.

Tribal regulations will include provisions requiring Tribal enforcement of the regulations. The enforcement regulations shall include criminal sanctions, including fines and imprisonment, up to the limits imposed by the Indian Civil Rights Act.

II. Purpose of and Need for the Waiver Request.

The purpose of the Tribe's application for a waiver of the take moratorium is to obtain authorization under the MMPA for a Treaty C&S harvest of up to 20 gray whales in any five-year period from the Eastern North Pacific (ENP) stock, with a maximum of five gray whales per year. As decided by the Ninth Circuit Court of Appeals in *Anderson v. Evans*, 371 F.3d 475 (9th Cir. 2004), a waiver of the MMPA's take moratorium is necessary for the Tribe to exercise its express whaling rights under Article IV of the Treaty of Neah Bay. Approval of this request is needed to satisfy the United States government's obligations to the Tribe under the 1855 Treaty of Neah Bay and the federal trust responsibility, and to fulfill the Tribe's cultural and subsistence needs which are discussed below and in the attached need statement submitted to the IWC in 2002 (Appendix A; Renker 2002).

A. The Tribe's Cultural and Subsistence Needs.

As discussed in further detail in Appendix A, the Tribe has at least a 1,500-year whaling tradition. Whaling was central to the Tribe's way of life, providing a primary means of subsistence as well as essential social and cultural functions.[4] Whaling was so important to the Tribe that it expressly reserved whaling rights in the 1855 Treaty of Neah Bay. Although Makah whaling declined in the decades after the Treaty due to forces beyond the Tribe's control, the Makah people have never forgot their whaling traditions. Over the past two decades, the Tribe has begun to restore its language, songs and dances and many other cultural traditions. The resumption of whaling in the late 1990s has brought the Tribe significant cultural and social benefits as well as a badly needed subsistence resource. Approval of this waiver application, which seeks a harvest of up to five gray whales per year from the ENP stock, would enable the Tribe to continue its cultural renaissance and provide significant nutritional resources to an economically deprived community.

1. The Makah Tribe's Whaling Tradition.

The relationship between the Makah people and whaling is of great antiquity. The Ozette archeological site on the northern Washington coast contains evidence of some 1,500 years of continuous whaling. Archeological and ethnohistorical data demonstrate that the Makah hunted gray whales as well as other whale species. The number of whales taken by Makah whalers varied from year to year. Based on historic documents, it is estimated that Makah whalers averaged about 5.5 whales per year between 1889 through 1892, a time when the gray whale population had already been substantially reduced by non-Indian commercial whaling. Whaling for gray whales occurred during both the fall and spring migrations, with some hunts occurring 30 or more miles from shore.

The Makah hunted whales from giant canoes, approximately 36 feet long and more than 5

[4] The discussion in this section is taken from Renker (2002). Readers are directed to Appendix A for a list of references for this section.

feet wide, which were carved from a single cedar log. Other equipment included mussel-shell harpoons, sealskin floats, fathoms of line made from whale sinew and cedar, and a variety of knives. Whaling equipment and methods were constantly evolving. After contact with Euro-Americans, Makah whalers began to use metal harpoon heads at the ends of their traditional wood harpoons and accepted tows from steamers to and from the whaling grounds.

A whaling crew consisted of a chief, or "whaler," and seven men. The whaler owned the canoe and the whaling equipment and acted as the sole harpooner. Other crew members included a steersman, a man responsible for managing the lines and buoys, numerous paddlers, and a man who had the unique responsibility of diving into the water and fastening the whale's mouth shut after the whale was killed.

The whale was initially harpooned behind the front flipper. Once the first harpoon had been driven into the whale and the first set of floats attached, the whale was pursued and killed with a long wooden lance. The process of killing a whale could take up to three to four days. Once killed, the whaling crew had to tow the animal back to land, a process which could take another two days. Whales were butchered according to strict protocols, which identified the sequence of the butchering, the portions of the whale reserved for ceremonial use, and the portions to be distributed to the crew and other village inhabitants.

Positions on whaling crews were restricted to men who could withstand the rigors of intensive ritualized training, possessed the hereditary access to the position and its ritualized knowledge, or underwent a supernatural encounter which engendered the gift of whaling ability. All crew members undertook rigorous ceremonial and spiritual preparations prior to the hunt; the success of the hunt depended as much on the observance of rituals as the strength and skill of the whalers. The families of the whalers were also expected to observe rituals to ensure the safety and success of the hunters.

Whaling was the keystone of traditional Makah society. Makah society was mirrored in the structure of the whale hunt, including ceremonial preparation, the hunt itself, and the ultimate acts of butchering and distribution. Whalers, or headmen, were ranked at the top of the social pyramid. Whaling success translated into physical wealth and social prestige for the headman. Women married to whalers likewise dominated the top of the female status pyramid. Ceremonies to prepare whalers and their families for the hunt provided the Makah with a social framework that contributed to governmental, social, and spiritual stability.

In addition to its cultural and social benefits, whaling provided the Makah with an essential subsistence resource. Archeological studies show that as much as 85 percent of the Makah pre-contact diet could have been composed of whale meat, oil and other food products. Whale blubber and oil also provided an important source of trade goods. Whale products insured that the Makah enjoyed a high standard of living and a diversified economy.

2. The Treaty of Neah Bay.

In the early 19th century, as non-Indian traders and explorers entered the waters of the

Northwest, the Makah experienced increasing demand for whale products. The Makah expanded their trade in whale oil and other whale products in response to this demand, selling whale oil to the Hudson's Bay Company and other trading outfits.

In early 1855, the Makah were approached by the United States government, through Washington Territorial Governor Isaac Stevens, for the purpose of negotiating a treaty of land cession. From the government's perspective, the purpose of the treaty was to gain title to the region's rich lands and resources in order to make way for non-Indian settlement. While the Makah were willing to sell most of their lands to the United States, the Tribe insisted on retaining its rights to harvest the bountiful marine resources upon which it depended for its existence. To gain Makah acceptance of the treaty, Governor Stevens repeatedly insisted that the government did not intend to stop the Makah from whaling, sealing and fishing, but in fact would help them to develop these pursuits.

Much of the official record of the treaty negotiations reflects this dialogue. At the outset of the discussions, Governor Stevens proposed to buy Makah lands and establish a small reservation at the site of present-day Neah Bay. The first Makah chief to speak, Klachote, responded that the treaty must also protect his "right to fish, and take whales and get food when he liked." The next chief, Keh-tchook, seconded this demand. Governor Stevens acceded to the Makahs' demand, replying that "so far from wishing to stop their fisheries, he wished to send them oil kettles, and fishing apparatus." Governor Stevens reassured the Makah:

> I saw the Great Father a short time since and [he] sent me here to see you and give you his mind. The Whites are crowding in upon you and the Great Father wishes to give you your homes. He wants to buy your land and give you a fair price but leaving you enough to live on and raise your potatoes. He knows what whalers you are, how you go far to sea, to take whales. He will send you barrels in which to put your oil, kettles to try it out, lines and implements to fish with — . . . [T]his will be done if we sign it [the treaty]. If it is good I shall send it to the Great Father, and if he likes it he will send it back with his name. When it is agreed to it is a bargain.

Based on the government's assurances that their whaling rights would be protected, the Makah's agreed to sign the 1855 Treaty of Neah Bay, 12 Stat. 939 (Jan. 31, 1855) (Appendix B). The Treaty was ratified, without alterations, on March 8, 1859. From the Makah perspective, the critical clause of the treaty was Article IV, which provides:

> The right of taking fish *and of whaling* or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States. . . [emphasis added].

Governor Stevens' promise of government assistance with their whaling, sealing and fishing industries was also a significant inducement to the Makah because it allowed for further expansion of the Tribe's existing whaling and fishing enterprises. Significantly, of all of the many Stevens Treaties -- and of all treaties between the United States and Indian tribes -- the Treaty of

Neah Bay is the only one which expressly secures tribal whaling rights.

3. The Decline of Makah Whaling.

Despite Governor Stevens' promises, the United States failed to provide support for Makah fishing, whaling and sealing. Government assistance emphasized agricultural implements rather than items that could have supported the active components of the Makah's maritime economy. Instead of whaling and fishing tools, the Makah received pitchforks, scythes, hoes and sickles. Since the Makah Reservation was unsuited to cultivation, the Makah converted the tines of the pitchforks into fish hooks, the scythes into blubber knifes, and the sickles into arrowheads.

Federal Indian policy in the late 19th century was devoted to changing the Makah and other Indians from self-sufficient hunter-gatherers into farmers, dependent on the government for tools and instruction. Indian policy was also designed to assimilate Indian people through an education system that prohibited use of Indian languages or the exercise of cultural rituals. Despite the Treaty of Neah Bay's recognition of whaling as an important facet of Makah life, the United States government chose not to support the Tribe's well-developed practice.

Indoctrination in government-run boarding schools also worked against traditional subsistence whaling, as did epidemics and government bans on ceremonial activities. Potlatches and secret societies were prohibited, disrupting the Makah system of proprietary rights over dances, songs, and other ceremonies. At the same time that government policy was aimed at converting the Makah to agriculturalists, Pacific whale populations were declining as a result of increased commercial whaling by non-Indians. In 1854, Captain Charles Scammon discovered the Mexican breeding grounds of the gray whale. Gray whale cows and calves were slaughtered in the breeding lagoons bringing about the decimation of the Eastern North Pacific gray whale stock over the next few decades.

During this time, whale hunting remained the symbolic heart of Makah culture but continued to diminish in frequency as it became cost-prohibitive. As whale populations declined, the Makah shifted their resources to pursue more lucrative seal hunting. By the 1890s, Makah schooners were hunting fur seals along the Washington coast and as far north as the Bering Sea.

In short, boarding-school indoctrination and government acculturation policies, combined with a series of devastating epidemics, drastically changed the delicate and complex social dynamic which had supported the traditional Makah whale hunt. These factors, especially when juxtaposed with the severe decline in whale populations, served to discourage the Makah from making the substantial investments needed to pursue traditional whaling.

4. The Tribe's Present Cultural and Subsistence Need for Whaling.

Despite the decline of whaling, the Makah Tribe's interest in retaining their whaling rights and traditions never dissipated. Families passed on whaling stories, traditions, and secrets. The Makah never stopped educating their children about their family whaling traditions. Public schools on the reservation have included whaling in their curricula since the 1960s, with

continuous efforts since 1981. Whaling designs and crests still decorate public buildings and private homes. The whaling displays in the Makah Tribe's museum have kept the tradition of whaling alive.

For the past three decades, the Makah have been engaged in a concerted effort to revive their cultural traditions. The Tribe believes that revival of these traditions is needed to combat the social disruption resulting from the rapid changes of the past century and a half. Teenage pregnancies, high school dropouts, substance abuse problems, and an increasing juvenile crime rate indicate that the Makah community is still in flux and that the enormous social disruption caused by epidemics, boarding schools, and federal acculturation policy is still not over. Entire social, cultural, subsistence, and ceremonial institutions were repressed, eradicated, or decimated; without substitution of structural equivalents.

To reverse these disturbing trends, the Makah have reinstituted numerous song, dance and artistic traditions and operated a program to restore the Makah language to spoken proficiency on the reservation. The Makah Cultural and Research Center has been instrumental in the revival of many cultural traditions. Given the centrality of whaling to the Tribe's culture, a revival of subsistence whaling is necessary for the Makah to complete this spiritual renaissance and repair the damage done to the Tribe's social structure during the years of forced assimilation. A recent survey showed that this view is supported by a majority of Makah households.[5]

Continuation and expansion of subsistence whaling will also help address the socioeconomic deprivation experienced by many tribal members. The seasonal unemployment rate on the Makah Reservation is 51 percent, with almost 49 percent of Makah households living in poverty and 59 percent living in substandard housing. According to the 2000 census, median household income on the reservation is approximately $24,000 compared with $46,000 for Washington state as a whole.

Both historically and today, the Makah have addressed economic deprivation by relying on the sea for subsistence. Currently, 85 percent of Makah households have someone in their household who fishes and 63 percent of these households list fishing as the major occupation in their home. Even households without a fisherman derive food, money, or other goods from a fisherman who is a relative or a friend. Fish is a medium of exchange on the reservation and all Makah households participate in reciprocal networks that involve fish at some level of exchange.

A majority of Makah households use traditional Makah foods at least once a week. These include such unique traditional foods as fermented salmon eggs, smoked fish heads and backbones, halibut cheeks and gills, and dried fish. According to a recent analysis, the Makah's annual per capita consumption of fish is 126 pounds, some eight times higher than for the average American. While seafood comprises 55 percent of the Makah diet, it represents only 7 percent of the diet of the average American.

---

[5] According to the 2000 census, there are 1356 Makahs living in 471 households on the Reservation. Another 1,117 Makahs live off the Reservation.

Information regarding the Tribe's successful whale hunt in 1999 illustrates the potential for wide-ranging cultural and subsistence benefits from whaling. Thirty-nine percent of households indicated that they participated in whaling-related ceremonial activities, 30 percent of households have cooked whale meat, and 81 percent of Tribal members reported having eaten whale products. An overwhelming number of community members were present when the first whale was landed at Neah Bay in 1999 and 80 percent attended the Tribal celebration of the first whale hunt. Most Makah surveyed felt that the restoration of whaling had improved social and cultural conditions on the Reservation. These data demonstrate that the Makah are fully capable of restoring subsistence whaling to a central place in their culture, economy, and way of life.

B. The Tribe's Recent Efforts to Exercise Its Whaling Rights.

Gray whales were first given international protection from commercial whaling in 1937. By 1993, NOAA determined that the Eastern North Pacific (ENP) stock of gray whales had recovered to near its estimated original population size. 58 Fed. Reg. 3121 (Jan. 7, 1993). NOAA removed the ENP stock from its list of endangered and threatened species on June 16, 1994. 59 Fed. Reg. 21,094.

Once NOAA determined that the protections of the Endangered Species Act were no longer necessary, the Tribe notified NOAA that it wished to reinitiate a ceremonial and subsistence gray whale hunt. Although the Tribe had an express treaty right, the Tribe chose to move forward in cooperation with the United States government and seek an aboriginal subsistence whaling quota from the IWC. In 1996, NOAA agreed to seek IWC approval of a quota of five gray whales per year for the Tribe. The Tribe agreed in turn that if the IWC granted the quota, the Tribe would use the whales only for subsistence purposes and would cooperatively manage the hunt with the Federal government. The United States presented the Tribe's quota request to the IWC at its 1996 meeting but the IWC failed to approve the proposal.

In 1997, NOAA entered into a new agreement with the Makah Tribe. To address public concerns about so-called "resident" whales, the new agreement provided that whaling would occur only in the "open waters of the Pacific Ocean." NOAA also published an environmental assessment (EA) which concluded that the Makah whaling proposal would result in no significant environmental impacts.

At the 1997 IWC meeting, the Tribe's quota request was included as part of a joint United States-Russian proposal for a block quota of 620 whales over the five year period from 1998 through 2002. The United States and Russia explained to the IWC that 20 whales from this joint quota would be made available to the Makah Tribe subject to a cap of five whales per year. On October 23, 1997, the IWC approved the joint quota request by consensus. The IWC renewed the joint quota for another five years (2003-2007) at its 2002 meeting.

After the IWC approved the quota, the Makah Tribe adopted a gray whale management plan that included measures to ensure a humane hunt, such as requiring the use of a high-powered rifle, as well as training requirements, a permit system, and monitoring and enforcement

provisions. In 1998, NOAA published a domestic quota of five gray whales per year for the Makah Tribe. 63 Fed. Reg. 16,701 (Apr. 6, 1998). Tribal whalers began preparing for the hunt in 1998 but no hunting occurred until the spring of 1999. In May 1999, a Tribal whaling crew hunted on four occasions and struck one gray whale. Once struck, the whale was dispatched eight minutes later with a high-powered rifle. The whale was towed back to Neah Bay where ceremonies were held, the whale was butchered, and the meat and blubber were distributed and consumed throughout the community. No additional whale hunting occurred in 1999. Two crews hunted on at least seven different occasions during the spring of 2000 but no whales were struck or landed.

On June 9, 2000, a divided panel of the Ninth Circuit reversed an earlier district court decision and held that NOAA violated the National Environmental Policy Act by entering into an agreement with the Tribe committing the government to support the Tribe's whaling proposal before the government had completed an EA. *Metcalf v. Daley,* 214 F.3d 1135, 1145 & n.3 (9th Cir. 2000). The majority did not identify any specific deficiency in the government's environmental analysis. As a remedy, the Court ordered NOAA to "suspend implementation" of the cooperative agreement, and "prepare a new EA." *Id.* at 1146.

The Tribe suspended its hunt immediately after the Ninth Circuit's ruling. NOAA rescinded the cooperative agreement and began work on a new EA. In response to public comments, NOAA consulted with the Tribe and expressed concerns about the impact of the hunt on the Pacific Coast Feeding Aggregation (PCFA), a group of approximately 200 to 250 gray whales that forage in the summer along the Pacific coast rather than migrating to more northerly feeding grounds in the Bering Sea. Although NOAA found no scientific basis to treat the PCFA as a discrete stock of marine mammals, NOAA advised the Tribe that it intended to evaluate the impacts of the Tribe's hunt on the PCFA. The Tribe addressed these concerns by revising its Management Plan to limit the number of whales that could be struck outside of whale migration periods or in the Strait of Juan de Fuca to a maximum of five strikes during the years 2001 and 2002 combined (or 2.5 strikes per year) – the low end of the PBR limit for the PCFA calculated by NOAA in its 2001 EA (NMFS 2001). The Tribe also adopted additional measures in its revised Management Plan to address public concerns about the safety of the hunt (Makah Tribal Council 2001).

After the Tribe adopted its revised Management Plan, NOAA published a second EA which found that the Makah whale hunt, conducted in accordance with the revised Management Plan, would have no significant environmental impacts (NMFS 2001). After the publication of the second EA, NOAA and the Tribe negotiated a new cooperative agreement and on December 7, 2001, NOAA published a quota of five gray whales for the Makah Tribe for the year 2002. 66 Fed. Reg. 64,378 (Dec. 13, 2001).

The new EA and quota were challenged in *Anderson v. Evans*, 371 F.3d 475 (9th Cir. 2004). The United States District Court for the Western District of Washington upheld NOAA's issuance of the quota and the second EA. However, the Ninth Circuit Court of Appeals reversed. The Ninth Circuit held that, notwithstanding the Tribe's whaling rights under the Treaty of Neah Bay, the Secretary of Commerce must waive the MMPA moratorium on taking marine mammals

and a issue a permit under the MMPA before NOAA can authorize a tribal harvest of gray whales for ceremonial and subsistence purposes. In addition, the court held that NOAA should have prepared an Environmental Impact Statement (EIS) before authorizing a Makah gray whale quota because there were questions over the local impacts of the hunt on the gray whales that feed off of the Washington coast. The Court emphasized that it was *not* holding that the Tribe's treaty right to take whales had been abrogated, but only that NOAA must follow the MMPA waiver and/or permit process before permitting the Tribe to exercise that right. This waiver application is intended to address the requirements imposed by the *Anderson* decision.

III. Applicable Law.

A. Treaty of Neah Bay.

The Treaty of Neah Bay (Appendix B) is the only treaty between the United States and an Indian Tribe which expressly reserves the right to hunt marine mammals. Article IV of the Treaty of Neah Bay provides:

> The right of taking fish *and of whaling* or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States. . .

12 Stat. at 939 (emphasis added).

The Tribe's whaling and sealing rights under the Treaty of Neah Bay have not been abrogated by the MMPA. "Absent explicit statutory language, [the Supreme Court] has been extremely reluctant to find congressional abrogation of treaty rights." *Washington v. Washington Commercial Passenger Fishing Vessel Ass'n*, 443 U.S. 658, 690 (1979). In order to abrogate Indian treaty rights, Congress must make its intention to abrogate those rights "clear and plain." *United States v. Dion*, 476 U.S. 734, 738-39 (1986). Thus, where a statute does not expressly abrogate Indian treaty rights, "[w]hat is essential is *clear evidence* that Congress *actually considered* the conflict between its intended action on the one hand and Indian treaty rights on the other, and *chose* to resolve that conflict by abrogating the treaty." *Id*. at 740 (emphasis added); *see also Minnesota v. Mille Lacs Band*, 526 U.S. 172, 202 (1999).

There is no evidence that Congress was even aware of the Makah Tribe's unique treaty right to take marine mammals when it enacted the MMPA, much less that it *chose* to abrogate those rights. On the contrary, neither the MMPA nor its legislative history even mention Indian treaty rights until Congress amended the MMPA in 1994. Far from abrogating those rights, the 1994 Amendments expressly preserved them. Section 14 of the 1994 Amendments provides: "Nothing in this Act including any amendments to the Marine Mammal Protection Act of 1972 made by this Act alters or is intended to alter any treaty between the United States and one or more Indian Tribes." Pub. L. 103-238, § 14 (Apr. 30, 1994); *see* Historical and Statutory Notes to 16 U.S.C. § 1361. Congress' stated intent in enacting this disclaimer was to "reaffirm that the MMPA does not in any way diminish or abrogate protected Indian treaty fishing or hunting rights." S. Rep. No. 220, 103rd Cong., 2nd Sess, 1994 USCCAN 514, 534. The language and legislative history of the MMPA thus evince absolutely *no* Congressional intent to abrogate the Tribe's Treaty right to take marine mammals.

It has been argued that the MMPA abrogates Indian treaty rights because it provides an exemption only for Alaska Natives but not other native groups. This argument misses the mark because Alaska Natives have no *treaty* rights to take marine mammals. The enactment of a special provision granting Native Alaskans special hunting rights cannot by negative implication abrogate the rights of other native groups that were already guaranteed such rights by treaty. In

United States v. Bresette, 761 F. Supp. 658, 663 (D. Minn. 1991), it was held that a similar Alaska Native exception in the Migratory Bird Treaty Act (MBTA) did *not* abrogate Indian *treaty* rights.[6]

Under well-established case law, the Tribe's unabrogated rights to take marine mammals are subject to regulation only where "necessary for conservation" of a particular marine mammal stock or species. *Washington v. Washington Passenger Fishing Vessel Assn.*, 443 U.S. 658, 682 (1979) ("treaty fishermen immune from all regulation save that required for conservation"); *Puyallup Tribe v. Department of Game*, 391 U.S. 392, 401 n.14 (1968) (power of the State to impose time and area restrictions on treaty right fishing is "measured by whether regulations are 'necessary' for the conservation of fish"); *Tulee v. Washington*, 315 U.S. 681, 684-85 (1942) (State may regulate the exercise of treaty fishing rights only if regulations are "necessary for the conservation of fish"). Federal courts have applied the conservation necessity principle to both state and federal regulations. *Anderson*, 371 F.3d at 497, n.21; *see also Midwater Trawlers Cooperative v. Dept. of Commerce*, 282 F.3d 710, 718-19 (9th Cir. 2002) (United States must employ conservation necessity principle when setting tribal fishing allocations); *United States v. Williams*, 898 F.2d 727, 730 & n.4 (9th Cir. 1990) ("government [has] the burden of establishing the conservation necessity of state *and federal* wildlife laws against members of tribes with hunting and fishing treaty rights").

The "conservation necessity" principle is not weakened by the "in common with" language in the Treaty. The purpose of that language was to secure access for non-Indians to the Tribe's usual and accustomed grounds, not to provide a basis for restricting the Tribe's hunting and fishing rights. *United States v. Washington*, 384 F. Supp. 312, 357 (W.D. Wash. 1974) (nothing to indicate that Tribe was "told that its existing fishing activities or tribal control over them would in any way be restricted or impaired by the treaty"), *aff'd,* 520 F.2d 676 (9th Cir. 1975), *cert. denied*, 423 U.S. 1086 (1976).

In the Indian treaty rights context, the term "conservation" is defined restrictively to mean "those measures which are reasonable and necessary to the *perpetuation of a particular run or species*." *Id.* at 342 (emphasis added). The *government* has the "burden of proof" in demonstrating a "conservation necessity" exists. *Id.* To carry its burden, the government must show that:

- a "specific statute or regulation is required to prevent demonstrable harm to the actual conservation of fish,"

---

[6] The Bald Eagle Protection Act (BEPA) which was held to abrogate treaty rights in *United States v. Dion*, 476 U.S. 734, 740-43 (1986), is distinguishable from the MMPA. The BEPA contains a sweeping prohibition on the taking of eagles with a narrow exception allowing the Secretary of the Interior to issue permits allowing eagles to be taken "for the religious purposes of Indian tribes." *Dion*, 476 U.S. at 740, citing 16 U.S.C. § 668a. The legislative history of the BEPA clearly showed that Congress was aware of Indian on-reservation hunting of eagles, considered such hunting to be part of the problem calling for the legislation, and "expressly chose to set in place a regime in which the Secretary of the Interior had control over Indian hunting, rather than one in which Indian on-reservation hunting was unrestricted." *Dion*, 476 U.S. at 743. By contrast, the MMPA provides numerous exceptions to the moratorium on taking marine mammals and contains *no* provisions addressing Indian *treaty* harvests.

- "existing tribal regulation or enforcement is inadequate to prevent demonstrable harm to the actual conservation of fish," and,

- "the conservation required cannot be achieved to the full extent necessary . . . by other less restrictive means or methods."

Id. at 415. Since *United States v. Washington,* these standards have been accepted and applied as established law. *See Midwater Trawlers,* 282 F. 3d at 718-19; *Shoshone-Bannock Tribes v. Fish and Game Comm'n*, 42 F.3d 1278, 1283 (9th Cir. 1994); *Williams*, 898 F.2d at 730; *United States v. Oregon*, 718 F.2d 299, 304 (9th Cir. 1983); *United States v. Michigan*, 653 F.2d 277, 279 (6th Cir.), *cert. denied*, 454 U.S. 1124 (1981); *Lac Courte Oreilles Band v. Wisconsin*, 668 F. Supp. 1233, 1236, 1241 (W.D. Wis. 1987); *Mille Lacs Band v. Minnesota*, 952 F. Supp. 1362, 1380 (D. Minn.), *aff'd*, 124 F.3d 905 (8th Cir. 1997), *aff'd*, 526 U.S. 172 (1999).

In sum, the Treaty of Neah Bay has not been abrogated and provides the Makah Tribe with special whaling rights not shared by other United States citizens. NOAA may regulate the exercise of these rights only if it can demonstrate that its regulations are necessary for conservation. To satisfy the "conservation necessity" standard, federal regulations restricting the Tribe's whaling rights may be promulgated only where necessary to preserve a particular species or stock of whales and, taking existing Tribal regulations into consideration, where they are the least restrictive means available to achieve this purpose.

B. Federal Trust Responsibility.

Courts have long recognized that a "special relationship" exists between the United States and Indian tribes which provide the Constitutional basis for legislation, treaties, and Executive Orders that grant unique rights to Indian tribes. *Morton v. Mancari*, 417 U.S. 535, 551-53 (1974). This relationship imposes fiduciary duties upon the government to faithfully carry out treaty and other legal mandates enacted for the benefit of Indian tribes. *Seminole Nation v. United States*, 316 U.S. 286, 296-97 (1942) *Cherokee Nation v. Georgia*, 30 U.S. 1(5 Pet.) (1831); *see also* Chambers, *Judicial Enforcement of the Federal Trust Responsibility*, 27 Stan. L. Rev. 1213 (1975); Cohen, *Handbook of Federal Indian Law* 220-21 (1982 ed.). These fiduciary obligations are especially strict where they involve implementation of treaty provisions:

> In carrying out its treaty obligations with the Indian tribes, the Government is something more than a mere contracting party. Under a humane and self-imposed policy which has found expression in many acts of Congress and numerous decisions of [the Supreme] Court, it has charged itself with moral obligations of the highest responsibility and trust.

Seminole, 316 U.S. at 296-97.

The scope of the Federal trust relationship is broad and applies to all federal agencies. *Pyramid Lake Paiute Tribe v. United States Navy*, 898 F.2d 1410, 1420 (9th Cir. 1990); *Nance v.*

Environmental Protection Agency, 645 F.2d 701, 711 (9th Cir.), *cert. denied*, 454 U.S. 1081 (1981). The United States government has an obligation to protect tribal property, including Indian hunting and fishing rights. *Lincoln v. Vigil*, 508 U.S. 182, 194 (1993) ("The law is 'well established that the Government in its dealings with Indian tribal property acts in a fiduciary capacity.'") (quoting *United States v. Cherokee Nation*, 480 U.S. 700, 707 (1987)); *Pyramid Lake*, 898 F.2d at 1420. Federal agencies have a duty to "represent the Tribe's interests forcefully despite [their] other representative obligations."[7] *White Mountain Apache Tribe v. Hodel*, 784 F.2d 921, 925 (9th Cir.) *cert. denied*, 479 U.S. 1006 (1986).

The requirements of the general trust responsibility are enhanced by the language and negotiating history of the Treaty of Neah Bay. Article IV of the Treaty of Neah Bay "secures" to the Tribe the right of whaling at usual and accustomed grounds and stations. In the treaty negotiations, the Tribe was "invited by the white negotiators to rely and in fact did rely on the good faith of the United States to protect that right." *Fishing Vessel*, 443 U.S. at 667. The government's "promise that the treaties would protect [the Tribe's] source of food and commerce were crucial in obtaining the Indian's assent." *Id.* at 676. In short, NOAA has a special obligation to consider and protect the treaty whaling rights of the Makah Tribe when it considers the Tribe's request for a waiver from the MMPA take moratorium.

C. International Convention on the Regulation of Whaling.

The International Convention on the Regulation of Whaling (ICRW) was signed in 1946 to "provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry." 62 Stat. 1716 (Dec. 2, 1946). The ICRW establishes the IWC, which is composed of one member from each signatory government, whose primary function is to adopt whaling regulations known as the "Schedule." The Schedule and all amendments thereto are deemed to be part of the ICRW itself. Arts. I, III, V. Amendments to the Schedule may not allocate quotas to any group of whalers. Art. V, § 2.

The original Schedule prohibited the harvest of gray whales, "except when the meat and products of such whales are to be used exclusively for local consumption by the aborigines." 62 Stat. at 1723. Since the late 1970s, aboriginal subsistence whaling has been subject to quotas and other regulations adopted by the IWC. Paragraph 13 of the Schedule sets strict guidelines for the setting of aboriginal subsistence whaling quotas. For stocks at or above a maximum sustained yield level (MSYL), aboriginal subsistence catches are permitted so long as total removals do not exceed 90 per cent of maximum sustained yield (MSY). For stocks below the MSYL but above a

---

[7] These trust obligations have been implemented in Secretarial Order No. 3206, issued June 5, 1997 and signed by the Secretaries of Interior and Commerce, which directs NOAA to carry out its responsibilities under the Endangered Species Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and NOAA's statutory missions, so as to avoid or minimize the potential for conflict and confrontation. Executive Order 13175, dated November 6, 2000, requires agency policy making to be guided by principles of respect for Indian treaty rights and responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments. On issues relating to treaty rights, the Executive Order directs each agency to explore and, where appropriate, use consensual mechanisms for developing regulations.

certain minimum level, aboriginal subsistence catches are permitted so long as they are set at levels which will allow whale stocks to move to the MSYL.[8]

In 2002, the IWC renewed the aboriginal subsistence gray whale quota for the Eastern North Pacific stock and authorized the taking of up to 620 gray whales between 2003 and 2007, with a maximum of 140 in any one year. By bilateral agreement between the United States and the Russian Federation, up to 20 whales may be taken by the Makah Tribe over the five year quota period, with a maximum of five whales in any one year. The IWC Schedule also prohibits the taking of a gray whale calf or a gray whale accompanied by a calf.

The United States has implemented the ICRW through the Whaling Convention Act (WCA). 16 U.S.C. §§ 916 *et seq.* Pursuant to the WCA, NOAA has adopted aboriginal subsistence whaling regulations which are set out at 50 C.F.R. Part 230. The regulations permit whaling captains designated by a Native American whaling organization which has been recognized by NOAA to engage in subsistence whaling in accordance with IWC quotas and regulations. 50 C.F.R. §§ 230.5, 230.6. NOAA has entered into three cooperative agreements with the Tribe (in 1996, 1997, and 2001) recognizing the Makah Tribal Council as a Native American whaling organization and permitting the Council to issue permits to whaling captains consistent with IWC quotas and regulations.

D. MMPA.

1. Policies and Purposes of the Act.

The MMPA was adopted in 1972 out of concern that "certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities." 16 U.S.C. § 1361(1). It is the goal of the MMPA that marine mammal "species and population stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part." *Id.* § 1361(2). Consistent with this major objective, species and population stocks "should not be permitted to diminish below their optimum sustainable population." *Id.* The MMPA defines the term "optimum sustainable population" to mean:

> with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and health of the ecosystem of which they form a constituent element.

---

[8] Paragraph 10(a) of the Schedule defines a "Sustained Management Stock" (SMS) as any "stock which is not more than 10 per cent of Maximum Sustainable Yield (hereinafter referred to as MSY) stock level below MSY stock level, and not more than 20 per cent above that level; MSY being determined on the basis of the number of whales."

16 U.S.C. § 1362(9).

2. Waiver and Permit Requirements.

Section 101(a) of the MMPA imposes a moratorium on the taking of marine mammals, except under regulations and permits adopted by the Secretary of Commerce under the Act. 16 U.S.C. § 1371(a). However, the Secretary may waive the moratorium if he determines, "on the basis of the best scientific information available," in consultation with the Marine Mammal Commission, and "having due regard for the distribution, abundance, breeding habits and times and lines of migratory movements" of the animals in question, that a waiver is "compatible" with the MMPA. *Id.* § 1371(a)(3)(A). To waive the moratorium, the Secretary must also "be assured that the taking of such marine mammals is in accord with sound principles of resource protection and conservation as provided in the purposes and policies" of the Act. *Id.* A waiver of the moratorium requires the promulgation of regulations and in some cases may also require the issuance of permits. *Id.*

The process for adopting regulations authorizing the taking of marine mammals is set out in Section 103 of the MMPA, 16 U.S.C. § 1373. Such regulations must be promulgated "on the basis of the best scientific evidence available" and in consultation with the Marine Mammal Commission. 16 U.S.C. § 1373(a). The regulations must "insure that such taking will not be to the disadvantage of those species and population stocks, and will be consistent with the purposes and policies" of the Act. *Id.* In prescribing such regulations, the Secretary must give full consideration to all relevant factors, including the effect of such regulations on existing and future levels of marine mammal species and population stocks; the government's existing international treaty and agreement obligations; the marine ecosystem and related environmental considerations; the conservation, development and utilization of fishery resources; and the economic and technological feasibility of implementation. *Id.* § 1373(b).

MMPA take regulations may include restrictions on the number of animals which may be taken by permit in any calendar year; the age, size or sex of the animals which may be taken; the season or other time period within which animals may be taken; and the manner and locations in which animals may be taken. 16 U.S.C. § 1373(c). Any such regulations must be made "on the record after opportunity for an agency hearing on both the Secretary's determination to waive the moratorium . . . and on such regulations." *Id.* § 1373(d). In addition to other requirements imposed by law with respect to agency rulemaking, the Secretary must publish and make available to the public before or concurrent with the publication in the Federal Register of his intention to prescribe regulations a statement setting forth:

(1) the estimated existing levels of the species and population stocks of the marine mammal concerned;

(2) the expected impact of the proposed regulations on the optimum sustainable population of such species or population stock;

(3) the evidence before the Secretary upon which he proposes to base such

regulations; and

(4) any studies or recommendations made by or for the Secretary or the Marine Mammal Commission that relate to the establishment of such regulations.

Id. The process for issuing permits is set out in Section 104 of the MMPA, 16 U.S.C. § 1374. Any permit issued under Section 104 of MMPA must be consistent with the regulations promulgated under Section 103 and specify the number and kind of animals which are authorized to be taken, the location and manner in which they may be taken, the period during which the permit is valid, and any other terms and conditions deemed appropriate by the Secretary. *Id.* § 1374(b). To issue a permit, the Secretary must also determine that the proposed manner of taking will be humane.

3. The Potential Biological Removal (PBR) Approach to Achieving Optimum Sustainable Population Levels.

In 1994, Congress amended the MMPA to incorporate the potential biological removal (PBR) approach to measuring effects of marine mammal takes on the optimum sustainable population (OSP) of stocks and populations. The need for the PBR approach was brought on by the decision in *Kokechik Fishermen's Ass'n v. Secretary of Commerce*, 839 F.2d 795 (D.C. Cir. 1988), which held that NOAA could not issue a permit for the incidental taking of one marine mammal species in a commercial fishery where the fishing operation also incidentally took other species and insufficient information existed to determine the population status of those species.

Following *Kokechik*, Congress amended the MMPA to establish a five-year interim exemption from the Act's prohibition on taking marine mammals incidental to most U.S. commercial fishery operations, while directing NOAA to use the five-year period to collect data on marine mammal stocks and the extent of commercial fishery interactions with those stocks, and to develop a proposed regime to govern interactions between commercial fishing operations and marine mammals after the exemption expired.

NOAA issued its proposed regime along with a legislative environmental impact statement in November 1992. As explained by the House Committee which reported out the 1994 Amendments to the MMPA:

> The goal of the proposal – like the goal of the Act – was to have all marine mammal stocks reach their optimum sustainable population [OSP]. NMFS proposed that levels of incidental take quotas be determined based on the concept of "Potential Biological Removal" (PBR): the maximum number of animals, excluding natural mortalities, that may be removed from a population without affecting its ability to reach or maintain OSP.

H.R. Rep. No. 439, 103rd Cong., 2d Sess. (Mar. 21, 1994).

Congress enacted the PBR approach into law in the 1994 Amendments to the MMPA.

Pub. L. 103-238, 108 Stat. 544 (Apr. 30, 1994). The 1994 Amendments incorporate the following definition into Section 3 of the Act:

> The term "potential biological removal level" means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The potential biological removal level is the product of the following factors:
>
> (A) The minimum population estimate of the stock.
>
> (B) One-half the maximum theoretical or estimated net productivity rate of the stock at a small population size.
>
> (C) A recovery factor of between 0.1 and 1.0.

16 U.S.C. § 1362(20).

The 1994 Amendments also required NOAA to produce stock assessment reports (SARs) for each marine mammal stock which occurs in waters under the jurisdiction of the United States. These SARs must be based on the best scientific information available and describe for each stock, *inter alia*, its geographic range, including any seasonal or temporal variation in its range; an estimate of the stock's minimum population size, its current and maximum net productivity rates and current population trend; an estimate of the annual human-caused mortality and serious injury of the stock by source; and an estimate of the potential biological removal level for the stock, describing the information used to calculate it, including the recovery factor. 16 U.S.C. § 1386(a). SARs must be revised at least once every three years.[9] *Id.* § 1386(c).

In accordance with the 1994 Amendments to the MMPA, NOAA currently evaluates all human-caused mortalities in relation to a stock's PBR level. The PBR approach is NOAA's established management strategy for achieving the primary goal of the MMPA, which is to prevent any marine mammal stock from being reduced below its OSP level.[10]

---

[9] Congress addressed the issue of takings incidental to commercial fisheries by requiring the development of incidental take plans designed to reduce incidental takes of stocks below the PBR level. *See* 16 U.S.C § 1387(f). Subsistence harvests of marine mammals by Alaska Natives were not affected by the PBR calculations. *Id.* § 1386(e).

[10] NOAA's most recent stock assessment for the Eastern North Pacific stock of gray whales is for 2003 (Angliss and Lodge 2004). The stock assessment is available at: http://www.nmfs.noaa.gov/prot_res/readingrm/MMSARS/sar2003akfinal.pdf

IV. Life History and Population Status of the Eastern North Pacific Stock of Gray Whales.

A. General Life History and Distribution.

Gray whales (*Eschrictius robustus*) are baleen whales classified in the suborder Mysticeti and are the only species in the monotypic family Eschrichtiidae. The generic name, *Eschrichtius*, was given in recognition of Daniel Eschrict, a 19th century zoologist, and the specific name *robustus* is Latin for "oaken" or "strong." Gray whale nomenclature is further reviewed in Rice and Wolman (1971) and the fossil record and evolution of gray whales is described in Barnes and McLeod (1984).

Gray whales historically existed in both the Pacific and Atlantic Oceans. The Atlantic population was extirpated by the end of the 17th Century (Mead and Mitchell 1984). Gray whales in the Pacific Ocean are divided into two distinct stocks: the Eastern North Pacific gray whale stock (sometimes referred to as the Chukchi-California stock), which is fully recovered from exploitation by commercial whaling and migrates from the Bering and Chukchi Seas to Baja Mexico (Swartz 1986); and the critically depleted Western North Pacific stock (also referred to as the "Korean-Okhotsk" stock) which migrates along the east coast of Asia (Rice and Wolman 1971).

Gray whales are easily distinguished from other whales. Gray whales are gray in coloration and have patches of lice and barnacles, giving them a mottled appearance. They lack a dorsal fin. However, they have a dorsal hump which is followed by a series of knobs or "knuckles" which are distinctly visible as they arch. Adult gray whales are between 11 and 15 m in length, with females being larger than males.

B. Migration.

The Eastern North Pacific stock of gray whales feeds in the summer in the northern Bering and Chukchi Seas and winters off of Baja California, Mexico (Scammon 1874). Wintering gray whales are found within the lagoons and protected waters of the western Baja Peninsula and, to some extent, along the Mexican mainland and in the Gulf of California (Swartz et al. 2000). The northbound migration begins with newly pregnant females, adult males, anestrous females and immature whales of both sexes which leave the wintering grounds around mid- to late-February (Poole 1984) and begin to arrive in the Bering Sea from late-March through May (Braham 1984). Females with calves are the last to leave southern waters and depart between late-March and May (Swartz et al. 2000). Females with calves travel more slowly than whales without calves to accommodate nursing as well as the slower swimming speed of the calves (NMFS 2001). Cow-calf pairs enter the Bering Sea from May through June (Braham 1984).

The southbound migration also occurs in phases. Gray whales are moving out of the Bering Sea by late-November, beginning with near-term pregnant females and followed by oestrus females, mature males, and then juveniles of both sexes (Swartz et al. 2000). Gray whales

begin to arrive in the waters off Baja in late-December and reach highest densities by mid-February (Jones and Swartz 1984). The gray whale migration is approximately 10,000 km each way (Scammon 1874).

The timing of migration at certain points along the Pacific coast is more thoroughly presented in Pike (1962), Swartz (1986), Rugh et al. (1999), and Swartz et al. (2000). According to this data, southbound whales are present along the Washington coast beginning in early December, peaking around 5 January, and ending in the first week of February. Northbound whales are present from late-February into June (NMFS 2001).

On both the northbound and southbound migration, gray whales tend to follow the shoreline, although they also traverse larger expanses of open water. In Washington, northbound migrants averaged 11.9 km from shore (Green et al. 1995), while southbound migrants have been seen up to 47 km from shore (Shelden et al. 1999), with an average distance of 25.2 km from shore (Green et al. 1995). A hypothesis explaining why gray whales are farther offshore during the southbound migration in Washington is that gray whales may take a more direct route from central Vancouver Island to the mouth of the Columbia River, instead of taking the longer route following the coast line (Green et al. 1995). Also, gray whales may feed during the northward migration and therefore travel closer to the coast, while during the southbound migration they already have a positive energy balance when they depart from the Arctic feeding grounds.

C. Reproduction.

Both male and female gray whales become sexually mature between 5 and 11 years of age, with an average of 8 years (Rice and Wolman 1971). Mature females breed in two year cycles, producing a calf every other year (Swartz 1986). Breeding occurs during the southward migration, with a mean conception date of 5 December (Rice and Wolman 1971). Females that have not successfully bred may enter a second estrus phase approximately 40 days later (Rice and Wolman 1971). Gestation lasts 418 days (Rice 1983) with a median birth date of 27 January (Rice et al. 1981). Calves are approximately 4.57 m long at birth (Rice 1983). The sex ratio of calves is 1:1 (Jones and Swartz 1984; Rice and Wolman 1971). Gray whale calves wean in August (Rice and Wolman 1971).

D. Feeding Behavior and Prey.

Gray whales employ a variety of foraging methods including benthic suction, engulfing, and skimming and feed on a wide variety of prey (Nerini 1984). Nerini (1984) reviewed reports on gray whale stomach analyses and listed the presence of over 90 genera. Gray whales primarily feed on benthic invertebrates. In the Arctic, the most common prey item is benthic tube-dwelling amphipods which can be found at densities as high as 23,780 individuals per square meter (Nerini 1984). The benthic foraging behavior is disruptive to the benthos (Oliver and Slattery 1985) and may be considered a specialized type of niche construction (Odling-Smee et al. 1996). The gray whales' ability to use different foraging methods and their ability to prey upon a variety of species may account for their more rapid recovery from commercial whaling in comparison with other great whale species (Nerini 1984; Moore et al. 2001).

Gray whales do not feed significantly during their southbound migration (Perryman and Lynn 2002). Oliver et al. (1983) did not find compelling evidence of benthic feeding in the winter grounds. There are reports of mud plumes observed on the calving grounds (e.g., Norris et al. 1977), but for the most part, it appears that gray whales fast during the winter (Perryman and Lynn 2002) and can lose 11-29% of their weight between the south- and northbound migrations (Rice and Wolman 1971).

E. Natural and Human-Related Mortality.

Natural mortality of gray whales includes predation by killer whales (*Orcinus orca*) (Baldridge 1972; Goley and Straley 1994), disease, entrapment in ice (IWC 2003), starvation, and old age. NOAA Fisheries maintains a stranding database of marine mammals. The average number of gray whales reported as stranded between 1995 and 1998 was 38 per year (Angliss and Lodge 2004). In 1999 and 2000, the stranding rate increased to 273 and 355, respectively (Angliss and Lodge 2004). The actual cause of death for these stranded whales is largely unknown (IWC 2003). Since 2000, the stranding rate has returned to pre-1999 levels (Angliss and Lodge 2004).

Eastern North Pacific gray whales have been traditionally hunted by Eskimos and Chukotka Natives in the Arctic, and by several Tribes from the Aleutians to California (O'Leary 1984). Shore-based commercial whaling occurred in California and Baja California from about the mid-1800's to 1900 (Henderson 1984; Sayers 1984). Modern whaling from ocean-going vessels occurred from 1914 to 1946 and was pursued by the United States, Japan, Norway, and the Soviet Union (Reeves 1984). Gray whales were afforded some protection from commercial harvest by nations that were signatory to the 1937 International Agreement for the Regulation of Whaling and received more complete protection under the 1946 International Convention for the Regulation of Whaling (ICRW) (Reeves 1984). The ICRW banned all commercial harvest of gray whales while continuing to allow for aboriginal subsistence use. From 1959 until 1969, 316 gray whales were taken under scientific research permits issued by the United States Bureau of Commercial Fisheries (now called NOAA Fisheries) (Rice and Wolman 1971; Perryman and Lynn 2002).

Data on aboriginal subsistence gray whale harvest is available on the IWC website (http://www.iwcoffice.org/_documents/table_aboriginal.htm). The Soviet Union operated a large whale catcher ship on behalf of Chukotka Natives between 1967 and 1991, harvesting gray whales at an average rate of 165 gray whales per year from 1985 through 1991. After the collapse of the Soviet Union, aborigines in Chukotka resumed hunting using traditional methods from their own small craft, and averaged an annual harvest of 96 gray whales from 1994 through 2002. Aboriginal hunters in Alaska harvested one gray whale in 1985, two in 1986, one each in years 1988 and 1989, and two in 1995. The Makah Tribe harvested one gray whale in the spring of 1999. As indicated in Section III.C, in 2002, the IWC renewed the gray whale quota for the Eastern North Pacific stock and authorized the taking of up to 620 gray whales between 2003 and 2007, with a maximum of 140 in any one year. By bilateral agreement between the United States

and the Russian Federation, up to 20 whales may be taken by the Makah Tribe over the five year quota period, with a maximum of five whales in any one year (IWC 2002).

Aside from aboriginal harvest, other sources of human-related mortality and serious injury of gray whales include ship strikes (average of 1.2 gray whales per year) and incidental catch in commercial fisheries (average of 8.9 gray whales per year) (Angliss and Lodge 2004).

F. Abundance.

The Eastern North Pacific gray whale stock is considered to be one of the best studied cetacean populations in the world (Swartz 1986) largely because of the stock's close proximity to shore throughout its range. Because the stock migrates close to shore and has a predictable migration window, it is feasible to conduct shore-based sighting surveys to estimate abundance. Gray whales have been surveyed during their southbound migration at or near Granite Canyon, California since 1967 (Buckland and Breiwick 2002; Angliss and Lodge 2004). The raw count data is then transformed into an abundance estimate after accounting for the following factors: a correction for missed whales; a correction for whales passing during periods when no observers are present; differential sightability by observers, pod size, distance offshore, and environmental conditions; errors in pod size estimation; covariance within the corrections due to variable sightability by pod size; and a correction for a difference between diurnal and nocturnal travel rates (Hobbs and Rugh 1999; Rugh et al. 2003).

The population estimate used in the most recent NOAA Stock Assessment Report (Angliss and Lodge 2004) for Eastern North Pacific gray whales is 26,635 (CV = 10.06%; 95% log normal confidence interval = 21,878 to 32,427), which was based on the 1997/98 southbound migrant observation season (Hobbs and Rugh 1999). The population had an intrinsic growth rate of 2.5% (SE = 0.3%) from 1967/68 to 1995/96 (Buckland and Breiwick 2002), despite the annual removal of up to 165 whales by, or on behalf of, Russian natives. Similar abundance surveys were also conducted in the 2000/2001 and 2001/2002 seasons which resulted in abundance estimates of 18,761 (CV = 10%; 95% log-normal confidence interval = 15,249 to 22,812) and 17,414 (CV = 10.06%; 95% log-normal confidence interval = 14,322 to 21,174), respectively (Rugh et al. 2002). Rugh et al. (2003) recalculated the three most recent abundance estimates due to a new computer program for matching sightings and the use of an alternative observation station in 1998 (due to a storm washing out an access road to the usual observation station). The revised estimates are: 27,958 in 1997/98 (CV = 10.21%; 95% log-normal confidence interval = 22,901 to 34,131), 18,246 in 2000/01 (CV = 9.36%; 95% log-normal confidence interval = 15,195 to 21,910), and 16,848 in 2001/02 (CV = 9.49%; 95% log-normal confidence interval = 13,995 to 20,283). The corrected 2001/02 estimate reported in Rugh et al. (2003) is the most reliable and current abundance estimate for this stock, and will be used in the remainder of this document rather than the 1997/98 abundance estimate reported in the most recent NOAA Stock Assessment Report (Angliss and Lodge 2004).

Trends in gray whale calf production have been monitored using three methods: surveying for calves from shore and from aircraft in central California during the northbound migration (Perryman et al. 2002; Perryman et al. 2004); counting calves from shore at Granite

Canyon, California, during the southbound migration (Shelden and Rugh 2001); and conducting aerial and vessel surveys for calves in the breeding lagoons of Baja California (Urban et al. 2003). Calf production is used in modeling population dynamics of gray whales (Wade and Perryman 2002). Gray whale calf production has also been correlated with the distribution of seasonal ice in the Arctic (Perryman et al. 2002).

Wade and Perryman (2002) calculated the carrying capacity (K) for this stock to be approximately 22,000 gray whales. Therefore, the population likely surpassed its carrying capacity in the late 1990's when it reached an estimated abundance of almost 28,000 whales (Rugh et al. 2003). The increased stranding rate observed in 1999 and 2000 (Le Boeuf et al. 2000; Angliss and Lodge 2004), as well as the low calf production observed over this time period (Le Boeuf et al. 2000; Perryman et al. 2002) were probably symptoms of the fact that the Eastern North Pacific stock of gray whales had exceeded its carrying capacity. The stranding rate has returned to normal levels (Angliss and Lodge 2004) as has calf production. The 2004 calf production estimate was greater than any other recorded (Perryman et al. 2004). As noted by Perryman et al. (2004), the ENP population might actually be higher than the most recent abundance estimates because some animals may not have migrated as far south as Granite Canyon in 2000/01 or 2001/02 (Rugh et al. 2003).

G. Pacific Coast Feeding Aggregation.

Most gray whales from the Eastern North Pacific stock migrate north of the Aleutian chain to feed during the summer and fall. However, some gray whales do not make a full migration and have been observed from Kodiak, Alaska to California during non-migratory periods (Calambokidis et al. 2003). Whales in this group arrive and depart from their wintering grounds concurrently with the overall population that migrates to the Arctic (Calambokidis et al. 2002a). Pike (1962) referred to this group as "summer residents." Because the term "summer resident" is a misnomer, NMFS (2001) referred to this group as the Pacific Coast Feeding Aggregation (PCFA). For the purposes of this request, the "PCFA" is defined as any whale found in the photo-identification database maintained by NOAA's National Marine Mammal Laboratory (NMML) which has been observed south of Alaska from June 1 through November 30 in any year.

Photo-identification studies of gray whales in the PCFA have been undertaken since 1970 (Hatler and Darling 1974) using unique markings on the sides of the gray whale which are revealed as the whales arch (Darling 1984). Darling (1984) hypothesized that gray whales seen along the coast of British Columbia were apart of a larger 'northwest coast' group that numbered at least 100 animals. Calambokidis et al. (2002a) reported that there were approximately 180 gray whales in the PCFA based on a mark-recapture abundance estimate for 1998. Calambokidis et al. (2002b), using a similar approach, reported an abundance estimate for the PCFA of 322 gray whales for 2001; and reported approximately 270 gray whales for 2002 (Calambokidis et al. 2003) (both papers only use whales seen after June 1 because whales that are seen prior to that date are typically never seen again). Calambokidis et al. (2004) used a dataset from 1998-2003 from California to Northern Vancouver Island and whales observed after June 1 and used an open population model approach to derive an abundance estimate of 200 gray whales (CV = 10.3%) for

2003, with a 2003 estimate of 176 whales (CV = 11.6%) based strictly on whales that were seen in multiple years.

In addition to the utility of photo-identification for mark-recapture population analyses and abundance estimates, the ability to identify individual gray whales through photo-identification also provides an opportunity to assess movement, tenure, and site fidelity to the Pacific coast south of Alaska. Those gray whales from the PCFA that have longer interannual sighting histories also tend to be seen in multiple survey regions throughout the PCFA (Calambokidis et al. 2004). As an example of the wide-ranging movements made by PCFA whales, a single whale observed in Kodiak, Alaska in 2002 had previously been seen along the west coast of Vancouver Island in 1999, as early as 1995 in the Cape Caution, BC area, and as early as 1992 in the Clayoquot Sound, BC survey area (Calambokidis et al. 2003). Another whale observed off southern Vancouver Island on 6 July 2003 was later seen in Kodiak on 9 August 2003; corresponding to a direct route movement of 1,104 nautical miles in 34 days (Calambokidis et al. 2004)

Calambokidis et al. (2004) reported that the length of time a whale was observed within a season proved to be a valuable tool in understanding the overall dynamics of the PCFA. A minimum residency tenure (MRT), defined as the time between first and last dates photographed within a year, was calculated to examine the likelihood that a particular whale would be seen the following year. Sixty-eight percent of the whales with a MRT of one week or less were seen during July-September, well outside the migration time period. Whales with longer MRTs in their first year observed were more likely to return in subsequent years. The authors suggested that the mechanism for whales with longer MRTs, and thus higher probability of returning the following year, is likely related to the foraging success that they encounter during the previous year.

Calambokidis et al. (2004) noted that while it makes logical sense when comparing interchange rates of gray whales between survey regions south of the Aleutian Island chain that immediately adjacent survey areas show stronger interchange rates in comparison with interchange rates between survey areas further to the north or south of the site, these results also suggest that individual gray whales regularly return to particular feeding areas. Gray whales in the PCFA were most likely to be re-sighted in adjacent survey area, thus indicating fidelity to an area that is smaller than the PCFA region as a whole, but larger than a single survey region (Calambokidis et al. 2004). The area to the north of the Makah U&A (i.e., the Southern Vancouver Island survey area) as well as the survey area to the south of the Makah U&A (i.e., the Oregon survey area) exhibit the highest degree of interchange. Thus, the authors recommended combining these regions as the appropriate geographic range for assessing local impacts and establishing subquotas for the PCFA (Calambokidis et al. 2004). The three survey regions of Oregon, Northern Washington and the Strait of Juan de Fuca (Makah U&A), and Southern Vancouver Island make up the combined survey area are referred to in this document as the ORSVI survey area.

No genetic differences have been detected between the PCFA and the overall migratory population (Steeves et al. 2001). Steeves et al. (2001) reported that there was a male bias in the

PCFA of 1.7 to 1 (males to females; n = 16), although given the small sample size the bias was not considered to be statistically significant. Ramakrishnan et al. (2001) reported a statistically significant male bias in the PCFA of 1.8 to 1 (males to females; n = 45). The potential explanations of the observed sex bias is that either females are feeding elsewhere in the PCFA and are not being sampled by researchers or that the PCFA is not a separate, closed population (i.e., a population that is experiencing only internal recruitment) (Ramakrishnan et al. 2001). Lang et al. (2004) proposed that the reason for the high genetic diversity observed in samples collected during the summer from Western North Pacific gray whales was the dispersal of males from the Eastern North Pacific gray whale stock into Western North Pacific gray whale feeding grounds. Using both simulations and empirical evidence, Ramakrishnan et al. (2001) reject the hypothesis that the PCFA is a maternal genetic isolate and that both the number of haplotypes and the diversity of haplotypes found in the PCFA is greater than other baleen whale populations of similar size. The level of haplotypic diversity in the PCFA (0.93; Ramakrishnan et al. 2001) is comparable to the haplotypic diversity seen in the Eastern North Pacific stock of gray whales (0.95 ± 0.02; LeDuc et al. 2002).

Given the best available information, NOAA has managed the PCFA as part of the Eastern North Pacific stock of gray whales (Swartz et al. 2000; Angliss and Lodge 2004). The IWC recognizes the existence of a feeding aggregation of gray whales along the Pacific Coast south of Alaska, but likewise continues to manage the Eastern North Pacific stock of gray whales as a single stock (IWC 2000). However, to avoid local depletion of a feeding aggregation in which individuals show site fidelity to the region and thereby address the MMPA policy that gray whales remain a "significant functioning element of the ecosystem," 16 U.S.C. § 1361(2), the Tribe's waiver request contains management measures, including time and area restrictions and annual bycatch level (ABL) subquotas, designed to minimize impacts to those whales that exhibit inter-annual site fidelity to the Pacific coast south of Alaska.

V. Expected Impact Of The Requested Waiver.

A. Effects on the Eastern North Pacific Stock of Gray Whales.

One of the primary goals of the MMPA is to maintain marine mammal populations at or above an optimum sustainable population (OSP). 16 U.S.C. § 1361(2) and (6). OSP is defined as "with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." 16 U.S.C. § 1362(9). NOAA has quantified OSP as a population size which ranges between a stock's maximum net productivity level (MNPL) and its carrying capacity (K). *See* 50 C.F.R. § 216.3.

Wade and Perryman (2002) completed an assessment of the Eastern North Pacific gray whale population that incorporated the time series from 1967/68 to 2001/02. They used four different scenarios using the abundance estimates as well as: (1) using all the calf estimates, (2) using none of the calf estimates, (3) using all of the calf estimates except the 1980 and 1981 estimates, and (4) using all of the calf estimates plus an assumed value in 2002 (which was not available at the time of the analysis), to estimate the carrying capacity to be 22,610 (90% CI = 19,830 to 28,470), 21,740 (90% CI = 19,480 to 35,430), 22,110 (90% CI = 19,840 to 26,880), and 22,590 (90% CI = 20,020 to 30,280), respectively for each scenario. For the purposes of the Tribe's waiver request, K will be expressed as a range between 21,740 and 22,610 animals (the lowest and highest values reported among the four scenarios).

Historically, MNPL has been expressed as a range of values (generally 50 to 70 percent of K) determined theoretically by estimating the stock size in relation to the pre-exploitation stock size, which would produce the maximum net increase in population. 42 Fed. Reg, 12,010 (Mar. 1, 1977). In 1977, the mid-point of this range, 60 percent of K, was used to determine whether dolphin stocks in the eastern tropical Pacific Ocean were depleted. 42 Fed. Reg. 64,548 (Dec. 27, 1977). In 1980, NOAA used the 60 percent value in the final rule to govern the taking of marine mammals as bycatch to commercial fishing operations. 45 Fed. Reg. 72,178 (Oct. 31, 1980). More recently, in its 2000 final rule to designate the Cook Inlet stock of beluga whales (*Delphinapterus leucas*) as depleted under the MMPA, NOAA used 60 percent of K as the value to calculate MNPL. 65 Fed. Reg. 34590 (May 31, 2000).

Using the upper and lower range of the values for carrying capacity in Wade and Perryman (2002) and assuming that MNPL = 0.6*K, the MNPL for the Eastern North Pacific stock of gray whales is between 13,044 and 13,566. Hence the OSP for the Eastern North Pacific Stock is a range between 13,044 and 22,610 animals. The most recent abundance estimate (i.e., from the 2001/02 southbound migration season) for the Eastern North Pacific stock of gray whales is 16,848 (CV = 9.49%; 95% log-normal confidence interval = 13,995 to 20,283) (Rugh et al. 2003). Therefore, the Eastern North Pacific gray whale stock is currently above MNPL and is within OSP. Using the abundance estimates reported in Wade and Perryman (2002) and Rugh et al. (2003), the Eastern North Pacific stock of gray whales has been consistently at or above MNPL since the 1979/80 abundance estimate, and it is important to note that during this time

period this stock has undergone sustained harvest by, or on behalf of, aboriginal groups. During the late 1990s, the stock probably exceeded the high end of the OSP range.

The IWC has likewise concluded that the ENP stock of gray whales remains a Sustained Management Stock. As indicated in Section III.C. above, the IWC manages whale stocks in relation to their maximum sustained yield level (MSYL), a concept which is analagous to the MMPA concept of MNPL (the difference being that MSYL considers the age and sex structure of the harvest). In 2002, the IWC Scientific Committee conducted a comprehensive assessment of gray whale stocks and concluded that there was essentially zero probability that the Eastern North Pacific stock was below its MSYL (Wade and Perryman 2002; IWC 2003).

As explained in greater detail in Section III.D.3 above, the 1994 amendments to the MMPA adopted the potential biological removal (PBR) approach for evaluating human-caused mortality to marine mammal stocks. The PBR is defined in the Act as "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population" 16 U.S.C. § 1362(20). The advantage of managing marine mammals using the PBR approach is that it provides a mechanism for achieving the MMPA goal of managing stocks to reach an OSP level where multi-year population trend data is not available (Wade 1998). A total level of human-caused mortality that is less than the PBR is considered sustainable and consistent with the MMPA's goal of managing marine mammal stocks to achieve their OSP level.

Under 16 U.S.C. § 1362(2), the PBR for a particular marine mammals stock is calculated by taking the product of the following factors: the minimum population of the stock (N_{min}); one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size (R_{max}); and a recovery factor (F_r) between 0.1 and 1.0. This relationship is expressed in Equation 1 below:

$$PBR = N_{min} * 0.5R_{max} * F_r \qquad (1)$$

The "minimum population estimate" refers to an "estimate of the number of animals in a stock that: (A) is based on the best available scientific information on abundance, incorporating the precision and variability associated with such information; and (B) provides reasonable assurance that the stock size is equal to or greater than the estimate" 16 U.S.C. § 1362(27). Wade and Angliss (1997) use the following equation (Equation 2) to calculate N_{min} from an abundance estimate:

$$N_{min} = N/\exp(0.842*[\ln(1+CV(N)^2)]^{1/2}) \qquad (2)$$

Wade and Angliss (1997) also provide recommendations on choosing the recovery factor, ranging from 0.1 to 1.0, to be used in different scenarios. A recovery factor of 0.1 is to be used as the default recovery factor when a stock is listed as an endangered species under the Endangered Species Act (ESA). A recovery factor of 0.5 should be used for stocks of an unknown status or for stocks that are listed as threatened under the ESA (or as depleted under the MMPA). A

recovery factor greater than 0.5, up to and including a value of 1.0, should be used: (1) when the stock is known to be within OSP; (2) the stock has an unknown status, but is increasing; or (3) when a stock is not listed under the ESA and is undergoing removals by aboriginal hunters.

Using the most recent available and corrected abundance estimate for the Eastern North Pacific stock of gray whales from the 2001/02 southbound migration season of 16,848 (CV = 9.49%; 95% log-normal confidence interval = 13,995 to 20,283) (Rugh et al. 2003), and inserting it into Equation 2, the N_{min} is calculated to be 15,557. While 0.04 is the default R_{max} value for cetaceans when there is inadequate information on life history parameters (Wade and Angliss 1997), NOAA's 2003 Stock Assessment Report for gray whales uses an R_{max} value of 0.047 for the Eastern Northern Pacific stock based on the extensive literature published on the stock's population dynamics (Angliss and Lodge 2004). This literature indicates that there is a 90% probability that the true value of R_{max} is greater than 0.047, a value based on the lower 10^{th} percentile of an estimate derived from an age- and sex-structured model (Wade 2002). The proper recovery factor to be used for this stock is 1.0, since the Eastern North Pacific stock of gray whales is not listed under the ESA and has been undergoing a steady or declining level of removals by aboriginal hunters (Wade and Angliss 1997; NMFS 2001; Angliss and Lodge 2004). Inserting the values for N_{min} of 15,557, the R_{max} of 0.047, and the F_r of 1.0 into Equation 1, the PBR for the Eastern North Pacific stock of gray whales is 366. This value is less than, but more current and accurate than, the PBR value of 575 whales reported in NOAA's 2003 Stock Assessment (Angliss and Lodge 2004) which was based on the uncorrected and outdated 1997/98 abundance estimate.

Angliss and Lodge (2004) estimate the annual average human-related mortality and serious injury of Eastern North Pacific gray whales is 107 animals. This annual average accounts for aboriginal harvest (97 gray whales; data from years 1996-2000), incidental bycatch in commercial fisheries (9 gray whales; data from 1990-2000), and ship strikes (1 gray whale; data from 1996-2000). This estimate of human-caused mortality is less than one-third of the calculated PBR for this stock (366 gray whales). Substituting the annual average Russian allocation of the IWC gray whale quota -- an average of 120 whales per year -- for the value of 97 (based on the conservative assumption that the average quota will be harvested each year), the estimated annual average human-related mortality and serious injury would increase to 130 gray whales (120 from aboriginal harvest; 9 from bycatch; 1 from ship strike). This hypothetical estimate of human-caused mortality is roughly one-third of the calculated PBR for this stock (366 whales).

Any additional human-caused mortality resulting from the Tribe's waiver request will be insignificant in relation to the PBR level for the Eastern North Pacific stock. The Tribe's waiver request includes a ceiling of seven strikes per year and 35 strikes over any five year period. Based on the worst case scenario that each whale that is struck but not landed will die (i.e., 0% chance of survival of struck and lost whales), the greatest estimated annual average human-related mortality would increase from 130 to 137 (127 mortalities resulting from harvest; 9 from bycatch; 1 from ship strike), which still provides a buffer of 229 gray whales between the total level of human-caused mortality and the PBR of 366 whales.

It is also important to note that the Scientific Committee of the IWC provided management advice in 2002 that a take of up to 463 whales per year (the lower of the 5th percentiles of Q_1) is sustainable for at least the medium term (~30 years) (IWC 2003). This level of take is over 350 percent higher than the average annual joint US-Russian quota of 124 whales per year as well as a conservative estimate of all human-caused mortality in a given year.

B. Effects on the Pacific Coast Feeding Aggregation.

For the purposes of this request, the PCFA is defined as any Eastern North Pacific gray whale found in the photo-identification database maintained by NOAA's National Marine Mammal Laboratory (NMML) which has been observed south of Alaska from June 1 through November 30 in any year. Although the PCFA is not a separate stock under the MMPA, the Tribe's waiver request is designed to prevent any depletion of whales that exhibit inter-annual site fidelity to the ORSVI gray whale management area and thereby assure that gray whales remain a "significant functioning element" of the local ecosystem. See 16 U.S.C. § 1361(2). The Tribe's waiver request would accomplish this goal by restricting the hunting season to the migration period (December 1 through May 31) and by prohibiting any hunting in the Strait of Juan de Fuca where gray whales are known to feed. Because no hunting of gray whales will be permitted between June 1 and November 30, and the hunt will not occur in the inside waters of the Strait of Juan de Fuca, those whales exhibiting inter-annual site fidelity to the Pacific coast south of Alaska will not be subject to any intentional harvest under the Tribe's request.

By themselves, these time and area restrictions should reduce impacts to levels that will eliminate any significant risk of local depletion. While gray whales that are from the PCFA may be present at certain times between December 1 through May 31 within the Pacific Ocean area of the Makah U&A and therefore might be subject to incidental harvest under the Tribe's waiver request, the proportion of PCFA whales that will be potentially subject to harvest will be significantly diluted by the much larger migrating population. Assuming that whales from the PCFA are randomly intermixed with the overall stock during the entire migration period and throughout the migration corridor, by dividing the most current abundance estimate of the PCFA of 200 whales (for year 2003; Calambokidis et al. 2004) by the most current abundance estimate for the stock of 16,848 (for season 2001/02; Rugh et al. 2003), there is only a 1.19% chance that any gray whale taken in a Makah whale hunt will be part of the PCFA.

Previous survey data suggests that whales from the PCFA are not randomly intermixed with the overall ENP stock during the latter part of spring migration, and that during the month of May as many as 13 percent of gray whales seen off the north Washington coast may be part of the PFCA (Calambokidis et al. 2000). Assuming a "worst case" scenario, if the Tribe strikes seven whales each year and every one of these whales is struck during the month of May, as many as five whales from the PCFA could be killed over a five-year period.

Accordingly, to provide an added margin of safety, the Tribe will take the following steps to ensure that the incidental take of whales from the PFCA will not reduce the number of whales that exhibit site fidelity to the Pacific coast south of Alaska:

First, as soon as practicable after a successful hunt and in consultation with NMML scientists, the Tribe will photograph the left and right flanks of all harvested whales and compare these photos with the NMML photographic catalog to determine if a harvested whale was part of the PCFA. Calambokidis et al. (1994) provide an example of a stranded gray whale successfully matched to a photographic catalog composed of live individuals. The NMML catalog includes all gray whales that have been photographed in surveys conducted south of Alaska from June 1 through November 30 of any year.

Second, the Tribe will cease hunting in a calendar year if, based on this photographic analysis, suspension of the hunt is necessary to prevent the number of whales harvested from the PCFA catalog from exceeding an annual allowable bycatch level (ABL) for that year. The ABL for the PCFA will be calculated by applying the MMPA's potential biological removal (PBR) methodology to a conservative estimate of the number of gray whales seen in more than one year in the Oregon-Southern Vancouver Island (ORSVI) gray whale survey area and is mathematically defined in Equation 3 below:

$$ABL = N_{min}(ORSVI) * 0.5R_{max} * F_r \quad (3)$$

These additional measures are highly conservative because the incidental harvest of gray whales from the PCFA photographic catalog, which now includes 477 individual whales observed south of Alaska from June 1 through November 30 from 1998-2003 (Calambokidis et al. 2004), is limited by an ABL derived from a much smaller subset of whales – those whales seen in more than one year within the ORSVI gray whale survey area. In addition, application of an ABL on an annual basis provides a further check against local impacts, because the PBR methodology normally permits averaging of human-caused mortality over a three-year time period (Wade and Angliss 1997).

Calambokidis et al. (2004) used an open population model to incorporate several years of photo-identification work from the PCFA to estimate abundance from California to northern Vancouver Island (200 gray whales; CV = 0.103). The authors further divided the overall PCFA abundance estimate to only consider whales that have been seen in previous years to estimate the abundance of whales that may exhibit inter-annual site fidelity to the overall feeding range of the PCFA (176 gray whales; CV = 0.116). The authors also analyzed the abundance of whales that may exhibit inter-annual site fidelity to the ORSVI gray whale management area (150 gray whales; CV = 0.137). This smaller management area was selected based on similar interchange rates between the survey regions and it includes and incorporates all of the Makah U&A. The authors then provide an abundance estimate that only considers whales seen in multiple years within the ORSVI region (122 gray whales; CV = 0.168). As stated in Calambokidis et al. (2004) "…it is both logical and reasonable to use ORSVI as the region for abundance estimation in setting quotas for a harvest of whales from the [Makah U&A] region."

NMFS (2001) used a closed population model, a recovery factor of 0.5 and 1.0, and two abundance estimates (one included observations in California, and the other did not) for the PCFA to calculate a range of PBR estimates for the entire PCFA which ranged from 2.5 to 6.0 animals

per year. The reason cited in NMFS (2001) for using a reduced recovery factor when it calculated the lower range for its PBR estimate for the PCFA was to take a conservative approach of treating the feeding aggregation as a separate management unit. Since that time, there have been new research studies released including an open population analysis using survey data collected from multiple years by Calambokidis et al. (2004) and a more recent genetic analysis (Ramakrishnan et al. 2001). Because the PCFA is part of the same ENP stock, the recovery factor should be the same as for the overall ENP stock. Unlike the proposal reviewed in NMFS (2001), the Tribe's current request takes a more conservative approach regarding impacts to the PCFA. The Tribe will not be conducting hunts from June 1 through November 30, thereby eliminating intentional harvest of whales from the PCFA, and the Tribe proposes using an abundance estimate, converted to an N_{min}, based on the number of returning whales to the ORSVI survey area to calculate an ABL to account for incidental harvest of PCFA whales during the migration period.

The applicable annual ABL will be calculated as follows. We use the 2003 abundance estimate that only considers whales seen in more than one year in the area from Oregon to southern Vancouver Island (122), the most conservative abundance estimate provided in Calambokidis et al. (2004), to calculate an N_{min} of 106 (using Equation 2). An R_{max} of 0.047 is used because the best available science shows that the PCFA is part of the Eastern North Pacific stock of gray whales (Swartz et al. 2000; Angliss and Lodge 2004). A recovery factor of 1.0 is used because: (1) the best available science shows that the PCFA is part of the Eastern North Pacific stock of gray whales (Swartz et al. 2000; Angliss and Lodge 2004), a recovered non-listed stock for which Angliss and Lodge (2004) use a recovery factor of 1.0; (2) the abundance estimates are calculated from an open population model which incorporate multiple years of survey effort; (3) the PCFA area south of Alaska for which the abundance estimate is based has been truncated to address local depletion around the Makah U&A (i.e., ORSVI); and (4) the abundance estimate is based only on whales seen in multiple years (i.e., whales potentially showing site fidelity to the region). Using Equation 3 and inserting an N_{min} of 106, an R_{max} of 0.047, and an F_r of 1.0, the resulting applicable annual ABL is calculated to be 2.49.

Under the Tribe's waiver request, the applicable ABL would be recalculated using the above methodology to reflect the most current survey data. The proposed calculation methodology is highly conservative. For comparison, if one used the 2003 abundance estimate for all of the whales seen in the PCFA (200 whales), which would be converted to an N_{min} of 184 whales (using Equation 2), the ABL would be 4.32 (using Equation 3). Nevertheless, the Tribe proposes to apply the ABL for the smaller ORSVI gray whale survey area and any harvested gray whale will be compared with the NMML photographic catalog for the entire PCFA, not just those whales seen in ORSVI.

In short, given the remote chances of harvesting a single PCFA whale (much less the chance of harvesting two) in the Pacific Ocean during the migration time period and the Tribe's commitment to cease hunting for the remainder of the calendar year to prevent an ABL for that year from being exceeded, the Tribe's overall harvest activities will not result in local depletion or prevent the gray whale from remaining a significant functioning element of the Washington coast ecosystem.

C. Effects on individual whales.

1. Lethal Takes.

A maximum of seven whales will be struck in any year. The Tribe is committed to making every effort to land a whale once it has been struck. During the Makah whaling seasons in 1999 and 2000, there were no whales that were struck and lost and in 1999, the one whale that was struck was landed (i.e., 100% efficiency). Efficiency is defined as the number of landed whales divided by the number struck (for the purpose of this discussion, there can be multiple strikes on an individual whale; but no more than seven different whales will be struck in any one calendar year).

The Alaska Eskimo Whaling Commission uses a qualitative assessment of the likelihood of survival of a bowhead whale (*Balaena mysticetus*) that has been struck and lost. Hunters report the chance of survival of struck and lost whales as being: "excellent" or "lived;" "good," "fair," or "probably lived;" "poor" or "probably died;" "died;" or "unknown" (Philo et al. 1993). Accurate accountability of struck and lost whales and assigning survival rates are important in determining IWC quotas and in modeling whale population dynamics (Suydam et al. 1995).

The Tribe's waiver request is based on the highly conservative assumption that all individual whales that are struck and lost will have a 0% chance of survival (in terms of considering the MMPA PBR approach). The Tribe will cease hunting activities when seven strikes occur in a calendar year, or when the take of photo-identified PCFA whales approaches the ABL, whichever comes first. Therefore, for the purposes of evaluating the Tribe's request, no more than seven whales per year could be killed. The Tribe's regulations will limit the number of struck and lost whales to no more than three in any calendar year. Under no circumstances will the Tribe allow a strike on a gray whale calf or a gray whale accompanied by a calf.

The hunt will be monitored by biologists from Makah Fisheries Management and from NOAA Fisheries and the Tribe anticipates a thorough, yet still qualitative, approach to assigning survival rates of struck and lost whales to the IWC and NOAA for the purposes of population modeling. If the Tribe were to have a struck and lost whale, the hunt would be evaluated by the Tribe, and the Tribe would implement any improvements as necessary.

In addition to working to minimize the likelihood of any struck and lost whales, the Tribe will take measures which are designed to provide the most humane hunt practicable consistent with the goal of also providing opportunity for Tribal members to engage in a traditional, culturally appropriate hunt. The MMPA defines "humane" in the context of taking a marine mammal as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved." 16 U.S.C. § 1362(4).

The Tribe proposes to use a toggle-pointed harpoon with line and floats attached to originally secure the whale, followed by shot(s) fired at the central nervous system (CNS) from a high caliber firearm to quickly and efficiently dispatch the whale (Ingling 1997). Any of the .50BMG firearm/ammunition combinations are considered more than adequate to humanely

dispatch a gray whale (Ingling 1997). The .50BMG caliber firearm is capable of shooting an Arizona Ammunition solid 570 grain bullet at 3,200 feet/second and generating 13,000 foot-pounds of energy (Ingling 1999). This firearm/cartridge combination can penetrate 240 inches of water, and after using a correction factor, can penetrate the equivalent of 133 inches of flesh. The largest width of a gray whale reported in Perryman and Lynn (2002) was less than 2.8 m (or 110 inches), in which case the .50BMG could create a wound channel completely through the width of the largest gray whale. The flesh covering the portion of the skull housing the brain is under 10 inches thick and the flesh covering the portion of the upper spinal cord is about 18 inches thick on a thirty foot gray whale (Ingling 1997). Considering the overwhelming firepower of a .50BMG caliber firearm, and the size of gray whales, this method is more than adequate to humanely dispatch a gray whale. The gray whale harvested by the Makah Tribe in 1999 expired 8 minutes after the initial harpoon strike (NMFS 2001).

2. Non-Lethal Takes.

In addition to lethal takes of gray whales, the Tribe's waiver request will result in "harassment" of gray whales as defined by the MMPA. The MMPA defines "harassment" to mean any act of pursuit, torment, or annoyance which— (i) has the potential to injure a marine mammal or marine mammal stock in the wild (referred to as Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavorial patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (referred to as Level B harassment). 16 U.S.C. § 1362(18).

Whales that are not killed in the hunt may be subject to "harassment" as a result of approaches and unsuccessful harpooning attempts that do not penetrate the whale's body and hence do not meet the definition of a "strike." Based on experience with whale hunts in 1999 and 2000, the Tribe estimates that there could be approximately 10 approaches and 4 unsuccessful harpoon attempts for every whale struck.

Approaches would be classified as Level B harassment and would be unlikely to result in any increased level of human-caused mortality to individual whales. Gray whales feed, migrate, breed, and calve close to shore, and therefore they encounter humans on vessels throughout their range. There is a major tourism industry that provides opportunities to watch gray whales on the winter breeding grounds in Mexico. Commercial and private whale watching occurs during the migration along the west coast of the United States and Canada. Gray whales encounter commercial fishing vessels in Bristol Bay, and small craft used by Chukotka natives and Alaska natives in the Arctic. Off the coast of Los Angeles, California during the whalewatching season, Rugh et al. (1999) reported that there can be eight to 12 boats following a single whale. The number of approaches incident to Makah whaling will be minor in comparison to these existing sources of harassment. Assuming an average pod size of approximately two animals during the migration period in the Pacific Northwest (Green et al. 1995), the number of whales subject to Level B harassment in a calendar year will not exceed 140**.**

Unsuccessful harpoon attempts would probably be classified as Level A harassment. However, because the harpoon would not penetrate the body of the whale on the attempt,

unsuccessful harpoon attempts would not result in any increase in human-caused mortality. NOAA (2001) concluded, based on their experience with biopsy darting research, that instances where a harpoon did not penetrate the whale would not likely have a significant adverse effect on whale behavior. Clapham and Mattila (1993) assessed behavior of humpback whales (*Megaptera novaeangliae*) in relation to both successful and unsuccessful biopsy attempts. Of the 427 missed biopsy attempts, 87.8% of the time the whales showed no reaction. Missed harpoon strikes would be analogous to missed biopsy attempts, where a projectile lands in the water nearby a whale, but does not cause contact. Clapham and Mattila (1993) reported that of the successfully biopsied whales (n = 565), 66.6% showed no detectable reaction or a low-level reaction (defined as a brief startle or a quick submergence, or both). Because a biopsy indicates a direct hit and therefore removal of a small piece of blubber and skin, for the purposes of assessing adverse effects, a biopsy would cause a more substantial effect than, for instance, a shaft of a harpoon bouncing off a whale. Accordingly, the Tribe does not believe that unsuccessful harpoon attempts (i.e., missed harpoon throws or the situation of a harpoon glancing off the animal) should be accounted for as a source of human-caused mortality for the purposes of applying the PBR methodology. In any event, no more than 28 gray whales will likely be subject to Level A harassment in any calendar year under this request.

D. Factors to be Considered in Prescribing Regulations.

This section provides an analysis of the five factors set out in Section 103(b) of the MMPA, 16 U.S.C. § 1373(b) which the Secretary must consider in prescribing regulations to implement the Tribe's waiver request.

1. Existing and Future Levels of Species and Stocks.

Section 103(b)(1) instructs the Secretary to consider "existing and future levels of marine mammal species and populations stocks." 16 U.S.C. § 1373(b)(1). The critically depleted Western North Pacific stock of gray whales which migrates along the east coast of Asia (Rice and Wolman 1971) will not be affected by this request. As shown above, the Eastern North Pacific stock of gray whales is currently within its OSP range. Even with the level of take proposed in this request, the stock is not likely to diminish below OSP within the foreseeable future. In 2002, the IWC's Scientific Committee estimated that a take of up to 463 whales per year would be sustainable over at least the medium term (~30 years) (IWC 2003). This level of take is substantially higher (by almost 350 percent) than the average annual joint US-Russian quota of 124 whales per year as well as a conservative estimate of all human-caused mortality in a given year. Any regulations promulgated to implement the Tribe's waiver request should provide for reduced strike limits or suspension of the hunt if necessary to prevent the abundance of the Eastern North Pacific stock of gray whales from falling below OSP.

2. Existing International Treaty and Agreement Obligations of the United States.

Section 103(b)(2) directs the Secretary to consider "existing international treaty and agreement obligations of the United States." 16 U.S.C. § 1373(b). The Tribe's request is

consistent with current IWC regulations which provide for an aboriginal subsistence quota of 620 gray whales between 2003 and 2007, with a maximum take of 140 gray whales in any one year. By bilateral agreement between the United States and the Russian Federation, up to 20 gray whales may be taken from this quota by the Makah Tribe over the five year period, with a maximum of five whales in any one year. The Tribe's request is also consistent with the IWC's prohibition against the taking of calves and whales accompanied by calves. The number of takes and strikes allowed under this request, as well as the time and manner of harvest, may be subject to reduction if necessary to meet the international treaty obligations of the United States under the International Convention for the Regulation of Whaling (ICRW).

3. The Marine Ecosystem and Related Environmental Considerations.

Section 103(b)(3) requires the Secretary to consider "the marine ecosystem and related environmental considerations." 16 U.S.C. § 1373(b)(3). As discussed above, the Tribe's request is designed to maintain the Eastern North Pacific stock of gray whales at or above an OSP level and to prevent any depletion of the abundance of gray whales along the Pacific coast south of Alaska and within the ORSVI survey area. These measures will ensure that Eastern North Pacific gray whales remain a functioning part of the ecosystem on multiple spatial scales: throughout the migration corridor; the Pacific coast south of Alaska; as well as the local region surrounding the Makah U&A.

In the past, concerns have been raised about the impact of the hunt on seabirds and the safety of the high-powered rifle. The Tribe believes that these concerns are greatly mitigated by its current request which prohibits hunting from June 1 and November 30 and within the Strait of Juan de Fuca. To address further concerns about the impacts of whaling on nesting seabirds, the Tribe proposes a restriction barring any gray whale from being struck within 200 yards of Tatoosh Island or White Rock during the month of May. The Tribe also intends to implement safety measures in their Tribal regulations which are no less protective of public safety than those provided for in its 2001 gray whale management plan (Makah Tribal Council 2001).[11] Further measures to address impacts to other species and public safety may be developed and implemented based on the outcome of the NEPA process.

4. Conservation, Development, and Utilization of Fishery Resources.

Section 103(b)(4) of the Act instructs the Secretary to consider "the conservation, development, and utilization of fishery resources." 16 U.S.C. § 1373(b)(4). No impacts to fisheries, either positive or negative, are expected to occur as a result of the Tribe's request.

5. Economic and Technological Feasibility of Implementation.

[11] These measures authorized the discharge of firearms when whaling only when the shooter was within 30 feet of the target area of the whale and the shooter's field of view was clear of all persons, vessels, and other objects that could result in injury or loss of human life. The measures also set minimum visibility standards for the hunt (Makah Tribal Council 2001).

Section 103(b)(5) of the Act instructs the Secretary to consider "the economic and technological feasibility of implementation." 16 U.S.C. § 1373(b)(5). The Tribe believes that its request will be entirely feasible to implement. The hunting methods called for in its request are not intended to be intensive, but have proven to be effective within the context of the Tribe's goal of providing opportunities for a traditional ceremonial and subsistence whale hunt.

The request should be quite feasible to implement from a management standpoint. The Tribe's waiver request is no more complex than numerous Treaty fisheries that the Tribe has managed in cooperation with NOAA Fisheries and the Washington Department of Fish and Wildlife over the past three decades. With one exception, the proposed management regime is very similar to that which the Tribe successfully implemented in 1999 and 2000. The one major addition is the photographic monitoring of the harvest to ensure that the ABL for the PCFA is not exceeded in any calendar year. The Tribe will have a qualified marine mammal biologist on staff who will administer these provisions in consultation with NMML biologists. In the event that the Tribe is unable or unwilling to effectively implement and enforce Tribal regulations, these requirements will be subject to direct enforcement by NOAA Fisheries enforcement personnel.

VI. Conclusion.

NOAA should approve the Tribe's request for a waiver and adopt regulations that permit the Tribe to exercise its treaty rights in the manner specified in this application. The proposed waiver is necessary for the United States government to fulfill its legal obligations to the Tribe under the Treaty of Neah Bay, will not disadvantage the Eastern North Pacific stock of gray whales, and will be consistent with the purposes and policies of the MMPA.

VII. References.

ANGLISS, R. P., AND K. L. LODGE. 2004. Alaska marine mammal stock assessments, 2003. U.S. Dep. Commer. NOAA Tech. Memo. NMFS-AFSC-144, 230 p.

BALDRIDGE, A. 1972. Killer whales attack and eat a gray whale. J. Mammal. 53: 898-900.

BARNES, L. G. AND S. A. MCLEOD. 1984. The fossil record and phyletic relationships of gray whales. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

BUCKLAND, S. T. AND J. M. BREIWICK. 2002. Estimated trends in abundance of eastern Pacific gray whales from shore counts (1967/68 to 1995/95). J. Cetacean Res. Manage. 4(1): 41-48.

BRAHAM, H. 1984. Distribution and migration of gray whales in Alaska. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

CALAMBOKIDIS, J., J. D. DARLING, V. DEECKE, P. GEARIN, M. GOSHO, W. MEGILL, C. M. TOMBACK, D. GOLEY, C. TOROPOVA, AND B. GISBORNE. 2002a. Abundance, range and movements of a feeding aggregation of gray whales (*Eschrichtius robustus*) from California to southeastern Alaska in 1998. J. Cetacean Res. Manage. 43(3): 267-276.

CALAMBOKIDIS, J., J. R. EVENSON, G. H. STEIGER, AND S. J. JEFFRIES. 1994. Gray whales of Washington State: natural history and photographic catalog. Cascadia Research Collective, Olympia, WA. 60 pp.

CALAMBOKIDIS, J. L. SCHINDLER, M. GOSHO, P. GEARIN, D. GOLEY, AND C. TOROPOVA. 2000. Gray whale photographic identification in 1999: collaborative research by Cascadia Research, the National Marine Mammal Laboratory, and Humboldt State University. Final Report to the National Marine Mammal Laboratory, Seattle WA. [Paper available from www.cascadiaresearch.org].

CALAMBOKIDIS, J., M. GOSHO, P. GEARIN, W. MEGILL, M. HEATH, D. GOLEY, AND B. GISBORNE. 2002b. Gray whale photographic identification in 2001: collaborative research in the Pacific Northwest. Final Report to the National Marine Mammal Laboratory, Seattle, WA. [Paper available from www.cascadiaresearch.org].

CALAMBOKIDIS, J., R. LUMPER, M. GOSHO, P. GEARIN, J. D. DARLING, W. MEGILL, D. GOLEY, B. GISBORNE, AND B. KOPACH. 2003. Gray whale photographic identification in 2002: collaborative research in the Pacific Northwest. Final Report to the National Marine Mammal Laboratory, Seattle, WA. [Paper available from

www.cascadiaresearch.org].

CALAMBOKIDIS, J., R. LUMPER, J. LAAKE, M. GOSHO, AND P. GEARIN. 2004. Gray whale photographic identification in 1998-2003: collaborative research in the Pacific Northwest. Final Report to the National Marine Mammal Laboratory, Seattle, WA. [Paper available from www.cascadiaresearch.org].

CLAPHAM, P. J. AND D. K. MATTILA. 1993. Reactions of humpback whales to skin biopsy sampling on a West Indies breeding ground. Marine Mammal Science. 9(4): 382-391.

DARLING, J. D. 1984. Gray whales off Vancouver Island, British Columbia. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. M. Academic Press. Orlando, Florida. 600 pp.

GOLEY, P. D. AND J. M. STRALEY. 1994. Attack on gray whales (*Eschrichtius robustus*) in Monterey Bay, California, by killer whales (*Orcinus orca*) previously identified in Glacier Bay, Alaska. Can. J. Zool. 72(8): 1528-1530.

GREEN, G. A., J. J. BRUEGGEMAN, R. A. GROTEFENDT, AND C. E. BOWLBY. 1995. Offshore distances of gray whales migrating along the Oregon and Washington Coasts, 1990. Northwest Science. 69(3): 223-227.

HATLER, D. F., AND J. D. DARLING. 1974. Recent observations of the gray whale in British Columbia. Can. Field. Nat. 88: 449-459.

HOBBS, R. C. AND D. J. RUGH. 1999. The abundance of gray whales in the 1997/98 southbound migration in the eastern North Pacific. Paper SC/51/AS10 presented to the IWC Scientific Committee, 1999 (unpublished). [Paper available from the IWC.]

INGLING, A. L. 1997. The development of techniques incorporating traditional elements to enable the Makah to harvest the gray whale in an efficacious, safe, and humane manner. Paper IWC/49/HK4 presented to the IWC, 1997 (unpublished). [Paper available from the IWC.]

INGLING, A. L. 1999. Comparative ballistic efficiency of various large-caliber rifles for use in humane killing of whales. Paper IWC/51/WK 14 presented to the IWC, 1999 (unpublished). [Paper available from the IWC.]

INTERNATIONAL WHALING COMMISSION (IWC). 2000. Report of the Scientific Committee. 52nd Meeting of the International Whaling Commission, Adelaide, Australia. IWC/52/4.

INTERNATIONAL WHALING COMMISSION (IWC). 2002. International Convention for the Regulation of Whaling, 1946 (As amended by the Commission at the 54th Annual Meeting, Shimonoseki, Japan, 20-24 May, 2002.

INTERNATIONAL WHALING COMMISSION (IWC). 2003. Report of the Scientific Committee, 2002; 54th Meeting of the International Whaling Commission, Shimonoseki, Japan. Supplement of the Journal of Cetacean Research and Management.

JONES, M. L., AND S. L. SWARTZ. 1984. Demography and phenology of gray whales and evaluation of whale-watching activities in Laguna San Ignacio, Baja California Sur, Mexico. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

LANG, A. R., D. W. WELLER, R. G. LEDUC, A. M. BURDIN, J. HYDE, AND R. L. BROWNELL, JR. 2004. Genetic differentiation between western and eastern gray whale populations using microsatellite markers. Paper SC/56/BRG38 presented to the IWC Scientific Committee, 2004. [Paper available from the IWC.]

LEDUC, R. G., D. W. WELLER, J. HYDE, A. M. BURDIN, P. E. ROSEL, R. L. BROWNELL, JR., B. WURSIG, AND A. E. DIZON. 2002. Genetic differences between western and eastern gray whales (*Eschrichtius robustus*). Journal of Cetacean Research and Management 4(1):1-6.

MAKAH TRIBAL COUNCIL. 2001. Management plan for Makah Treaty gray whale hunting for the years 1998-2000: as amended April 2001.

MEAD, J. G. AND E. D. MITCHELL. 1984. Atlantic gray whales. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

MOORE, S. E., J. URBAN R., W. L. PERRYMAN, F. GULLAND, H. M. PEREZ-CORTES, P. R. WADE, L. ROJAS BRACHO, AND T. ROWLES. 2001. Are gray whales hitting "K" hard? Marine Mammal Science. 17(4): 954-958.

NATIONAL MARINE FISHERIES SERVICE (NMFS). 2001. Environmental assessment on issuing a quota to the Makah Indian Tribe for a subsistence hunt on gray whales for the years 2001 and 2002. 12 July 2001. 92 p.

NERINI, M. 1984. A review of gray whale feeding ecology. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

NORRIS, K. S., R. M. GOODMAN, B. VILLA-RAMIREZ, AND L. HOBBS. 1977. Behavior of California gray whale, *Eschrichtius robustus*, in southern Baja California, Mexico. Fish. Bull. 75: 59-172.

ODLING-SMEE, F. J., K. N. LALAND, AND M. W. FELDMAN. 1996. Niche construction.

Am. Nat. 147(4): 641-648.

O'LEARY, B. L. 1984. Aboriginal whaling from the Aleutian Islands to Washington state. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

OLIVER, J. S., AND P. N. SLATTERY. 1985. Destruction and opportunity on the sea floor: effects of gray whale feeding. Ecology. 66(6): 1965-1975.

OLIVER, J. S., P. N. SLATTERY, M. A. SILBERSTEIN, AND E. F. O'CONNOR. 1983. A comparison of gray whale, *Eschrichtius robustus*, feeding in the Bering Sea and Baja California. Fishery Bulletin. 81(3): 513-522.

PERRYMAN, W. L., G. M. WATTERS, L. K. SWARTZ, AND R. A. ROWLETT. 2004. Preliminary results from shore-based surveys of northbound gray whale calves in 2003 and 2004, with a comparison to predicted numbers based on the distribution of seasonal ice. Paper SC/56/BRG43 presented to the IWC Scientific Committee, 2004 (unpublished). [Paper available from the IWC.]

PERRYMAN, W. L., M. A. DONAHUE, P. C. PERKINS, AND S. B. REILLY. 2002. Gray whale calf production 1994-2000: are observed fluctuations related to changes in seasonal ice cover? Marine Mammal Science. 18(1): 121-144.

PERRYMAN, W. L. AND M. S. LYNN. 2002. Evaluation of nutritive condition and reproductive status of migrating gray whales (*Eschrichtius robustus*) based on analysis of photogrammetric data. J. Cetacean Res. Manage. 4(2): 155-164.

PHILO, L. M., E. B. SHOTTS, AND J. C. GEORGE. 1993. Morbidity and mortality. *In* J. J. Burns and J. J. Monage (eds.). The Bowhead Whale. Allen Press. Lawrence, Kansas. 787pp.

PIKE, G. C. 1962. Migration and feeding of the gray whale (*Eschrichtius gibbosus*). J. Fish. Res. Bd. 19: 815-838.

POOLE, M. M. 1984. Migration corridors of gray whales along the central California coast, 1980-1982. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

RAMAKRISHNAN, U., R. G. LEDUC, J. DARLING, B. L. TAYLOR, P. GEARIN, M. GOSHO, J. CALAMBOKIDIS, R. L. BROWNELL, JR., J. HYDE, AND T. E. STEEVES. 2001. Are the southern feeding group of Eastern Pacific gray whales a maternal genetic isolate? Pager SC/53/SD8 presented to the IWC Scientific Committee, 2001 (unpublished). [Paper available from the IWC.]

REEVES, R. R. 1984. Modern commercial pelagic whaling for gray whales. *In* M. L. Jones, S.

L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

RENKER, A. M. 2002. Whale hunting and the Makah Tribe: A Needs Statement. Report to Intl. Whal. Comm., IWC/54/AS2.

RICE, D. W. 1983. Gestation period and fetal growth of the gray whale. Rep. Int. Whal. Commn. 33: 539-544.

RICE, D. W. AND A. A. WOLMAN. 1971. The life history and ecology of the gray whale, *Eschrichtius robustus*. American Society of Mammalogists. Special Publication 3. 142 pp.

RICE, D. W., A. A. WOLMAN, D. E. WITHROW, AND L. A. FLEISCHER. 1981. Gray whales on the winter grounds in Baja California. Rep. Int. Whal. Commn. 31: 477-493.

RUGH, D. J., J. M. BREIWICK, R. C. HOBBS, AND J. A. LERCZAK. 2002. A preliminary estimate of abundance of the Eastern North Pacific stock of gray whales in 2000/01 and 2001/02. Paper SC/54/BRG6 presented to the IWC Scientific Committee, 2002 (unpublished). [Paper available from the IWC.]

RUGH, D. J., R. C. HOBBS, J. A. LERCZAK, AND J. M. BREIWICK. 2003. Estimates of abundance of the Eastern North Pacific stock of gray whales 1997 to 2002. Paper SC/55/BRG13 presented to the IWC Scientific Committee, 2003 (unpublished). [Paper available from the IWC.]

RUGH, D. J., M. M. MUTO, S. E. MOORE, AND D. P. DEMASTER. 1999. Status review of the Eastern North Pacific stock of gray whales. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-103, 96 p.

SAYERS, H. 1984. Shore whaling for gray whales along the coast of the Californias. *In* M. L. Jones, S. L. Swartz, and S. Leatherwood (eds.). The Gray Whale, *Eschrichtius robustus*. Academic Press. Orlando, Florida. 600 pp.

SCAMMON, C. 1874. The marine mammals of the Northwestern coast of North America. John H. Carmany & Co., San Francisco, CA.

SHELDEN, K. E. W., AND D. J. RUGH. 2001. Gray whale calf sightings in California during southbound migrations, 1995-2001. Paper SC/53/BRG4 presented to the IWC Scientific Committee, 2001 (unpublished). [Paper available from the IWC.]

SHELDEN, K. E. W., J. L. LAAKE, P. J. GEARIN, D. J. RUGH, AND J. M. WAITE. 1999. Gray whale aerial surveys off the Washington coast, winter 1998/99. Paper SC/51/AS12 presented to the IWC Scientific Committee, 1999 (unpublished). [Paper available from the IWC.]

STEEVES, T. E., J. D. DARLING, P. E. ROSEL, C. M. SCHAEFF, AND R. C. FLEISCHER. 2001. Prelminary analysis of mitochondrial DNA variation in a southern feeding group of eastern North Pacific gray whales. Conservation Genetics 2: 379-384.

SUYDAM, R. S., R. P. ANGLISS, J. C. GEORGE, S. R. BRAUND, AND D. P. DEMASTER. 1995. Revised data on the subsistence harvest of bowhead whales (*Balaena mysticetus*) by Alaska Eskimos, 1973-1993. Rep. Int. Whal. Commn. 45: 335-338.

SWARTZ, S. L. 1986. Gray whale migratory, social, and breeding behavior. In Donovan, G. P. (ed.) Behavior of whales in relation to management. Report of the International Whaling Commission, Special Issue 8. Cambridge, UK.

URBAN R., J., L. ROJAS-BRACHO, H. PEREZ-CORTES, A. GOMEZ-GALLARDO, S. L. SWARTZ, S. LUDWIG, AND R. L. BROWNELL, JR. 2003. A review of gray whales on their wintering grounds in Mexican waters. J. Cetacean Res. Management. 5(3): 281-295.

WADE, P. R. 1998. Calculating limits to the allowable human-caused mortality of cetaceans and pinnipeds. Marine Mammal Science, 14(1): 1-37.

WADE, P. R. 2002. A Bayesian stock assessment of the eastern North Pacific gray whale using abundance and harvest data from 1967 to 1996. J. Cetacean Res. Manage. 4(1): 85-98.

WADE, P. R. AND R. ANGLISS. 1997. Guidelines for assessing marine mammal stocks: report of the GAMMS workshop April 3-5, 1996, Seattle, Washington. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-12. 93 pp.

WADE, P. R., AND W. PERRYMAN. 2002. An assessment of the eastern gray whale population in 2002. Pager SC/54/BRG7 presented to the IWC Scientific Committee, 2002 (unpublished). [Paper available from the IWC.]

VIII. Appendices

Appendix A:

RENKER, A. M. 2002. Whale hunting and the Makah Tribe: A Needs Statement. Report to Intl. Whal. Comm., IWC/54/AS2.

Appendix B:

Treaty of Neah Bay. 1855.

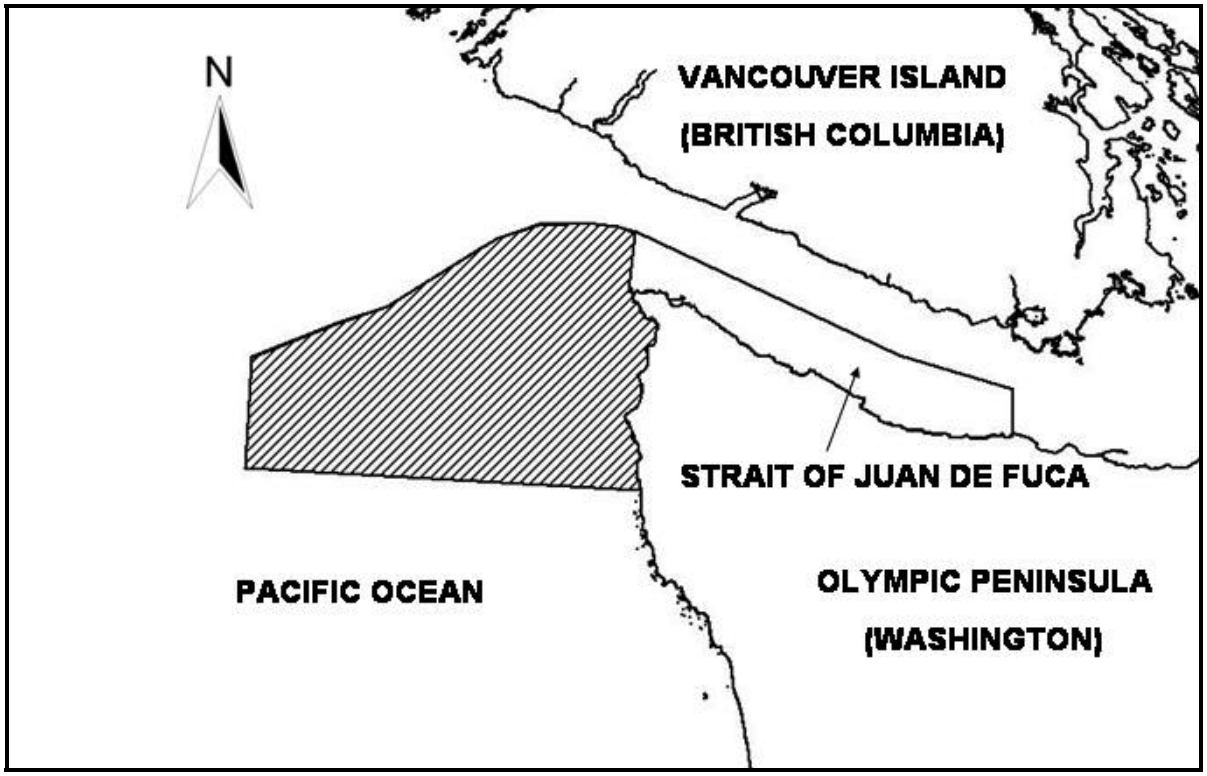


Figure 1. Map of Makah Usual and Accustomed Hunting and Fishing Area (U&A). Eastern North Pacific gray whale harvest by the Makah Tribe would occur in the Pacific Ocean denoted by filled area.

Appendix A

Whale Hunting and the Makah Tribe:
A Needs Statement

Ann M. Renker, Ph.D.
March 2002

TABLE OF CONTENTS

Whale Hunting and the Makah Tribe

I. INTRODUCTION

This document presents information pertinent to the continuation of the Makah subsistence whale hunt, and is presented in two parts: a cultural component and a nutritional component. The Needs Statement demonstrates the following points:

1) Whale hunting for subsistence purposes is an activity Makahs practiced for at least 1,500 years before the present day. Documented use of whale products for subsistence purposes extends another 750 years before this date, since Makahs used drift and stranded whales long before hunting technology developed. Continuation of the restored whale hunt will maintain important subsistence benefits reintroduced to the Makah community in 1999. This benefit increases in importance as the unemployment rate in Washington State increases and as salmon and other Pacific fishing stocks continue to vary in abundance. Increasing variance in international and domestic fishing quotas diminish the reliability of the marine subsistence component of the Makah Tribe, along with the environmental pressures exerted by oil spills, red tides, pollution, and other factors beyond the control of the Tribe. Gray whales are a reliable resource that can offset subsistence pressures from other sources.

2) For 1500 years, whale hunting and its associated components have had important ceremonial and social functions for the Makah community, in addition to the provision of subsistence benefits. The importance of this ceremonial and subsistence practice is demonstrated in the Treaty of Neah Bay, signed in 1855. Makah negotiators insisted that the right to hunt whale be included in the treaty; this right is reserved in Article IV, and is discussed in more depth later in this document.

Elders and anthropologists trace the decline of the social and physical health of the tribe to the elimination of the whale hunt and its associated ceremonial and social rigors. A community survey conducted in 2001 December, demonstrated that an overwhelming majority (93.9%) of the village believes that the resumption of the whale hunt has positively affected the Tribe, and 51.6% specifically cited moral and social changes as the most important benefit. Clearly, the Makah people believe that the restoration of the hunt has contributed to the physical and mental health of the reservation. Continuation of the hunt will maintain this new-found motivation and momentum, and allow the Makah community to redefine and refine ancestral information and values in light of modern times. The revitalization of the hunt has allowed Makahs an additional mechanism to instill the traditional values of the Tribe which help young and old to conquer the vicissitudes of modern life.

3) The Household Whaling Survey (Renker 2002) provides an important tool which provides empirical support for the emotional and psychological benefits mentioned previously. Data indicated that an overwhelming majority of Makah respondents support the Makah whale hunt, and that most reservation households now desire whale products to be a regular part of their diets. For example, 86.5% of survey respondents wanted whale meat in their households on a regular basis, and 72.4% of the survey respondents felt the same way about whale oil. (Survey results are discussed in detail in later sections of this document.) The results of this survey present a good picture of the mainstream opinion of the Makah people.

4) The Makah Tribe has been actively involved in the management and protection of its wealth of resources for millenia. For thousands of years, the Makahs achieved and maintained a functional balance with many land, air, and ocean species, especially the gray and humpback whales. This carefully constructed dynamic was upset during the years of unregulated whale hunting by others on the Pacific Coast. The restored Makah whale hunt has not affected current eastern Pacific gray whale stocks negatively, and is small in comparison to the total aboriginal subsistence harvest. In fact, current figures indicate that the gray whale population continues to maintain numbers that are at historic high levels.

5) The Makah people can now actively demonstrate the continuing existence of their 2,000 year old subsistence culture. The whale had always played an integral part in the subsistence practices of the Makah Tribe, save the brief seventy year period which commenced in the 1920s. While the decimation of the whale herds made it virtually impossible for Makahs to procure the food which traditionally carried the most extraordinary social, cultural, and nutritional benefits, the restored hunt provides modern Makahs with a rich source of traditional foods which are nutritionally superior to many non-indigenous provisions which are available to the community.

The gray whale population now exceeds early historic levels. The Makah subsistence and ceremonial need to take whales should continue to be recognized and respected. Since the Tribe has a conservation record of considerable time depth, a limited subsistence whale hunt will continue to be easily managed. More importantly, another annual quota of five whales will maintain the benefits secured for future generations of Makah people by Treaty negotiators.

The Makah request for five whales is again predicated on the fact that Tribal membership is now composed of the residents of the five traditional Makah villages which were consolidated during the early years of the Reservation. Since Treaty times, the Makah Tribe has always represented itself as a nation which began as five villages. This request honors this tradition, and asks for one whale per village.

In addition, a review of the ethnographic literature finds that the number five, whether an actual figure or an average, appears multiple times in discussions of early historic harvests (Jewitt 1815, Cavanaugh 1983, Huelsbeck 1988). Five whales per year did not create an undue population stress for a healthy gray whale stock in the years prior to 1830, and would not adversely affect the modern, healthy, gray whale population of the eastern Pacific (Environmental Assessment 2001).

METHOD STATEMENT

Interpretation of Makah history, culture, and language is accomplished through the juxtaposition of a variety of sources. By evaluating evidence from Makah archaeological sites (like Ozette),in conjunct with oral histories, linguistic information, ethnographies, and early written records of traders, explorers and agency employees, one generates a cultural profile that simultaneously integrates and cross-references these distinct sources of data.

The primary source of archaeological data substantiating the existence of Makah pre-Treaty whale hunts and offshore fisheries is the Ozette Collection, the largest and most comprehensive collection of pre-contact Makah artifacts in the world. The Ozette village was one of five pre-contact Makah villages which were occupied throughout the year: **di.ya** or Neah Bay; **bi?id?a** or Biheda; **wa?ac'** or Why-atch; **c'u.yas** or Tsoo-yess; and **?use.?i=** or Ozette (Taylor 1974). Unlike the others, Ozette was partially buried by a catastrophic mudslide approximately 400 years ago. A massive archaeological excavation from 1970 - 1981 uncovered 50,000 artifacts that were remarkably well preserved; these artifacts tell the story of the Makah culture as it was prior to contact with non-Indians (Wessen 1982, Huelsbeck 1983).

When interpreting the anthropological literature, a standard procedure relating to the classification of the Makah culture as a member of the Nootkan cultural group was followed. The Makah culture is the only example of a Nootkan culture outside of Canada; all other Nootkan groups reside along the western and southwestern coast of Vancouver Island. Scholars recognize the close relationship between Makah and the other members of the Nootkan cultural category (Curtis 1911, Drucker 1951, Driver 1969, Arima 1990, Renker 1994). It is therefore standard practice to consider sources relating both to the sub-group which is the focus of inquiry (Makah), and nearby closely related sub-groups on Vancouver Island (**nu.ca.nu.=** bands).

For the nutritional component of the Needs Statement, the document utilized the methodology and definitions endorsed by the United Nations University and the International Union of Nutrition Science's Committee on Nutritional Anthropology.

The methodology for the Household Whaling Survey (Renker 2002) is discussed in Appendix 3.

Definitions

Pre-contact refers to the chronological time period prior to 1788. **Historic** refers to the chronological time period from 1788-1933. **Contemporary** refers to the chronological time period from 1934 till today.

A Makah elder is an individual who is enrolled in the Makah Tribe, is over 75 years of age, and is a native speaker of the Makah language.

Westcoast refers to the generalized cultural group of Makah, Nitinaht, and Nootkan peoples. **nu.ca.nu.=** refers only to Nitinaht and Nootkan peoples since these people are closely related subgroups who live on Vancouver Island.

Subsistence refers to the anthropological concept that a particular food product or supplement is directly acquired by th people who will use the item for local consumption and nutritional purposes.

Linguistic and Other Conventions

Elements of the Makah language (morphemes, words and the like) are printed in **bold** type to enhance visibility. Because of the limitations affecting the preparation of this opinion, I use a variation of the Makah Alphabet. A key to the adaptation used this document is included in Appendix 1.

Indented citations with quotation marks are taken from oral histories. Indented citations without quotation marks are from written sources.

Definitions

Pre-contact refers to the chronological time period prior to 1788. **Historic** refers to the chronological time period from 1788-1933. **Contemporary** refers to the chronological time period from 1934 till today.

A Makah elder is an individual who is enrolled in the Makah Tribe, is over 75 years of age, and is a native speaker of the Makah language.

Westcoast refers to the generalized cultural group of Makah, Nitinaht, and Nootkan peoples. **nu.ca.nu.=** refers only to Nitinaht and Nootkan peoples since these people are closely related subgroups who live on Vancouver Island.

Subsistence refers to the anthropological concept that a particular food product or supplement is directly acquired by the people who will use the item for local consumption and nutritional purposes.

Linguistic and Other Conventions

Elements of the Makah language (morphemes, words and the like) are printed in **bold** type to enhance visibility. Because of the limitations affecting the preparation of this opinion, I use a variation of the Makah Alphabet. A key to the adaptation used in this document is included in Appendix 1.

Indented citations with quotation marks are taken from oral histories. Indented citations without quotation marks are from written sources.

II. WHALE HUNTING AND THE MAKAH TRIBE: THE CULTURAL COMPONENT

Cultural Abstract

Anthropologically, the Makah culture is classified within the Nootkan sub-division of Northwest Coast cultures. The Makah people speak a language, **q*i.q*i.diccaq**, which is classified as a member of the Wakashan language family. The Makah Tribe is the only representative of the Nootkan cultural classification and the Wakashan language family in the United States (Renker and Gunther 1990; Renker 1994).

Classic descriptions are exemplified in Swan (1870), Curtis (1911), Waterman (1920), and Densmore (1939); some of the more recent publications include Renker (1994) and Renker and Gunther (1990), which span pre-contact through contemporary times, as well as Parker-Pascua (1991), which concentrates on Makah pre-contact life. Like all cultures termed Northwest Coast cultures by anthropologists, the classification is based upon factors first identified in these cultures as each existed in early historic times. Makah culture exhibits a number of characteristic Northwest Coast traits and trait complexes, including:

1. Emphasis on achieved wealth as measured in property and hereditary rights;

2. Complex patterns of social stratification;

3. A highly developed painting and wood carving style;

4. A material culture based on the abundance of the wood resource in the area, especially when related to the absence of other technologies, such as ceramics; and,

5. A subsistence pattern based on the utilization of available marine, riverine, subtidal and intertidal resources, as well as a predictable supply of anadromous fish.

The factors which further classify the Makah culture within the Nootkan sub-division provide a more detailed list of items which distinguish the Makah culture from other American Northwest Coast cultures. These factors include: a)the integration of rank and kinship as the basis for social interaction (Drucker 1951); b) the integration of land and sea spirits in a ceremonial complex which featured both inclusive and exclusive secret societies and events (Curtis 1911, Sapir 1939, Sapir and Swadesh 1955); c) the development of a highly regulated system of ceremonial and economic privileges, including the ownership of, and control over, tangible and intangible properties such as whaling grounds, fishing grounds, and other sections of ocean and river property (Curtis 1911, Densmore 1939, Drucker 1951); and d) the development of ocean-going technologies like fixed referent

navigation and the construction of sea-worthy canoes (Drucker 1951, Renker and Pascua 1989).

These last technologies are prominent components in the most dramatic pursuit of the Makah Tribe: whale hunting. Several Pacific coastal Tribes utilized dead whales which happened to drift onto the shore, or cultivated ritualists who actively used sympathetic magic to entice these drift animals. In contrast, the Makahs and some of their Vancouver Island relatives were famous for their active and aggressive hunt of these large sea mammals (Swan 1870, Waterman 1920, Densmore 1939).

The Whaling Culture of the Makah Tribe

The relationship between Makah people and whales is one of great antiquity. Archaeological data from a recent excavation at the Makah village of Wa-atch indicate that whale bones were present some 3,850+ 75 years b.p. (before present) (Wessen 1994). Food use of drift and stranded whale predated hunting technology. Better known data from the Ozette site demonstrate some 1,500 years of continuous whale use. This practice continued through the period of contact with non-Indians, and persisted into this century. Recorded history provides a variety of dates for the last Makah whale hunt prior to 1999; it probably happened during the latter half of the 1920s (Laut 1928).

Archaeological and ethnohistorical data demonstrate that Makahs hunted a variety of species of whale which traveled through their territory, including the gray (Eschrichtius robustus), humpback (Megaptera novaeangliae), finback (Balaenoptera physalus), and right whales (Eubalaena glacialis). Huelsbeck (1988a:5) discusses the traits which make both gray whales and humpbacks attractive prey. In addition to swimming slowly and near the shore, both types of whales could appear during the summer. Humpbacks have also been known to migrate along the coast, but not to the extent that gray whales do. Non-Indian whale hunters characterize the gray as the more aggressive species of the two during a hunt (Hagelund 1987).

There is no doubt that Makah people hunted whale in pre-contact times, and that the hunt was an important subsistence activity. The Ozette site yielded whale hunting gear and over 3400 whale bones, including whale bones with embedded harpoon shell blades (Huelsbeck 1988a:1).

The archaeological record is supported by ethnographic sources like the Jewitt Narrative, one of the most interesting and important first person accounts generated during the European exploration of the Pacific Northwest Coast. John Jewitt was one of the surviving crew members of the ship Boston, which was ravaged and sunk by the **nu.ca.nu.**= Chief, Maquinna, in Nootka Sound in 1803. Jewitt remained in Maquinna's service as a slave until his rescue in 1805, and recorded his experiences and observations in a diary first published in 1815.

In spite of his ethnocentrism and lack of knowledge of nu.ca.nu.= culture, Jewitt's observations remain a key document in the early historical record of the area. Jewitt describes the enormous amount of time Maquinna and his crew invested in the pursuit of offshore whales in 1804 and 1805. During these years, Maquinna had only one successful hunt.

Cavanaugh (1983) indicates that Maquinna's lack of whale hunting success during the 1804 and 1805 seasons at Nootka Sound was not indicative of the fate of other hunters. While Maquinna secured one whale during Jewitt's captivity, hunters procured an additional four whales. Simple addition indicates that the people of Nootka Sound had the food and product resource of five hunted whales at their disposal.

According to Huelsbeck, calculations produce a scenario based on abundance, rather than paucity. Using a very conservative estimate, the five whales caught at Nootka Sound "would have provided between 16.25 and 37.5 metric tons of blubber, and could have provided a similar amount of meat, depending on whether or not the California gray or the larger humpback whale was taken" (Huelsbeck 1988b:3). This huge quantity of meat and blubber could have provided between 32.5 and 150 kg. of edible whale product per person for a village with a population of 500 individuals (Huelsbeck 1988b:4).

Certainly the number of whales taken by all Makah crews varied from year to year. A minimum of 67 whales were "represented by the bones recovered from the late prehistoric level" at Ozette (Huelsbeck 1988a:7), constituting a huge quantity of food products and raw material. Based on historic documents, Huelsbeck estimates that whalers of the Yuquot band, a nu.ca.nu.= group, "would have averaged 5 whales per year" (1988:157). Densmore reports a much higher success rate for historic Makah whale hunters. "In old times the average catch for a whaler was one or two whales a year, but a man often caught four and occasionally five in a season" (1939:63). Wilcox (1895:20) provides a more conservative appraisal of the Makah whale hunt for the years 1889-1892. His figures indicate that the Makah Tribe averaged 5.5 whales per year (as cited in Huelsbeck 1988:152) at a time when the cetacean population had already been severely impacted by other, non-Makah whaling interests.

Makah whale hunting capitalized on the annual northerly migration of the gray whale, and the availability of the humpback in their waters. Archeological data corroborate Makah oral history in this regard. In the Ozette Collection, 50.51% of the whale bones identifiable by species were that of the gray, while another 46.51% came from the humpback (Huelsbeck 1988a:4). The remainder of the sample contained finback, right, sperm and killer whales. Huelsbeck interprets the archaeological and ethnohistorical data to indicate that the finback and right whales were hunted from time to time, while the sperm and killer whales "probably represent drift whales" (1988a:6), although some Makah families have oral traditions which involve hunting these species.

The impressive gray whale migration approximately occurs from March to May, and provided a predictable resource that could be harvested by eight man whaling crews which set forth in large cedar canoes. In one hunting strategy, lookouts stationed at strategic points could see a whale and alert the proper individuals, providing enough opportunity for canoes at the ready to launch and chase the whales. (This type of whale hunt, termed an offshore hunt in Hagelund (1987) and Webb (1988), would be adopted by the non-Indian whaling interests in the area centuries later.)

Whale hunts were not restricted to this northerly migration, however. Densmore (1939:49) reports that Makahs distinguished spring whale meat from winter whale meat:

> The whales that "run in the spring" and were known as "spring whales" were said to have red meat because they ate clams and other shellfish they scooped off the rocks. The "winter whale" was considered the best and had a layer of white fat on the outside and red meat underneath.

Whatever the season, the whale hunt tested the training and stamina of the entire crew. A lucky crew might take a whale within a few miles of shore, while some hunts found Makah crews towed thirty or more miles out to sea by an injured whale. Whale hunters told Densmore that

> A wounded whale usually towed the canoe by means of the harpoon rope, held by the men, its speed depending on the severity of its wound. Sometimes the whale went so fast that the end of the canoe went down in the waves. This towing of the canoe might continue for three or four days, the whalers waiting until the whale became sufficiently weary to be dispatched (1939:52).

These great sea mammal hunts (Swan 1870, Waterman 1920), as well as interceptive and deep water fisheries, would not have been possible without a highly developed system of fixed referent navigation, and a keen understanding of the prevailing winds and weather patterns in Makah marine territory. (One appreciates Makah navigational skills more thoroughly when one considers that Captain Cook failed to "discover" the opening of the Strait of Juan de Fuca because of the thick fog.)

An example of the Makah fixed referent system was provided by a Makah elder who has been fishing since the 1920s.

> "There's a ridge on Vancouver Island, I think the main peak there is behind Carmanah Light, and that's Carmanah mountain. That's the highest one, and there's a ridge behind that as you venture to the west, one peak will show up behind that as you venture to the west, one peak will show up behind that high peak on the ridge. The first one is **c'akwaqabas**, the second one is **?a7qabas**, and then you have a low kind of ridge, it drops down for quite a ways, and then another peak shows up, and that's in...oh...mostly used for sealing grounds, called The Spit. Now I have electronic navigational equipment, and I look upon those landmarks to determine just where we actually were when we were one peak out, two peaks out, or seven peaks out."

When navigating out of sight of land, Makah seafarers relied on the prevailing winds and currents, as well as the shape of the waves and behavior of seabirds. For example, prevailing winds in the early morning are mostly easterly, and their afternoon counterparts are mostly westerly. Makah canoes ventured out of the sight of land knowing that attention to wind, wave, and fauna would return the vessels to land.

Makah ocean voyagers also understood that these navigational techniques could lead them directly to prime off-shore fishing and whaling areas. In the words of an experienced Makah fisherman,

> "Prevailing currents, can predict them. They run on schedule. They tell direction and duration...Once off shore, the current changes every six hours: north to south, then south to west, then west to north, then north to east. A massive current moves all the time. Currents are predictable and steady...able to predict spawning areas."

Great cedar canoes provided the means for Makah seafarers to travel these great distances offshore. Fisherman, sealers, and whale hunters each used a different type of canoe which varied in size. The whaling canoe was approximately 36 feet long (Pascua 1991) and five or more feet wide (Arima 1983:35). Carvers fashioned these vessels from a single cedar log, providing canoes that "deserve the very highest place for staunch seaworthiness, coupled with great manageableness (sic) and speed" (Waterman 1920:9).

A whaling crew consisted of a chief, or the whaler, and seven men. The whaler owned the canoe and the whaling equipment, and acted as the sole harpooner in the whaling canoe. He also owned

important ceremonial privileges acquired through his hereditary status and his ability to interact with the natural and the supernatural to assure a successful hunt.

Other crew members included a steersman, a man responsible for managing the lines and buoys, numerous paddlers, and a man who had a unique responsibility once the hunt was over and the whale was dead. This crew member, a diver, fastened the whale's mouth shut with a length of rope. In addition to sealing in gases which kept the whale afloat, fastening the mouth prevented water from filling the carcass and sinking it (Curtis 1911; Waterman 1920; Pascua 1991).

Whaling was restricted to the men who could physically and mentally withstand the rigors of intensive ritualized training, possessed the hereditary access to the position and its ritualized knowledge, and/or a underwent a supernatural encounter which engendered the gift of whaling ability (Waterman 1920:38-40, Gunther 1942, Drucker 1951:169-170).

All crew members underwent rigorous ceremonial and spiritual preparations prior to beginning a hunt; the success of the hunt depended as much on the observance of ritual as the strength and talent of the hunters (Sapir 1939:114).

> From the white point of view, the matter of greatest concern would be the arrangement of the tackle within the boat, and the methods of approaching and striking the quarry. From the Indian standpoint, however, the really important matter is the proper observance before and during the hunt of the various ceremonial performances for procuring help from the spirits. (Waterman 1920:38)

Curtis (1911) provides the most detailed accounts of rituals whalers used to prepare themselves for the hunt.

> Prayers and numerous songs form a part of every whaler's ritual. The secrets of the profession are handed down from father to son. As soon as the boy is old enough to comprehend such matters and to remember his father's words, he is permitted to accompany the whaling crew on short expeditions. Now also begins his instruction concerning the most propitious spots for ceremonial bathing-places in lakes and rivers considered the most dangerous. At the age of twelve he is taken at night and shown how to bathe and to rub his body with hemlock twigs so as to remove the human taint and render the body acceptable to the whale spirit which is being supplicated. Thereafter he bathes alone at intervals, while

> his instruction in prayers and songs continues until the father deems it proper to retire in the young man's favor (16).

These ceremonial rigors extended to the wives and relatives of the whaling crew, the chief's wife in particular. "Therefore, the whaler and his wife observe a long and exacting course of purification, which includes sexual continence and morning and evening baths at frequent intervals from October until the end of the whaling season...about the end of June" (Curtis 1911:16). This woman was expected to observe a strict set of behaviors while the crew was hunting on the ocean, or else cause havoc with the crew at sea. For example, the whaler's wife was required to lie still and utterly motionless the entire time the crew was hunting on the ocean. Lack of attention to this and other proscribed behaviors could also result in the capture of a whale that was not fat or large enough, or cause the harpooned whale to run out to sea instead of in toward the shore (Gunther 1942).

Physical equipment was also important to the pursuit of the whale. Makah whaling equipment consisted of, but was not limited to: harpoons, sealskin floats, fathoms of line made from whale sinew, fathoms of line made from cedar, and a variety of knives (Curtis 1911:16). Detailed discussions of the equipment and its use are found in Swan (1870) and Waterman (1920). Makah archaeological excavations, most notably Ozette, produced assemblages of this equipment, some of which are now on display at the Makah Tribe's museum and cultural center.

There is an amazing continuity which surrounds Makah whale hunting gear. Pre-contact whale hunting equipment found at Ozette is essentially equivalent to whale hunting gear used by Makahs during the middle and late historic period. This amazing continuity does not exclude innovation. Makah whale hunters appreciated innovation and the opportunity to improve the hunt. By the turn of this century, Wilson Parker, the Makah Whaler of Curtis' photo fame, used a metal Lewis Toggle Hook Harpoon Head on the end of his traditional yew wood harpoon, for example. Another innovation helped to cut the tedious and tiring job of endless paddling: whaling canoes accepted tows from steamers to and from the whaling grounds when the technology became available.

The Makahs hunted the variety of whales which swam in their traditional ocean areas, but favored the predictable gray whale. Descriptions of the hunt itself are available in Swan (1870), Curtis (1911), Waterman (1920), Drucker (1951), Arima (1983) and Pascua (1991).

> It would take a long time to get close to the whale while it was on the surface. Eventually, the crew brought the canoe alongside approaching on the left side and from the rear where the whale could not

> see them. The right time to harpoon was when the whale was just submerging, with its flukes well under and swung towards the canoe so that the animal would swing away in reaction and not smash the canoe (Chief Jones, personal communication). The steersman watched to see the flukes were in the right position and gave the signal to the harpooner who immediately drove the harpoon in behind the fore flipper. At once the canoe was swung sharply to the left away from the whale, and the first float was thrown out by the first right-handed paddler behind the harpooner who quickly crouched in the bow to avoid the line paying out. The next paddler back held his paddle under the line to have it run out smoothly from the space before him. The dangerous moments lasted until all the line and floats were all out because someone could get caught in a loop or the canoe could be capsized or smashed in the first violent struggles of the whale before it sounded. Any disaster that happened was thought due to the incorrect observation of tabus or performance of rituals (Arima 1983:41).

Once the first harpoon had been driven into the whale and the first set of floats were secured, a long lance was used to "attack the whale, making it bleed profusely" (Densmore 1939:50). Makah whalers told Densmore that the process of killing a whale, from first harpoon to final dispatch, could take "three to four days" (1939:52).

The successful whaler and his crew now had to tow the enormous animal and navigate their precious whale back to land, a process which could take two days (Densmore 1939:52). Unfortunately, the long delay in landing the animal could allow putrefaction to begin, thus causing the loss of the meat. The blubber would not be adversely affected by this long journey back to the beach.

Ideally, the whaler wanted to land his prize on his own beach at his own village. Using the tide to help him, the whaler beached the carcass at high tide, "to get the bones of all his whales in one spot" (Arima 1983:43). If a whaler had to beach his catch on another whaler's beach, payments had to be made; these often consisted of portions of the whale.

As the whale was staked and readied to be butchered, the community gathered for this event. Strict protocol governed the butchering process, specifying which portions of the whale were to be cut in sequence. Some regulations identified the pieces of the whale which had to be decorated and ceremonially treated. Others specified which portions were distributed to crew members and other village inhabitants. "Then pieces were given to the

rest of the Tribe in order of rank, a procedure which was always carefully observed" (Arima 1983: 43). In effect, the distribution of the whale reinforced the infrastructure of Makah society each time the process occurred.

The highly stratified nature of the Makah social system was a mirror of the status and structure involved in the entire process of the whale hunt. From ceremonial preparation, to the hunt itself, to the ultimate acts of butchering and distribution, Makah whaling actualized the social organization of Makah society. The man who acted as the harpooner for a crew was the chief, or headman, of a particular social group, usually the residents of a single longhouse. He owned the longhouse, the whaling canoe and the equipment. This man also retained the largest burden of ceremonial preparation. These two factors, a large degree of physical wealth and a close relationship with the supernatural, translated into power for the whalers in everyday life.

Whalers, or headmen, were ranked at the top of the pyramid of social standing which existed within a single longhouse. Each resident was affiliated with the headman in some way; this affiliation became the basis for ranking each individual within a residence group. Whaling generated a base from which these relationships were constantly renewed and reinforced. A successful headman could offer prestige, protection and resources to the kin and non-kin residents of his longhouse. A headman who experienced consistent failure, ostensibley because of poor preparation and ineffective supernatural connections, could lose status within his household, and lose non-kin residents as a result. The loss of these residents often translated into a loss of physical wealth and social prestige for a headman.

The anthropological literature tends to concentrate on the role of high-status men in the whale hunt. Makah oral history and articles like Gunther (1942) demonstrate that women played an important social, ceremonial and practical role in the whale hunt complex. Men, for example, were not the only ones affected by relationship between the whale hunt and social status. The women who married whalers dominated the top of the female analog to the male status pyramid. These women, like their male counterparts, found their lives governed by the concept of primogeniture. While whalers tended to be the oldest son of the oldest son of a whaler, the whaler's wife tended to be the oldest daughter of an oldest daughter of a whale hunter. Matches between the oldest son of one whaler and the oldest daughter of another were the ultimate social goal of whaling families. These alliances united two powerful, wealthy families, and insured that consolidated social, ceremonial, and political power would be transmitted to another privileged generation; this procedure is common to historical and contemporary royal families.

Oral history and anthropological documents attest to the fact that the Makah whale hunt generated a series of criteria which governed social processes like status assignations, marriage

preferences, and ceremonial displays. The community-at-large played an important role in the success of the whale hunt, even though its role is far less visible in the written record. While anthropologists were most interested in the ceremonial, social and work activities of the privileged classes, it was the support labor that processed, preserved, and prepared the whale products, as well as conducted the trade activities. People of extraordinary talent in any of these activities were recognized and recompensed by those of higher social status. These people of talent, when combined with a high status chief, resulted in a longhouse with a reputation for great things.

Therefore, whale hunting provided more than a means of organizing social groups within a longhouse; the whale hunt also provided a mechanism by which longhouses in a single village related to each other. Accumulated ceremonial and economic wealth often provided a means to rank the whalers, or headman, vis a vis each other. This ranked order precipitated to the residents of each longhouse. In effect, whaling generated a social dynamic which ranked all Makah individuals within a residence group, a longhouse. The practice also generated a social dynamic which ranked all Makah individuals in relation to the inhabitants of all other longhouses. Whaling was the warp and the woof of Makah society.

In addition to providing the whalers with ceremonial privileges, and Makah society with a governing principle and a means to subsistence security, the Makah populace received other benefits from whale hunts. These benefits included, but were not limited to the following:

1. Whale products such as blubber and oil proved an important source of trade goods. The Makahs served as the middlemen in a huge trade network. Because of their geographical advantage, Makahs operated a critical position in a network which functioned north and south along the Pacific Coast, as well as from the Pacific Coast to the Puget Sound (Swan 1870, Renker and Gunther 1990, Renker 1994). Whale products insured that the Makah people enjoyed a high standard of living with diversified interests (Huelsbeck 1988).

2. Whale products provided a substantial food resource for the Makah people. Early archaeological studies indicate that as much as 84.6% of the Makah pre-contact diet could have been composed of whale meat, oil and other food products (Huelsbeck 1983:43). Recent collaborative efforts between Dr. Huelsbeck and marine biologists have resulted in an adjustment to this early statistic. The projected size of the gray whales found at the Ozette site was too conservative; the mammals could easily have provided 100% of the food for the Makah Tribe (Huelsbeck 1995: personal communication). Clearly, whale products fulfilled important subsistence functions. In addition to nutrition, 25% of bone tools found at Ozette were made from whale bone.

3. The skills needed to hunt whales on the open ocean easily

transferred to Makah offshore activities, including deep water and interceptive fisheries and seal hunting. These pursuits provided additional sources of trade items and food.

4. Ceremonies needed to prepare whalers and their respective families for the hunt provided the Makah culture with a social framework that contributed to governmental, social, and spiritual stability.

The four cultural points articulated here have corollaries in the modern world. In relation to trade, the Makah Tribe signed an agreement with the United States Government which restricted the sale of whale products which were generated from whales harvested under the IWC quota. This agreement does not restrict Makahs from utilizing the subsistence-based redistribution networks that already existed within the reservation. Data clearly indicate the presence of localized networks that aid in the redistribution of whale products, particularly to family members who were not adept at processing and preparing whale themselves (Renker 1988, Aradanas 2001, Renker 2002).

Whale products have become a significant food resource for modern Makahs, in spite of the fact that only one whale has so far been successfully hunted during the first IWC quota period. In fact, a drift whale which washed ashore in an isolated part of Makah territory, was butchered and distributed to over 100 Makah households during the summer of 2001. This event is significant because the increasing Makah demand for whale products motivated more Makahs to utilize the drift whale, and return the meat, blubber, bone, and other parts to Neah Bay by boat. Since the whale was located on a remote beach with no road access, a small fleet of boats ferried whale parts from the beach to the boats, then back to Makah households.

Makahs are utilizing whale food products such as meat, blubber, and blubber rendered into oil, as well as other whale parts not as well known to non-Makahs: eyes, brain, heart, cheeks (the Makah reference to the jaw muscles and the fleshy area under the eyes), and the like. Modern Makahs have quickly rediscovered their ancestral appetite for whale products: 72.4% of surveyed households would like whale oil on a regular basis, 86.5% would like whale meat on a regular basis, and 55.8% would like blubber on a regular basis. Numerous survey respondents indicate a preference for sea mammal products for both traditional and health reasons (Renker 2002).

The significance of the whale as a food resource is also apparent when examining the variety of preparation methods in use on the Makah reservation. One might expect a paucity of recipes and techniques for preparing whale meat and blubber, given a seventy year gap in actuality. Instead, respondents provide the following data. Of the 61.3% of the respondents who received whale meat from the 1999 whale, 41.5% made jerky, 43.9% ate roasts, 41.5% cooked stew, 35.4% grilled steaks, and 34.1% smoked meat. 19.5% of respondents also indicated a preparation methods

other than those offered by the survey. These innovative methods included stir frying, kippering, deep frying, barbecuing, and boiling. Two respondents made whale burgers, and one created whale sausage. Of the remaining respondents who did not receive whale meat for their personal consumption, 84.7% indicated that they would have liked meat from the 1999 whale.

Of the 75.3% of respondents who prepared blubber, 22.4% smoked it, 37.9% rendered the blubber into oil, 6.9% pickled it, 48.3% boiled it, and 65.5% ate the blubber raw. An additional 3.4% of respondents used the blubber for cosmetic purposes. Several interview respondents did indicate that rendering the blubber from the 1999 whale posed problems because of a low concentration of fat in the animal (Renker 2002).

Whale oil is a particularly important commodity for the Makah people, and its precious nature increases its value. The rich oil is used the way many people use olive oil. In the Makah example, many people flavor dried or plain food, such as fish, fish eggs, potatoes, or bread, by dipping these foods into the whale oil. This use is a traditional one, and is mentioned in the earliest ethnographies, such as Swan (1869) and Densmore (1939). In addition, whale oil may be used in particular ceremonial and ritual activities. In one example, when thrown onto a roaring fire in the middle of a longhouse, the whale oil causes the fire to blaze up in a most extraordinary manner; this effect looks the same to modern Makahs as it did to their ancestors, increasing the spiritual connection between past and present.

The Household Whaling Survey attests to the significance of the whale as a food resource because of the large number of respondents who want additional information about processing and preparation techniques for whale products. Of 163 respondents, 70.6% wanted more information about preparing whale meat, 52.1% wanted to know more about butchering whale, 60.1% wanted information about rendering oil, and 59.5% wanted to know about smoking meat.

Modern Makahs also have an interest in whale bone as a raw material. 75.5% of Makah households report that they would like to have access to whale bone on a regular basis, and some people were disappointed that the bones of the 1999 whale were not made available to the community for private use. Instead, the Makah Tribal Council made an arrangement with the Neah Bay High School which provided vocational opportunities for high school students. The entire skeleton of the 1999 whale was given to the high school so that students would learn to clean and prepare the bones for reassembly and eventual display at the Makah Cultural and Research Center. The National Marine Fisheries Service, The Burke Museum, and the Denver Museum of Natural History are all additional participants in this ongoing project (Monette: personal communication: 2002). To date, some 40 Makah high school students have learned valuable vocational skills through the skeletal assembly project. Faunal assembly skills are in

demand in museums and laboratories throughout the United States.

Most importantly, contemporary Makahs insist on the ceremonial rigor and discipline that was so important to their ancestors. 38.7% of respondents in the Household Whaling Survey report that they have actively participated in whaling ceremonial practices since the 1999 whale was harvested, and that 21.6% of their household members are also active ceremonial participants. These figures are meaningful, given the seventy year hiatus in whale hunting, as well as the secretive atmosphere which surrounds these activities. The serious attention given to the ceremonial preparation requirements also acts as an indicator of the positive impact that the whale hunt has had on the social and behavioral aspects of Makah life (Renker 2002).

For example, early ethnographies (Swan 1869, Densmore 1939) as well as recent depictions of pre-contact life (Parker-Pascua 1991) mention the practice followed by whalers' wives of "laying still" with their backs to the ocean while their husbands were hunting whale. By following this practice, wives would spiritually connect with the whale in the ocean, causing it to "be still" on the water, and to swim toward, rather than away, from shore. In the successful 1999 hunt, wives, partners, and mothers of the crew followed this ceremonial practice, and two of these women were brought onto Front Beach in the ritual manner when the whale was brought ashore. Men do practice ceremonial preparations like bathing, but as in pre-contact and historic times, their exact activities are kept highly secret.

A Diachronic Account of Makah Whaling

The Ozette archaeological literature, especially the work of Huelsbeck (1983, 1988, 1988a, 1988b), attests to the considerable time depth and continuity of the Makah whale hunt. Prior to contact with non-Indians, the Makahs and their **nu.ca.nu.**= relatives hunted whale successfully for at least 1200 years without destroying the resource. Ceremonial, social and cultural proscriptions established a functional balance between the Makahs and the whale populations which swam in or through Makah waters.

Once non-Indian traders and explorers entered the waters of the Pacific Northwest, Makah whale hunters felt the effects of an increasing demand for whale products. In response, Makahs continued to ply their well established trade in whale oil and whale products with the visitors.

The regularity and size of the gray whale migration attracted whalers from the United States and Europe. Like the Makahs, other non-Indian whale hunters appreciated the opportunity to practice offshore whaling in the area, as opposed to the more expensive, more protracted, multi-year ocean voyages. "As the market for whale oil and dogfish oil increased in the 1840s and 1850s, the Makah brought oil for sale...Oil purchased from the Indians was a major export of the Hudson's Bay Company" (Lane

1955:17). By 1852, Makahs were trading or selling some 20,000 gallons of whale and fish oil (Lane 1955:18); this figure would rise to 30,000 gallons per annum within 20 years (Gibbs 1877:175).

In 1854, Capt. Charles M. Scammon discovered the breeding grounds of the gray whale in the lagoons of Baja California and Mexico (Hagelund 1987:42-43); this discovery now provided the two terminal points for the gray whale trek, and helped to increase the exploitation of the gray whale on the American Pacific coast.

As time passed and contact with non-Indians increased, other entities intruded into Makah life, and by extension, into the whale hunting complex. Governor Stevens, assigned by the United States' government to negotiate a Treaty with the Makah in 1855, knew of the commercial value of Makah whale hunting talents when the Treaty of Neah Bay was signed. Indeed, numerous Makahs made speeches during the Treaty negotiations asking that the right to whale be reserved to them when the Treaty was signed. These Makah negotiators, and Gov. Stevens, agreed that Article IV. of the Treaty of Neah Bay would specifically list whaling, along with sealing and taking fish, as a right guaranteed to the Makah Tribe. Article IV. of the Treaty of Neah Bay makes Makahs unique among all United States' native tribes: Makahs are the only tribe whose right to hunt whales is recognized in a treaty with the government of the United States.

While the Treaty of Neah Bay preserved the Makah right to hunt whales and seals, and to fish in usual and accustomed grounds, other federal interactions with the Makah did not seem to support this language in actuality. Assistance sent to the Makahs contained agricultural tools, rather than items which supported any of the active components of the Makahs' maritime lifestyle. Instead of tools and materials which would help to procure, process or preserve whale, seal or fish products, Makahs received pitchforks, scythes, hoes, and sickles. "James Swan reported in 1862 that the Makahs had converted the tines of pitchforks into fishhooks, scythes into blubber knives, and sickles into arrowheads" (Marr 1987:29). The Makah reaction to the agricultural materials is perfectly understandable given their splendid maritime talents and the fact that Makah land was obviously unsuited to cultivation (Whitner 1977, Renker and Gunther 1990).

Rather, the motives of the United States are suspect. While soil studies may have been unsophisticated in the mid-nineteenth century in the Pacific Northwest, it took little effort to realize that the soil, vegetation, and topography of the coastal area was unlike the rich agricultural belts in other parts of the country, such as the Plains and the Northeast. Indeed, the land on the Makah reservation was clearly different from that of the Washington territory east of the Cascade Mountains.

This bizarre situation developed because of prevailing ideas regarding federal Indian policy; it had been developed with a very different perspective. The United States government did not

want to encourage self-sufficiency, because self-sufficiency often encouraged hunters and gatherers to travel beyond the confines of the established reservations, and to maintain cultural practices considered savage and barbarous. The best way to force a sedentary existence on a group of hunters and gatherers was to make the group dependent upon agriculture, which required a fixed resource base. The singular nature of this policy was also inappropriate for the Makahs, who already had a fixed, plentiful marine resource base and no land suitable for agriculture.

A philosophical mandate accompanied this strategy. "One of the convictions of those associated with the administration of Indian affairs, both officially and informally, was that farming was associated with civilization" (Whitner 1977:21). In the Makah case, Indian policy was designed "to change the Makahs from self-sufficient food gatherers to farmers, dependent on the white people for tools and instruction" (Marr 1987:29). Indian policy was also designed to assimilate Makah people through an educational system that ignored Makah priorities and prohibited the use of the language, in addition to eradicating customs considered heathen, savage, and dangerous (Colson 1953, Gillis 1974, Whitner 1977, Renker and Gunther 1990).

Whitner (1977) reports that Indian Agency personnel were somewhat daunted by the task of civilizing the Makahs, and cites Henry A Webster, the first resident Indian agent, as writing in 1866, "The Makah are probably nearer the normal state of savage wilderness than any other tribe in the Territory, and seem particularly averse to acquiring the habits and customs of the whites" (in Whitner 1977:20). Little progress is recorded in Webster's Annual Report for 1867, though he is staunch in his resolve to eradicate traditional values and practices:

> Their very natures must, however, be changed, and their habits forced, if necessary upon them, or they will retrograde into worse than savage supremacy of filth and disease of former days (ARCIA 1867).

In spite of the Treaty's recognition of whale hunting as an important facet of Makah life, the United States government chose not to support this well-developed practice. Lane (1974) discusses the frustration of several resident Indian agents who realized that federal efforts should be promoting marine activities, rather than agriculture. Some agents believed that assimilating Makahs to American values, customs, and practices would be easier if the government aided traditional marine pursuits.

Lane documents numerous requests for support of fishing activities from 1860-1881 from agents and superintendents. Regardless of the nature of these requests, Lane concludes that "the United States failed to provide the assistance repeatedly requested" (1974:20). Gillis (1974), Lane (1974), Whitner (1977), and Marr (1987) discuss the circumstances surrounding the federal government's promotion of a shift in Makah subsistence from a maritime base to an agricultural one.

In 1870, President Grant's annual message announced an Indian policy which sought to "Christianize and civilize the Indian" (Whitner 1977:18). At this same time, Pacific whale populations were diminishing, and the Makahs who continued to whale hunt had to make adjustments. Singh (1956) and Van Arsdell (1987) indicate that Makahs increased their seal hunting efforts to compensate for a less profitable whale hunt. "Beginning in 1886, Makah crews were hired on sloops and schooners to hunt fur seal off the Washington coast and Vancouver Island (Marr 1987:29). Makah fur seal hunters easily demonstrated their pelagic talents and Makahs quickly used financial profits and exceptional skill to their advantage. Colson (1953:159) reports that "several Makah sealers had their own schooners and were hiring White navigators in the 1890s".

These changes greatly affected traditional subsistence and trading practices. Swan (1884-1887, 2:396) and Waterman (1920:48) both express opinions that the success of Makah fur sealing had an impact on the whale hunt. "This work was so profitable that the Makah temporarily abandoned whale hunting" (Renker and Gunther 1990: 428). Other historians agree. "By 1891, sealing became so lucrative for the Makah and Westcoast native hunters that their traditional whaling expeditions virtually ceased" (Webb 1988:145). A friend of A.W. Smith lamented the decline of the whaling culture in a letter written on 29 November 1888, "Many of our old whalers at Neah Bay have died since we left" (AW Smith Papers).

While the Makah enjoyed the prosperity brought on by their pelagic success, the Pacific fur seal population was showing signs of stress by 1890. The population could not sustain itself in the face of an increasing number of sealers and the use of firearms. The Law of December 30, 1897, made fur sealing illegal; the agent for the Neah Bay agency, Samuel Morse, was directed to enforce this law on the Makah reservation (AW Smith Papers). Accordingly, Makahs would now be allowed to hunt fur seal only from canoes, using traditional gear and techniques. "Some returned to traditional whaling" (Renker and Gunther 1990:428), but the loss of cash from the commercial fur seal hunt created a huge vacuum on the reservation.

While whale hunts were "still the symbolic heart of the culture" (Marr 1987:25), they continued to diminish in frequency, and became less and less cost-effective. In addition, the introduction of American values worked against the traditional subsistence pursuit. For example, the American philosophy of

social equality made it difficult for Makahs to continue to staff and organize whaling canoes, and therefore households, according to the ancestral patterns. Whale hunting was no longer the sole avenue to a position of ceremonial and political importance as the headman of a large longhouse.

Epidemics, bans on ceremonial activities, and the federal schooling system also produced devastating effects on the Makah's ability to resume whale hunting after the fur sealing ban. The diseases that affected the Makah population had reduced the number of tribal members by some 75% by 1890 (Boyd 1990:145); much family-owned information was lost as a result. Makahs died without passing down important knowledge. Hancock describes the rapid and disastrous effects of the smallpox epidemic of 1853 in his journal. This epidemic was so severe, it literally wiped the village of **bi?id?a** from the face of the earth.

> It was truly shocking to witness the ravages of this disease here at Neaah (sic) Bay... In a few weeks from the introduction of the disease, hundreds of natives became victims to it, the beach for a distance of eight miles was literally strewn with the dead bodies of these people, presenting a most disgusting spectacle (182).

The extreme number of fatalities caused by the epidemics also disrupted the line of authority in most families. Cultural protocol dictated that ownership of ceremonial and economic rights and privileges had to be transmitted publicly at a potlatch. In many cases, epidemics took the lives of people who had not transmitted control over ceremonial and economic privileges to another person. In many other cases, knowledge of critical components of rituals and ceremonies was abruptly lost. The complicated social structure and ritual life which had existed prior to contact was severely disrupted by the decimation of the Makah population.

The governmental ban on traditional and ceremonial activities added to the social and cultural disruption. Potlatches were illegal by the 1870s (Marr 1987:50), forcing Makahs to move off the reservation or to inaccessible places to hold these important public events. Daniel Dorchester, Superintendent of the Indian Service wrote the following about Agent McGlinn, stationed on the Makah Reservation in 1890:

> This is one of the best officers I have seen in the Indian Service. He knows the Indians remarkably well, understands his business thoroughly, and sticks closely to it. He strictly enforces the regulations of the Department, is breaking up old Indian

> customs, marries the Indians in due forms and records the marriage, and is very strict against intemperance and licentiousness.
>
> The Indians are quite industrious in their way, though rather spasmodic in their labors. They have seasons for berrying, hunting and fishing, and are as dirty and squalid as all fish Indians are. They earn a great deal of money, but have a potlatch system, in which they give away a large amount of money and other articles in feasts... Agent McGlinn is breaking up this custom (ARCIA 1890).

Without the potlatch, the Makahs could not establish important proprietary rights regarding ownership of dances, songs, and other ceremonial and economic privileges. Public transmission of these and other important events for the oral history record could not take place, causing an additional level of social and cultural disruption.

Secret societies were also banned. These complex organizations carried important social functions prior to federal interference. Some secret societies were responsible for healing the sick, while others were important for maintaining social order and punishing transgressors (Ernst 1952). Regardless of the internal function that secret societies served for Makah society and culture, the federal government viewed these activities as savage and demoralizing (Whitner 1977, Marr 1987).

Dances and customs associated with secret societies and winter ceremonials fueled the federal opinion that boarding schools were the only way to eradicate ancestral practices which offended the American sense of morality and decorum. Agents realized that one way to assimilate Makahs and eradicate offensive rituals was to interrupt the transmission of ancestral information within what remained of Makah families. One way they achieved this objective was by separating Makah children from the influence of their family via the use of boarding school. Whitner (1977:28) quotes agent C.A. Huntington as writing, "If the purpose be to civilize these children of darkness, to take them from a barbarous life and put them into a civilized life, the more divorced from the house of their childhood the better".

The United States' policy of assimilation through education increased the socio-cultural confusion. In their attempts to "Kill the Indian but save the man", white educators forced Makah children to leave their families, abandon the Makah language, and adopt white ways of eating, dress, worship, and behavior. Many Makahs who underwent this cultural indoctrination began to feel that traditional activities and beliefs were barbaric, and worked to make their lives more like the non-Indian teachers and

administrators who promised modern education, health care and facilities.

In addition to these internal socio-cultural factors, other factors prevented whale hunting from returning to its former prominence. The gray and humpback whale populations were being seriously depleted by non-Makah hunting practices. The population of gray whales was reduced by non-Makah commercial hunters, making offshore hunting in canoes more difficult. Since the Makah style of offshore whaling relied on the ability of land-based lookouts to spot whales which swam close to shore, a lack of these whales effectively decreased the viability of the Makah whale hunt. Only three recorded whale hunts took place during 1905 (AW Smith Papers).

Men could no longer rest assured that the whales would be plentiful, and that canoes at the ready would be called to a hunt by a lookout. In addition, the intensive investment required by a whaler and his crew had not changed; men still had to invest enormous amounts of time in ritual preparation as well as in the care and maintenance of the whaling canoe and other associated gear. Without the plentiful supply of whales which had always graced Makah territory, this intensive investment became too difficult to justify.

So, men turned to a more productive venture that would still make use of the navigation and seafaring skills that both whale and seal hunters needed and used. Fishing had become a more cost effective venture than whaling prior to the turn of the last century.

> The Makahs catch a great many fish, which they ship three times a week to Seattle, where they have a good market for them. They have caught and shipped as high as 10,000 pounds of halibut in one day (ARCIA 1889).

However, offshore whaling in motorized boats was still of interest to American, Canadian, European and Asian parties. As late as 1909, a Seattle based company was considering the establishment of a commercial whaling station at Neah Bay (Webb 1988:177). Plans for the Neah Bay station were eventually abandoned.

After more than a thousand years as whale hunters, Makahs found themselves in a social, ecological and political climate that no longer favored this pursuit. The combined effects of massive epidemics, boarding schools, and government acculturation policies had drastically changed the delicate and complex social dynamic which had supported the traditional Makah whale hunt. The astounding success, then eradication, of the Makah commercial fur seal hunt contributed to this disruption as well. When these two factors are juxtaposed with severely diminishing gray

and humpback populations, even subsistence whale hunts became a risky investment. The investment in the Makah whale hunt became even riskier as more Makahs shifted toward the very successful subsistence and commercial venture of ocean fishing.

In spite of these factors, the Makah desire to reinvigorate the whaling tradition never dissipated. Families passed on whaling stories, traditions, and secrets from generation to generation. Whaling designs and crests still decorated public buildings and private homes. Accounts of Makah whalers were read again and again. Whaling displays in the Makah Cultural and Research Center and other museums kept visual scenes in the heads and hearts of Makah people. By 1994, the gray whale population had bounded back to healthy levels; the people in Neah Bay eagerly awaited the opportunity to hunt gray whales again.

THE QUOTA PERIOD

The Makah Tribe has been preparing for this revitalization for decades. Makah people never stopped educating their children about their respective familial whaling traditions. Makah children in the public school on the reservation experienced whaling curriculum every year as a part of the standard school curriculum, as well as through special cultural and linguistic initiatives sponsored by the school district, the Tribe, or any one of a number of funding sources. In fact, collaborative educational efforts through the Makah Cultural and Research Center, the Bilingual program of the Neah Bay School, and other private efforts, have provided whaling curriculum in the schools since the 1960s, with continuous efforts since 1981. While non-Makahs perceived a large temporal gap in the whaling history of the Tribe, tribal members see continuity. Many individuals were patiently waiting for the whaling traditions to be taken from storage and implemented in reality.

The Makah Tribe already has a history of successfully reviving cultural traditions. In the last two decades, the Makah Tribe has reinstituted numerous song, dance, and artistic traditions, and operated a program to restore the Makah language to spoken proficiency on the reservation. These positive accomplishments are due to the enthusiasm, dedication, and knowledge of Makah people, and to the creation of the Makah Cultural and Research Center; this institution manages the cultural resources of the Makah Nation through research, documentation, exhibition and education.

The Makah Tribe created The Makah Cultural and Research Center (MCRC) in response to the massive archaeological collection generated by the Ozette excavation. While the original intent was to create a museum to house the artifacts from the pre-contact levels at Ozette, community opinions shaped the MCRC into a research and education complex that contains numerous exhibition galleries, a language restoration project, archival programs, and a series of educational and interpretive services (Renker and Arnold 1988).

The MCRC has been instrumental in the revival of many Makah traditions. The facility has acted to centralize and incorporate the resources of Tribal government, the Makah community, and other private and public sources to manage Makah cultural resources; many of the resources and traditions that were threatened prior to the creation of the MCRC are now healthy and growing. Consequently, the Makah Tribe had a successful record of bringing ancestral traditions from a dormant state into the active present. The Tribe was confident that the resumption of whaling would be a success, and was not daunted by critics who believed that this tradition could not be reinstated.

On May 17, 1999, the Makah Tribe celebrated a pivotal moment in its long history. At 6:54am, the Creator allowed a Makah crew to realize a collective dream that the Makah Nation had stored in its minds and hearts for seventy long years: they brought a whale home to the Tribe. This pivotal cultural event riveted the attention of the Makah community, and energized Makah Tribal members who believed in, and worked toward, the restoration of this significant cultural practice.

Survey data indicate that some 1200 Makahs watched the climactic moment of the successful hunt on live television. Hundreds of Makahs traveled home to the reservation as soon as they could, wanting to be a part of this significant event. Later that day, some 1400 Makahs welcomed the whale to Front Beach in Neah Bay, and paid honor to the great creature. Many Makahs ate raw blubber right on the spot, and then began the task of preparing the food and resources that the whale contributed to the Makah people.

Butchering the whale proved a huge task for the Makah people. Lack of familiarity with gray whale anatomy, tools which were not well adapted for gray whale meat and blubber, and logistical issues presented immediate obstacles for the butchering process which began on Front Beach. Some confusion also centered on whale parts other than meat and blubber. Most importantly, Makah were able to overcome these problems and continue with the job of processing the whale.

In a matter of hours, a flatbed truck had taken what was left of the whale and driven to the Makah Tribe's fish plant, a processing plant with 800 cubic feet of freezer space and a service entrance large enough to allow the flatbed to drive inside. Within twenty-four hours, Front Beach showed no sign of the momentous event which had happened the previous day. The Makah butchering crew, which included Makahs who had travelled to Alaska to learn processing techniques, had some assistance from a Native Alaskan. Many people worked to butcher the parts of the whale which had not been distributed to Tribal members on the night of 17 May. In addition to meat and blubber, Makahs interviewed during the Makah Household Survey reported requesting and receiving whale lice, sinew, baleen, brain, and heart. Other Makahs reported that they would have liked to receive liver.

cheeks, eyes, and intestines. Some of these items, like whale lice and baleen, are primarily used for ceremonial reasons, while others, can be used in tool production or as food. The bulk of the food products derived from the whale were reserved for the Tribe's celebratory feast, which was to be held on 22 May.

In private homes, people welcomed whale meat, blubber, and other whale parts. Between 17 May and 22 May, some households began to use recipes held in family confidence for decades, and others experimented with techniques used for other sea creatures, like seals and fish. Some 62.9% of Makah households received meat from this whale; 48.4% received blubber. A majority of households which did not receive meat or blubber from this whale reported that they would have welcomed whale products into their homes (Renker 2002).

On 22 May 1999, the Makah Tribe paid tribute to the whale which provided so much to the Tribe, and celebrated a new chapter in its cultural history. Thousands of people attended the parade held during the day, and the feast held in the high school gymnasium later that afternoon. In addition to the local Makahs who attended these events, many Makahs journeyed home to participate.

Unfortunately, this has been the only successful hunt during the quota period. Restrictions on the areas in which Makahs could hunt gray whales, as well as limits on when the hunt could take place hampered efforts to take additional whales as provided by the quota. Further constraints arose from a lawsuit which resulted from a complaint filed in 1997 October. This domestic legal issue halted all Makah whaling for the latter half of 2000 and all of 2001.

Lawsuits were not the only problem that faced the Makah Tribe during this quota period. Four Tribal members alleged that the majority of Makahs were not in favor of the resumption of whaling, and that the Makah Tribal Council had misrepresented the opinion of its people. Fueled by these rumors, anti-whaling advocates staged numerous demonstrations on and off the reservation, and garnered attention from the print and visual media. These efforts also limited the success of the Makah hunt by blocking canoes, scaring whales, and threatening Makah whalers. During the 1999 whaling season, many television spots and published reports contained inaccurate or partially correct information, and included quotes from the anti-whaling Makahs who insisted that the majority of Tribal members did not want the Tribe to hunt whales. These people also accused Makahs of wasting whale products, claiming that tribal members did not like, nor consume whale products. Detractors pointed to alleged wasted meat and blubber from a 1995 whale which was incidentally caught in a fishing net.

Despite these obstacles, more and more Makah men trained to be whale hunters. During the last hunting season prior to the 9 June 2000 court decision, several family-based whaling crews were

preparing to hunt, and two family-based crews were granted a total of three permits to go hunting by the local management organization. While no crew brought a whale back to the village, the social benefits of each crew's diligent preparations positively affected dozens of families.

The Makah Reservation in 2002

The contemporary Makah Tribe lives on a 27,151 acre reservation which dominates the northwestern corner of the Olympic Peninsula of Washington State. Other reservation properties include two offshore islands, Tatoosh and Waadah, and a 719 acre parcel of land surrounding the Ozette village site. In addition to these land areas, Makah traditional cultural properties include water territories, like fishing banks, as well (Renker and Pascua 1989). At the time of the Treaty of Neah Bay, Makah traditional cultural properties extended to fishing banks and other ocean grounds as much as 100 miles offshore into the Pacific Ocean. To the north, Makah fisherman accessed rich fishing grounds which are now in Canadian waters, such as Swiftshore and 40-Mile Bank. To the east, Makahs considered the the Strait of Juan de Fuca to be at their disposal to Port Crescent. To the south, Makahs utilized the waters off of Cape Johnson, called **xacic'u?a**. "deep hole". (Swindell 1941, Renker and Pascua 1989).

In 1855, the Tribe signed the Treaty of Neah Bay, which established the boundaries of the reservation but did not recognize the multiple village system. Men negotiating for the Tribe discussed the Makah relationship with the ocean; the Tribe considered the ocean to be territory more important than land. **c'aqa.wi7**, one of these Makah chiefs, articulated this point. "I want the sea. That is my country" (Gibbs 1855). The Indian Claims Commission estimates that "seventy-five to ninety percent of the Tribe's subsistence in 1855 came from the sea rather than land based-mammals or vegetation" (Makah Indian Tribe v. United States, 23 Ind. Cl. Comm. 165, 174 (1970).

Subsequent expansion of the reservation boundaries to include villages other than Neah Bay occurred in 1872 and 1873 via three Executive Orders issued by the United States' government. The village of Ozette was not added to the reservation. Rather, another Executive Order in 1893 created a separate Ozette Reservation to accommodate 64 Makahs who refused to move to Neah Bay (Renker 1994). Today, the Makah Tribal Council is the official governing body of both the Makah Reservation and the Ozette Reservation; the United States Congress ratified the Makah Constitution in 1937 after the Tribe voted to accept the terms of the Indian Reorganization Act in 1936 (Renker 1994).

The Makah Tribe calls itself **q*idicca?a.tx**, "The People Who Live Near the Rocks and the Seagulls". The name Makah is an English version of the term used by a neighboring Tribe for the Makahs. United States' year 2000 census data indicate that there are 1,356 Makahs living in 471 households on the current

reservation. Another 1,117 Makahs live away from the reservation (Makah Planning Office 2002). Most reservation residents live in the reservation's single centralized village, Neah Bay, location of the public school, the post office, the general store, the health clinic, and other amenities. While Neah Bay is certainly the hub of reservation activity, a growing population and a housing shortage have encouraged Tribal members to live in more remote reservation locations. Two popular settlements outside Neah Bay are at the sites of former ancestral villages, such as **wa?ac'** (Why-atch) and **c'u.yas** (Tsoo-yess).

Like other locations on the Olympic Peninsula, economic conditions on the reservation have steadily declined since 1989. The Pacific salmon crisis and controversies surrounding timber practices in the area have increased the economic pressure on the reservation population. In addition, the 1989 deactivation of the United States' Air Force Base operating on the Makah Reservation created an employment crisis for the Makah community. Approximately 200 jobs left the reservation when the base closed, and plans to develop a new job source have not yet proved fruitful. In addition, fluctuations in the reservation's natural resources, commercial fishing, tourism, and sport fishing have impaired the Tribe's ability to ensure reliable incomes and subsistence sources for its members. The average unemployment rate on the reservation is approximately 51%, and fluctuates seasonally; almost 49% of reservation households have incomes classified below the federal poverty level, and 59% of the housing units are considered to be substandard (Makah Planning Office 1992). The average household income on the reservation is approximately $5,000.00, compared with approximately $40,000.00 in the rest of the state of Washington (Income 2000, US Census Bureau).

Fishing variations have had an especially drastic effect on Makah families. 95.2% of Makah households have someone in the residence who fishes; 62.8% of these households consider fishing to be the major occupation in the home (Renker 1988). While the decrease in the cash economy of the reservation is a clear result in years of diminished commercial fishing, there is a more insidious affect on the subsistence level.

Ocean fishing has replaced whale hunting as the backbone of Makah household economy. In addition to the cash that fishing generates, another level of economy operates, that of traditional reciprocal systems. Even households without a fisherman derive food, money or other goods from a fisherman who is a relative or a friend. Fish is a medium of exchange on the Makah reservation, and is also an indicator of a fisherman's regard for the individual to whom the fish is given. Indeed, people on the reservation rely on the Makah fleet for substantial contributions to community meals and community functions.

100% of the Makah households on the reservation engage in some kind of reciprocal networks which involve fish at some level of exchange: 80.4% of households receive fish from someone who

fishes; 85.3% of households give fish to other family members, friends and community meals; 84.1% of households who smoke fish give it to other family members, friends and community meals; and 35.3% of households receive goods or money from a fisherman when the season is successful (Renker 1988:8).

The 1988 Makah Household Fishing Survey also uncovered another pattern of interest in the Makah community. Over 50% of the reservation households used traditional Makah foods at least once a week; these foods included items like fermented salmon eggs, smoked fish heads and backbones, halibut cheeks and gills, and dried fish (8). 40.2% of Makah households eat fish a few times each week, and 66.7% eat fish at least once each week. These data demonstrate the community's preference for and reliance upon traditional, local, marine foods which are often not favored by the dominant American population.

Recent research available in Aradanas (2001) demonstrates the tenacity of the 1988 subsistence profile. The Makah reliance on seafood products continues to be derived from subsistence traditions, and the existence of redistributive and reciprocal networks remains strong. One striking datum compares the amount of fish consumed in Makah households with that of the average American household. The annual per capita consumption of fin fish and shellfish for the average Makah is a staggering 126 pounds, some eight times the consumption rate for the average American. While fish comprises 55% of the Makah diet, it represents only 7% of the diet of the average American (84).

Recent regulatory and ecological circumstances have had an impact on Makah marine subsistence practices. New, stringent restrictions on salmon fishing, and the yearly fluctuations in fishing quotas, restrict the ability of Makah fisherman to generate a reliable surplus for distribution. This situation has affected many households which rely on surplus fish to meet subsistence needs.

Additional ecological circumstances periodically caused by red tides and oil spills have negatively affected subsistence households which rely on shellfish resources. These events have reduced the ability of Makahs to utilize the shellfish resource as effectively as in the past. Financial compensation awarded to Tribal members as a settlement for the destruction of subsistence shellfish during one of these oil spills can not restore the health of the ecosystem.

Still other factors are affecting subsistence issues pertinent to the Makah Tribe. The Makah Tribe, like many other governmental agencies, cut its operating budget by some 10%* for the 2002 operating year. Cutbacks in food and financial support from public assistance programs affects families which are already economically stressed.

Teen age pregnancies, high school drop outs, substance abuse problems, and an increasing juvenile crime rate indicate that the

Makah community is one still in flux: the enormous social disruption caused by epidemics, boarding schools, and federal policy is still not over. Entire social, cultural, subsistence, and ceremonial institutions were either repressed, eradicated or decimated, and no structural equivalent was substituted. Continuation of the Makah whale hunt would provide the Makah Tribe with a reliable mechanism to repair the damage done to the social infrastructure during the years of forced assimilation. Additional whale hunts would certainly bring important subsistence benefits, as well as other important social considerations.

The Household Whaling Survey (HWS)

As the end of 2001 drew near, the Makah Tribal Council began preparing to submit a request for a new gray whale quota. The Makah Tribal Council wanted to address the concerns of citizens who insisted that Makahs did not support whaling, and that whale products were being frivolously wasted. Clarifying and quantifying the sentiments of enrolled Tribal members was extremely important, so the Makah Tribal Council commissioned a household survey in December 2001. This survey, The Household Whaling Survey (Renker 2002) asked Makahs to report their opinions about the whale hunt, as well as levels of participation in whaling-related activities, including the preparation and consumption of whale products. A copy of the instrument is included in Appendix 2.

Results from the Household Whaling Survey (HWC) were interesting and conclusive. The survey interviewed 34.6% of the Makah households on the reservation. 49.7% of the respondents were male; 50.3% of the respondents were female. 100% of the respondents considered themselves active members of the reservation community, attending a variety of community events, both cultural and otherwise.

The 163 respondents reported information about a population of an additional 268 household members.

Of the 163 respondents, 93.3% believed that the Makah Tribe should continue to hunt whale, 5.5% believed that the Makah Tribe should not hunt whale, and 1.2% were undecided. Clearly, a randomly selected, significant percentage of respondents were supportive of the Makah Tribe's decision to pursue the Treaty Right of hunting a whale that is no longer on the Endangered Species List. It is also interesting to note that three of the respondents who do not want the Makah Tribe to hunt whale do want whale products, like meat, bone, and/or blubber.

When asked to state a reason for this belief, respondents provided a wide variety of opinions. (Because multiple responses were allowed for this question, the positive percentage is based on the number of respondents who answered positively, R= 152.) Of the respondents who felt that the Makah Tribe should continue to hunt whale, 46.1% cited the Treaty Rights as the reason, 35.5%

noted that food, better nutrition, or a traditional diet was the reason, and 36.2% felt that maintaining or restoring some aspect of cultural heritage or tradition was the most important reason. 20.4% indicated that moral or spiritual benefits, such as changed lifestyle, better discipline, or increased pride , should prompt the Makah Tribe to continue to whale.

Respondents also provided a variety of multiple responses to the question, "Do you think whale hunting has been a positive thing for the Tribe?". The most popular response was given by 51.6% of the respondents, who indicated a change for the better in morals or social values: pride, self-esteem, changing lifestyles, abstaining from drugs and alcohol, better male responsibility, and positive role models for youth. 43.8% of respondents considered uniting the Makah Tribe, and other Tribes, as the most positive aspect of whale hunting. Respecting Treaty Rights garnered a response from 25.5% of the respondents, while maintaining or restoring cultural traditions was the reason provided by 32.7% of the respondents.

A surprising number of individuals reported that they were involved in whaling-related activities since the 1999 whale was caught. 38.7% of respondents indicated that they have participated in whaling ceremonial activities, 30.1% have cooked whale, and a resounding 81% reported eating whale products. Respondents related that 70.9% of the household members included in the study ate whale products, and that 21.6% participated in whaling ceremonial activities.

Another significant result that demonstrates overwhelming community support for the Makah whale hunt is found in the question (#45) which asks respondents to indicate subjects about which they would like more information. The majority of respondents wanted information about preparing whale products, and cleaning and carving whale bone. This question also elicited a response that was not planned. 25% of respondents indicated that they would like to share family recipes and techniques for preparing whale meat, rendering oil, and butchering whale. Given the history of secret, family information regarding whale related issues in the Makah Tribe, the fact that respondents volunteered to provide knowledge of practices, techniques, and recipes is a testament to the community's support for the continued use of whale products.

Community support for, and interest in, the Makah whale hunt is also shown by reports of participation in the actual events surrounding the successful 1999 hunt. Of the 163 respondents, 78.5% were watching live television when the whale was taken, as were 67.2% of the respondents' household members. 81.6% of the 163 respondents were present at Front Beach in Neah Bay when the whale was brought ashore, as were 87.6% of the household members. Numerous respondents who did not attend either of these events qualified their response by telling the surveyor that they had to work or were out of town, and would have attended had they been in Neah Bay.

Sixty-four respondents reported that a total of 226 non-resident Makahs billeted in their respective homes from 17 May to 22 May 1999. This datum indicates that Makah support for the whale hunt is not restricted to reservation residents. The Makahs who traveled home to the reservation felt the need to be on ancestral territory, with relatives and friends, and be a witness to the crucial events surrounding the successful whale hunt.
80.4% of the 153 respondents reported attending the Makah Tribe's celebration in honor of the first successful whale hunt in seventy years. 78.6% of these respondents attended the parade early in the day on 22 May, and 95.4% attended the feast later that afternoon. These respondents indicated that 180 (67.2%) of their household members went to the parade, and 191 (71.3%) joined the crowds at the dinner. Levels of participation like those reported here suggest the pride and happiness felt by Makahs who were observing more than the successful hunt; they were celebrating the validation of the traditions and priorities established by ancestors and secured by the signers of the Treaty of 1855.

III. WHALE HUNTING AND THE MAKAH TRIBE: THE NUTRITION COMPONENT

Prior to contact with Europeans, the Makah people used a wide variety of foods. Because of their location on the tip of the Olympic Peninsula, the Tribe was able to exploit land and sea animals, including elk, deer, bear, seal, and a diverse population of fish, shellfish, and other maritime species. In spite of this abundance, "whale meat and oil were among their principal foods" (Densmore 1939:13). Not only were these foods of high status, their role in the nutrition and ceremony of the Makah people cannot be underestimated.

Huelsbeck (1988a:1) estimates that the amount of whale meat, blubber, and oil represented in the faunal assemblage at Ozette indicates that a significant percentage of the food at Ozette could have come from cetaceans. Whale meat was prone to spoil easily, especially when the process of towing a dead animal home took several days. This tendency reduced its importance in the precontact and early historic diet. About 10% of the food Makah people derived from whales can be attributed to meat (1988a:10). Oil however, was not subject to spoilage, and could be kept indefinitely as long as it was rendered properly (Swan 1869).

This important food product was recovered from natural pockets of oil within individual whales, as well as extracted from whale bones and rendered from blubber. Ommanney (1971:55) estimates that some 50% of whale bone weight could be reduced to oil. Faunal remains from Ozette indicate that bones were hacked and gouged to allow oil to both drip from the bones and to be recovered through boiling (Fiskin 1980). Blubber was primarily used as a vehicle to recover oil. Approximately 65% of the weight of blubber is reduced to oil through a rendering process (Huelsbeck 1988a:9).

Oil was an important nutritional item for a variety of reasons. Elders report that whale oil was used as a dip with a variety of foods, including dried fish and herring eggs, as well as potatoes in historic times. Swan(1869) and Densmore(1939) corroborate these accounts. Since dried fish and herring eggs had been processed to remove all natural oils in order to contribute to their longevity, the addition of whale oil added taste as well as nutrients to the precontact and historic Makah diet.

Oil was also the only nutritional product which figured prominently in the ceremonial life of the Makah people. An oil potlatch, given when a whaler had an abundance of oil, demonstrated his generosity with this commodity, and was a rare and special occurrence. Whale oil was the only edible item which could be the focus of a special potlatch, complete with particularized songs and other ceremonial items (Densmore 1939).

While blubber's importance in both precontact and early historic

times was clearly as a precursor to oil, "blubber was also eaten, usually cured first" (Densmore 1939:14). It was most popular when broiled next to a fire, and was the standard pacifier for babies, according to oral and ethnographic accounts.

For approximately 2,000 years, the Makah people relied on the nutritional products of the whale, and evolved as a biological population within this context. Archaeological data confirm the fact that Makah people were using whale as a food resource for some 750 years before the technique of hunting whale was developed (Wessen 1990). Faunal remains from a number of sites indicate that Makahs were butchering stranded or drift whales long before the technology to hunt the creatures evolved.

When circumstances prevented the procurement of whale products for subsistence, Makahs compensated by increasing their reliance on other subsistence foods. In spite of the changes that have affected the Makah people, subsistences foods are still an important part of reservation life. Makah hunters still procure land game like elk, deer, and bear to fill winter freezers and reduce cash expenditures. The resources of the sea and the intertidal zones are an important food source (Renker 1988), despite the decreasing abundance described previously.

Recent investigations focusing on the subsistence practices of the Makah Tribe in forest areas (Renker 1994) and the intertidal zone (1993) detailed a viable and thriving culture. Elders described the subsistence philosophy of the Makah people, and stressed the importance of teaching these values to younger people. Younger Makahs participating in these studies were familiar with these teachings, and practiced these subsistence rules when hunting or gathering food.

The most important subsistence strategy to the Makah people is the axiom, "Take only what you need." Makah elders emphasize this principle when the discussion centers on any type of hunting, gathering, or fishing activity (Renker 1993:14). Other common subsistence rules include: 1)choosing the procurement area so that the available biomass is not adversely affected by the amount one needs to harvest, 2) choosing the procurement area that limits the need to travel, and 3) choosing the food to hunt or gather based on the seasons of the food in question; one tries to avoid disturbing reproductive cycles, for example. The continuity of these subsistence practices and values reinforces the social and cultural integrity of the Makah people, and constantly reminds Tribal members of their intimate, and long standing, relationship with the environment.

These subsistence foods and practices are very important when considering the nutritional needs of contemporary Makah people. Modern research concentrating on the nutritional needs of an anthropologically defined population emphasizes " the interactions of genetics, physiological processes, population characteristics, and a wide variety of nutrition-related diseases" (Pelto 1989:x). Using these criteria, a discussion of

the profile of the Makah community yields interesting results when the focus is the use of the whale as food.

Consider the following. American Indian people are generally considered to be one of the most unhealthy populations living within the United States of America; this observation is especially true for natives living within the confines of a reservation. The infant mortality and life expectancy rate for reservation residents is the lowest of all American citizens (IHS 1995).

The diminished life expectancy on American Indian reservations is compounded by the fact that certain systemic illnesses linked to food and nutrition appear in statistically higher percentages among these populations. Diabetes, for example, is 234% more prevalent among American Indian people than in all other U.S. races (Indian Health Service 1995: 5). As a matter of fact, "American Indians have the highest rates of diabetes in the world" (NIH 1996:26).

A statistic of this magnitude is especially intriguing when one considers the nutritional history of indigenous American Tribes, and their respective divergence from the food traditions which mark western populations. Prior to contact with Europeans, North American Tribal people consumed foods which were native to their respective environments. Natives of the Great Plains and the Pacific Northwest were hunters and gatherers who utilized the plant and animal species which lived in and migrated through their territories. Natives of the Southwest and the Northeast augmented nature's bounty by cultivating crops, most of which were not available in Europe. (It is interesting to note that Makah people did not utilize plant foods to a great degree (Gill 1983), and still experience many digestive problems with diets high in fiber and cruciferous vegetables (IHS 1991).)

When traditional Tribal life was disrupted by contact with non-Natives, food traditions were some of the first to be affected. By the time the Treaties called for the forced placement of Tribal people on reservations in the 1850s, very few Tribes could still practice the subsistence patterns which had sustained their ancestors.

Hunting and gathering tribes were restricted because their ability to utilize former usual and accustomed resource areas was diminished; the reservation system made it possible for non-Native populations to acquire and control lands and waters once available to Tribes. Through Treaties, agricultural tribes lost valuable land capable of cultivation to non-Indian farmers, and were given less productive reservation land as compensation. Additional stresses on native food traditions appeared when the American westward expansion and growing commercial interests decimated food animals once plentiful before contact.

No matter what the individual Tribal food tradition, professionals in the health and social science fields appear to

agree that the introduction of western foods like refined sugar and flour, beef, and lard have had a dramatic negative effect on the health of American Tribal members in general. Many of these foods were distributed to reservation natives by the American government in the form of annuities and supplies. Specific studies have directly linked the introduction of western foods into the diet of Tribal entities to a variety of health problems (Hildes 1966:501, Keenleyside 1990:13, NIH 1996, and others).

American health organizations such as The National Institutes of Health (NIH), the National Institute of Diabetes and Digestive and Kidney Diseases, the Public Health Service, and the Department of Health and Human Services, are conducting research to try to determine why American Indian populations are subject to food related illnesses at a rate so much greater than the rest of the population. In many cases, reservation residents contract these illnesses at about half the age of Caucasians, according to the Indian Health Service (1995).

Many current studies are now investigating the link between genetics and the acquisition of nutrition related illness. The most important of these studies focuses on the Pima Indians of Arizona, a group with a food tradition dating back some 2,000 years; their traditional diet and lifestyle were disrupted about 200 years ago, causing major social and nutritional changes. The high rates of diabetes and obesity in this Tribe prompted the National Institutes of Health and several other American health organizations to undertake a long-term study of this population.

Thirty years of concerted studies with the Pima people have demonstrated results applicable to other Tribal people in North America, including the Makah. Research indicates that discrete populations evolve a genetic code that is uniquely suited to a particular environment and its food resources. This genetic code regulates the biochemical processes in the body that produce enzymes, proteins, fatty acids, and thousands of other chemicals which function within the human body. Scientists developing the genetic map for the Pima people have already identified a number of genetic variations within this community that are different from those in the white population (NIH 1996:6). These variations may explain why Pima people eating western foods are more prone to develop diabetes, obesity, and the long-term consequences of these health problems than other populations.

Like the Pima people, Makahs found their traditional pattern of food use interrupted by western contact about 200 years ago. The traditional diet rich in fish and sea mammal oils was gradually replaced by a western diet which considered beef, dairy products, and cereals to be the most nutritious. The whale products which once comprised a principal part of the diet were no longer available, and the whale oil which supplemented the preserved foods of the winter season was replaced by butter and margarine. A high proportion of lactose intolerance became apparent in the

Makah community, a fact not surprising for a population with no previous historic or cultural link to cattle or dairy animals (NIH 1996).

Given this perspective, certain IHS data become especially intriguing. For example, Indian people of the Northwest Coast have the highest rate of digestive illnesses of all American Indian people. Such illnesses comprise the leading cause of hospitalization for native people in this area. For northwest people, 16.5 % of all hospitalizations pertained to digestive diseases, compared to the next highest rate of 12.3% for Navajo people (Indian Health Service 1995). And, in terms of overall nutritional health, Makah and northwest people are at a potential genetic disadvantage because these populations evolved without a reliance on high fiber, low fat foods, like the Pimas.

Consequently, the reintroduction of whale products, especially whale oil, may produce dramatic results in the health of the Makah people. Current research in the importance and application of Essential Fatty Acids (EFAs), such as those found in sea mammals and fish oils, support the contention that the inclusion of whale oil in the Makah diet may have crucial implications for the health of the Makah community. This fact is not as surprising as it may seem when one considers the historic western use of products like cod liver oil as an important nutritional supplement.

For example, the Washington Office of the Superintendent of Public Instruction (OSPI) details the fact that Makah children attending public school on the reservation exhibit Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD), reading disabilities, and dyslexia at a rate almost twice that of the rest of the population (1996). Clinical studies which focused on the correlation between EFAs and these conditions report that children receiving supplemental EFAs demonstrate significant improvement in the ability to pay attention and read effectively (Stevens, Zentall, et al:1995; Stordy:1995).

In addition, marine EFAs have been clinically demonstrated to improve conditions like rheumatoid arthritis (Belch, Amsell, Madho, Dowd, and Sturrock:1988) and diabetic neuropathy (Keen, Payan, Walker,et al:1993). Both conditions are prevalent in the Makah community and especially within descendants of whaling families.

Whale oil and whale products may be the answer to these problems within the Makah community, and may provide researchers with an analogous study situation to that within the Pima community. Marine fish like salmon are becoming more scare within Makah households due to increasingly stringent quotas which disrupt traditional systems of reciprocity (Renker 1988). Consequently, access to whale products could provide Makahs with a nutritional remedy to many community health problems.

Access to whale products can provide the Makah community with important nutritional opportunities that carry implications for non-Makahs. Like their Pima counterparts, Makahs may be able to augment knowledge about the relationship between genetic patterns, nutrition, and health, especially in the area of EFAs. Community members are ready to rise to this challenge and re-learn the techniques necessary to make the food from the whale a part of Makah life again.

This section is not intended to imply that we can scientifically elucidate the nutritional advantages of whale products, especially oil, for the Makah Tribe. However, recent national studies provide some points of interest. Investigations of local populations with a demonstrable time depth indicate that regional genetic factors evolve in order to maximize the dynamic relationship between certain foods and the patterns in which these foods are consumed by subsistence populations. Consequently, it is reasonable to assume that increasing the consumption of locally available foods consumed through the millenia could confer substantial health benefits.

Such is the case for whale products and the Makah Tribe. The food products of the gray whale have sustained the Makah people for over 2,000 years; the Tribe has been less culturally and physically healthy since this access was restricted seventy years ago. A restoration of the ability to hunt the gray whale will provide the Makah Tribe with a key element of its culture that has been able to exist only in the flickering images of oral history for seven decades. The social fabric of the community will be able to patch its thin areas once the hunt is restored, and the physical health of the Makahs will increase once there is enough whale meat and oil to feed its children.

In addition, the addition of whale products will help to replace other subsistence resources which are in decline. As fish and shellfish quantities decrease on the reservation, the availability of whale products will prevent people from having to spend precious cash to replace current subsistence foods.

The resumption of the whale hunt will provide more than subsistence foods for the body. It will provide spiritual subsistence to the soul of the Makah people.

APPENDIX 1

MAKAH ALPHABET

The Makah alphabet variation used in this document is a function of printer and software limitations. The Makah alphabet is a variation of the International Phonetic Alphabet, and is presented in Renker (1987). No capital letters are used in this alphabet.

The following substitutions are used:

= IS EQUIVALENT TO A BARRED L

7 IS EQUIVALENT TO A BARRED LAMBDA

* IS EQUIVALENT TO A RAISED W

' IS EQUIVALENT TO A GLOTTAL MARK

? IS EQUIVALENT TO A GLOTTAL STOP

. IS EQUIVALENT TO A LENGTH MARKER

APPENDIX 2

CONFIDENTIAL HOUSEHOLD WHALING SURVEY

This survey is commissioned and sanctioned by the Makah Tribal Council, and is being administered by the Makah Cultural and Research Center. The data from this survey will be used in creating the new Needs Statement. This document will be a part of the United States' request to provide the Makah Tribe with another five year quota to hunt gray whales; the request is made to the International Whaling Commission.

Your name and the information you provide are strictly confidential. No information you provide will be linked directly to you in the Needs Statement. In fact, the author of the Needs Statement will not even know who has answered these surveys.

The completed surveys will be sealed and placed in the Archives of the Makah Cultural and Research Center. Access to these documents will be restricted by the Makah Tribal Council.

The respondent for this survey must be a Makah who is 21 years of age or more. For the purposes of this survey, a household member is considered to be any person that is residing in your house at the time of this interview. This survey is interested in the Makah members of your household.

ABOUT YOU AND YOUR MAKAH HOUSEHOLD MEMBERS...

1. Are you Makah? Yes _____ No _____

   Age _____ Gender _____

2. Do you have any Makahs living in your household? Yes _____ No____

   How many?_____

   If yes, complete 2a. If no, skip to 3.

2a. List all Makahs by relationship, gender, and age.

3. Where were you born? _____

4. Do you attend Neah Bay village events? Yes _____ No_____

4a. If yes, please check all that apply.

Sporting Events _____

Community Dinners _____

Potlatches _____

Health Presentations _____

Makah Days Events _____

MTC Quarterly/Annual Meetings _____

Neah Bay K-12 School Events _____

Other (Please specify)_____

ABOUT YOUR MAKAH HOUSEHOLD MEMBERS AND WHALING IN 1999...

5. Were you watching television when the 1999 whale was harpooned and killed?
Yes _____ No _____

6. Were any of your Makah household members watching TV when the 1999 whale was harpooned and killed?
Yes _____ No _____

7. If yes, how many Makah household members were watching TV when the 1999 whale was harpooned and killed?
_____

8. Were you on Front Beach, or in a boat/canoe on the water, when the 1999 whale was brought ashore?
Yes _____ No _____

9. Were any of your Makah household members on Front Beach or in a boat/canoe on the water, when the 1999 whale was brought ashore?
Yes _____ No _____

10. If yes, how many? _____

11. Did any Makahs who live off the reservation come to spend the night at your house from May 17, 1999, the night the whale came ashore, to May 22, 1999, the night of the Tribe's celebration?
Yes _____ No _____

12. If yes, how many non-resident Makahs spent the night at your house from May 17, 1999 till May 22, 1999.

_____

13. Did you attend the Makah Tribe's celebration of the 1999 whale on May 22, 1999?

Yes _____ No _____

14. If yes, which events? Check all that apply.

Parade _____

Dinner _____

15. If you attended the dinner, in which way did you participate? Check all that apply.

Attended the dinner _____

Helped butcher the whale_____

Helped cook the whale _____

Helped cook other items at the dinner _____

Helped serve at the dinner _____

Helped set up the gym _____

Helped decorate the gym _____

Sang at the dinner _____

Other (Please specify) _____

16. Did any of your Makah Household members attend the Makah Tribe's celebration of the 1999 whale on May 22, 1999?

Yes _____ No _____

17. If yes, how many Makah household members attended the Makah Tribe's celebration of the 1999 whale on May 22, 1999?_____

18. For each Makah household member, please check which events s/he attended. Check all that apply.

	#1	#2	#3	#4	#5	#6
Parade						
Dinner						

19 If Makah household members attended the dinner, in which way did each participate? Check all that apply.

	#1	#2	#3	#4	#5	#6
Attend the dinner						
Helped butcher the whale						
Helped cook the whale						
Helped cook other dinner items						
Helped serve at the dinner						
Helped set up the gym						
Sang at the dinner						
Other (Please specify)						

20. Did your household receive meat from the 1999 whale?
Yes_____ No_____

If no, skip to question 23.

21. What did you do with the meat? (Check all that apply.)

Prepare it _____

Redistribute it _____

other _____

22. If you prepared it, what did you do? (Check all that apply.)

Jerky _____

Roasts _____

Stew _____

Steaks _____

Smoked meat _____

Other (Please specify) _____

Now skip to question 24.

23. Would you have liked to get meat from this whale?
Yes _____ No _____

24. Did your household receive blubber from the 1999 whale?
Yes _____ No _____

If no, skip to question 27.

25. What did you do with the blubber? (Check all that apply.)

Prepare it _____

Redistribute it _____

Other _____

26. If you prepared it, what did you do? (Check all that apply.)

Smoked it _____

Rendered it _____

Ate it raw _____

Pickled it _____

Boiled it _____

Cosmetics _____

Other (Please specify.) _____

Now skip to question 28.

27. Would you have liked to receive blubber from the 1999 whale?
Yes _____ No _____

28. Did your household receive whale oil from someone as a result of the 1999 whale?
Yes _____ No _____

29. Did your household receive any other parts from the 1999 whale?
Yes _____ No _____

30. If yes, what parts did your household receive? What did you do with them?

31. Were there any other parts of the 1999 whale you would have liked your household to receive?
Yes _____ No _____

32. If yes, which ones?

ABOUT YOUR MAKAH HOUSEHOLD AND OTHER WHALING ACTIVITIES...

33. Would you like to have whale oil in your household on a regular basis?
Yes _____ No _____

34. Would you like to have whale meat in your household on a regular basis?
Yes _____ No _____

35. Would you like to have whale blubber in your household on a regular basis?
Yes _____ No _____

36. Would you like to have whale bone in your household on a regular basis?
Yes _____ No _____

37. Please check all whaling activities that you have been involved in since the 1999 whale was caught.

Member of whaling crew _____

Member of Whaling Commission _____

Butchering whale _____

Cooking whale _____

Smoking whale _____

Rendering oil _____

Eating whale products _____

Redistributing whale products to other Makahs _____

Participating in whaling ceremonial activities _____

Carving whale bone _____

Member of whaling support crew _____

Other (Please specify.) _____

38. Please check all whaling activities that any HH members have been involved in since the 1999 whale was caught. Please specify for each household member.

	#1	#2	#3	#4	#5	#6
Member of whaling crew						
Member of Whaling Commission						
Butchering whale						
Cooking whale						
Smoking whale						
Rendering oil						
Eating whale products						
Redistributing whale products						
Participating in whaling ceremonial activities						
Carving whale bone						

Member of whaling support crew

Other (Please specify.)

ABOUT YOUR OPINIONS REGARDING WHALE HUNTING...

39. Should the Tribe continue to hunt whale? Yes _____ No _____

40. What are the reasons for your answer?

41. If you answered yes to 39, do you think whale hunting has been a positive thing for the Tribe? Yes _____ No _____

42. What are your reasons for this answer?

43. Would you like to have more access to whale products in the future?

Yes _____ No _____

If yes, go to 44. If no, go to 45.

44. Which whale products would you like more of in the future?

raw meat _____

meat cooked or preserved by someone else _____

raw blubber _____

whale oil _____

bone _____

other (specify) _____

45. Would you like more information about any of the following? Check all that apply.

Whale hunting _____

Cooking whale meat _____

Butchering whale _____

Rendering oil _____

Smoking meat _____

Cleaning whale bone _____

Carving whale bone _____

Other (Specify) _____

46. Are there any other comments you would like to make?

APPENDIX 3

MAKAH HOUSEHOLD SURVEY METHODOLOGY

The survey was administered by the Makah Cultural and Research Center, an institution with twenty-two years of experience conducting household surveys on the Makah Reservation. The author of the instrument conducted numerous household surveys in the Makah community over the last twenty-two years; each of these surveys employed the same methodology. Results were tabulated and analyzed by the developer of the survey instrument.

In order to conduct the most accurate survey possible, the Household Whaling Survey is based on the following:

1. Names of households to be surveyed were drawn randomly from the Makah Tribe's Turkey Distribution List. This list contains all households on the reservation in which at least one enrolled Makah resides. 34.6% of the Tribe's 471 Makah households were interviewed.

2. All surveys were conducted in person by an enrolled Makah trained in proper survey procedures, who insured all respondents that confidentiality would be protected.

3. The survey contacted 217 of the Tribes 471 households. Of this number, 159 households agreed to be interviewed. Interestingly enough, four of the Makahs who publicly challenged the Tribe's decision to whale had their respective names randomly drawn to be surveyed. Because the Tribe wanted to minimize external influences on the survey administration, these four individuals were not surveyed. However, to maintain proper responses, these individuals were marked to answer negatively to all questions which asked for positive or negative opinions regarding Makah whaling, access to whale products, and use of whale products, as per their publically expressed opinions. Question marks indicate responses for which the survey had no information at all.

   Counting these four individuals, the total number of respondents for the survey is tallied at 163. Percentages are tallied accordingly. Five household volunteered to be included in the survey. While these households were encouraged to complete a survey form, these five respondents were NOT included in the random population of 163.

4. All survey respondents had to be enrolled Makahs with a reservation household; all respondents also had to be twenty-one years of age or older. Survey methodology assumes that each respondent is capable of answering questions about his/her own ideas and activities regarding whaling, as well as the activities of his/her household members regarding whaling.

5. A master list which related each chosen household to an exclusive number was kept at the Makah Cultural and Research Center to avoid duplication and protect confidentiality. Surveyors returned completed surveys to the Makah Cultural and Research Center, which maintained security for the documents. All completed surveys are archived at the Makah Cultural and Research Center.

6. The author/tabulator did not know the names of the respondents, and related to surveys by number only.

7. Certain questions allowed for multiple responses. Others did not. In addition, certain questions only allowed respondents who had answered a previous question a particular way to answer. Incidents of both types are indicated on the survey instrument, which is appended in 2. On the tabulation sheet, the base number of respondents is indicated by R= . R=163 means that the percentage is calculated based on the answers of 163 respondents.

8. Internal checks and balances were placed in the instrument to encourage data validity.

9. Answers are reported as percentages calculated from the base number of respondents appropriate to each question. Percentages are rounded to the nearest tenth.

REFERENCES CITED

Aradanas, Jennifer
2001 Social and Political Ecology of Contemporary Subsistence Hunting, Fishing, and Shellfish Collecting Practices of the Makah Tribe. Draft of Dissertation. Department of Anthropology, University of Washington.

ARCIA = Annual Reports to the Commissioner of Indian Affairs
1849- Annual Reports to the Secretary of the Interior. Washington: U.S. Government Printing Office.

Arima, Eugene
1983 The West Coast People: The Nootka of Vancouver Island and Cape Flattery. British Columbia Provincial Museum Special Publication No. 6. British Columbia Provincial Museum: Victoria.
1988 Notes on Nootkan Sea Mammal Hunting. Arctic Anthropology 25: 16-27.
1990 Nootkans of Vancouver Island. Pp. 391-411 in The Handbook of North American Indians, Vol.7. The Northwest Coast. Wayne Suttles, volume ed., William C. Sturtevant, General ed. Smithsonian Institution: Washington.

Barker, James T. comp.
1954 Treaties, Statutes, Executive Orders Having Particular Reference to the Makah Indian Tribe, Neah Bay, WA. Manuscript in Makah Tribal Council Archive, Neah Bay, WA.

Belch, J.J., D. Amsell, R. Madho, A. Dowd, and R.D. Sturrock
1988 Effects of Altering Dietary Essential Fatty Acids on Requirements for Non-steroidal Anti-inflammatory Drugs in Patients with Rheumatoid Arthritis--A Double Blind Placebo Controlled Study. Annals of Rheumatic Disease 47: 96-104.

Boyd, Robert T.
1990 Demographic History, 1774-1874. Pp. 135-148 in The Handbook of North American Indians, Vol. 7. The Northwest Coast. Wayne Suttles, volume ed., William C. Sturtevant, General ed. Smithsonian Institution: Washington.

Broderson, Paul and C.J. Hopkins
1939 Pelagic Seal Hunting as Carried on by the Makah and Quileute Indians of Washington. Indians at Work 6(7):12-16. Washington.

Cavanaugh, Deborah
1983 Northwest Coast Whaling: A New Perspective. M.A. Thesis, Department of Anthropology and Sociology, University of British Columbia, Vancouver.

Colson, Elizabeth
1953 The Makah Indians: A Study of an Indian Tribe in Modern American Society. Minneapolis: University of Minnesota Press. (Reprinted Greenwood Press, Westport, CT, 1974.)

Curtis, Edward
1907-1930 The North American Indian : Being a Series of Volumes Picturing and Describing Indians of the United States, the Dominion of Canada, and Alaska. Frederick W. Hodge, ed. 20 vols. Norwood, Mass: Plimpton Press. (Reprinted:Johnson Reprint , New York, 1970.)

Densmore, Frances
1939 Nootka and Quileute Music. Bureau of American Ethnology Bulletin 124. Washington. (Reprinted:Da Capo Press, New York, 1972.)

Dewhirst, John
1978 Nootka Sound: A 4,000 Year Perspective. Sound Heritage 7(2):1-29. Victoria: Provincial Archives of British Columbia.

Drucker, Philip
1951 The Northern and Central Nootkan Tribes. Bureau of American Ethnology Bulletin 144. Washington.
1955 Indians of the Northwest Coast. Garden City , NY: Natural History Press. (Reprinted in 1963.)

Ernst, Alice Henson
1952 The Wolf Ritual of the Northwest Coast. Eugene: University of Oregon Press. (Reprinted in 1980.)

Fisken, Marian
1980 Whale Bone Studies in Ozette Archeaological Project, Interim Final Report, Phase XIII, compiled by Paul Gleeson, pp. 62-65. Washington Archaeological Research Center, Project Report 97. Pullman: Washington State University.

Gibbs, George
1855 Treaty of Neah Bay [Transcript of Journal Proceedings]. (U.S. National Archives, Records Relating to the Negotiation of Ratified and Unratified Treaties with Various Tribes of Indians, 1801-1869; microcopy No. T-494, roll 5, Washington.
1877 Tribes of Western Washington and Northwestern Oregon. Contributions to North American Ethnology 1(2):157-361. John Wesley Powell, ed. Washington:US Geographical Survey of the Rocky Mountain Region. (Reprinted: Shorey, Seattle, WA, 1970.)

Gill, Steven
1983 The Ethnobotany of the Makah and Ozette People, Olympic Peninsula, Washington. Ph.D. dissertation. Ann Arbor:University Microfilms.

Gillis, Alix J.
1974 History of the Neah Bay Agency. Pp. 91-115 in Coast Salish and Western Washington Indians III (American Indian Ethnohistory: Indians of the Northwest) 5 vols. New York: Garland.

Gunther, Erna
1936 A Preliminary Report on the Zoological Knowledge of the Makah. Pp. 105-118 in Essays in Anthropology Presented to A.L. Kroeber. Robert Lowie, ed. Berkley:University of California Press.
1942 Reminiscences of a Whaler's Wife. Pacific Northwest Quarterly 3(1):65-69.
1945 Ethnobotany of Western Washington. University of Washington Publications in Anthropology 10(1). Seattle. (Reprinted:University of Washington Press, Seattle 1973.)
1962 Makah Marriage Patterns and Population Stability. Pp. 538-545 in Proceedings of the 34th International Congress of Americanists, Vienna, July 18-25, 1960.
1972 Indian Life on the Northwest Coast of North America as Seen by the Early Traders and Explorers and Fur Traders During the Last Decades of the Eighteenth Century. Chicago:University of Chicago Press.

Hagelund, William
1987 Whalers No More: A History of Whaling on the West Coast. Madeira Park, B.C.: Harbour Publications.

Hall, Carl
1983 Makah Indian Reservation Statistical Information Guide. (Manuscript in Makah Tribal Council Planning Department, Neah Bay, WA.)

Hancock, Samuel
1927 The Narrative of Samuel Hancock, 1845-1860. New York: Robert McBride.

Hildes, J.A.
1966 The Circumpolar People--Health and Physiological Adaptations in The Biology of Human Adaptatibility. P.T. Baker and J.S. Weiner, eds. pp. 497 - 508. Oxford: Clarendon Press.

Huelsbeck, David
1983 Mammals and Fish in the Subsistence Economy of Ozette. Ph.D. Dissertation . Washington State University, Pullman. University Microfilms International: Ann Arbor.
1983a The Utilization of Whales at Ozette. Report to Interagency Archaeological Services, National Park Service. Laboratory of Anthropology, Washington State University, Pullman.
1988 The Surplus Economy of the Central Northwest Coast. Pp. 149-177 in Prehistoric Economies of the Pacific Northwest Coast. Barry Isaac, ed. Supplement 3 of Research in Economic Anthropology. JAI Press: Greenwich, CT.

1988a Whaling in the Precontact Economy of the Central Northwest Coast. Arctic Anthropology 25: 1-15.
1988b The Economic and Ecological Context of Northwest Coast Whaling. Paper presented at the 53rd annual meeting of the Society for American Archaeology, Phoenix, AZ.

Income 2000
2000 Income of Households by State. US Census Bureau: Washington, D.C.

Indian Health Service
1991 Trends in Indian Health. Washington, D.C.: Government Printing Office.
1995 Regional Differences in Indian Health. Washington, D.C.,: Government Printing Office.

Jewitt, John R.
1812 A Narrative of the Adventures and Sufferings of John R. Jewitt....Middletown, CT:Seth Richards.

Kappler, Charles J., comp.
1904-1941 Indian Affairs:Laws and Treaties. 5 vols. Washington: U.S. Government Printing Office. (Reprinted:AMS Press, New York, 1971.)

Keen, H., J. Payan, J. Walker, et al.
1993 Treatment of Diabetic Neuropathy with Gamma Linoleic Acid (GLA). Diabetes Care 16: 8-15.

Keenleyside, Anne
1990 Euro-American Whaling in the Canadian Arctic: Its Effects on Eskimo Health. Arctic Anthropology 27: 1-19.

Lane, Barbara
1955 Makah Economy Circa 1855 and the Makah Treaty--A Cultural Analysis. 51 pp. Makah Tribal Council Archives.
1974 Political and Economic Aspects of Indian-White Culture Contact in Western Washington in the Mid-19th Century: Makah Economy." Ms. on file in the Makah Tribal Council Archives, Neah Bay, WA.

Laut, Agnes C.
1928 Who Wants a Whale Steak? The Exciting Enterprise of Catching a Whale. Mentor (September 1928): 33-35.

Marr, Carolyn
1987 Portrait in Time: Photographs of the Makah by Samuel G. Morse, 1896-1903. Allied Printers:Seattle.

Makah Language Program
1981-1991 Makah Public School Curriculum. (Curriculum on file, Makah Archives, Makah Cultural and Research Center, Neah Bay,WA

Makah Tribal Council Planning Office
1992 Community Survey on Resource Planning and Economic Development. Survey in Makah Tribal Council Planning Department, Neah Bay, WA.
2002 Profile of General Demographic Characteristics:2000

Marino, Ceasare
1990 History of Western Washington Since 1846. Pp. 169-179 in The Handbook of North American Indians, Vol. 7. The Northwest Coast. Wayne Suttles, volume ed., William C. Sturtevant, General ed. Smithsonian Institution.

Miller, Beatrice D.
1952 The Makah in Transition. Pacific Northwest Quarterly 43(4):262-272.

National Institutes of Health
1996 The Pima Indians: Pathfinders for Health. NIH Publication no. 95-3821. Washington D.C.: Government Printing Office.

Pascua, Maria Parker
1991 Ozette. National Geographic 180(4):38-53.

Pelto, Gretel
1989 Introduction: Methodological Directions in Nutritional Anthropology in Research Methods in Nutritional Anthropology. pp ix - xv. Tokyo: United Nations University.

Population 2000
2000 Profile of US Population by Geographic Area. US Census Bureau: Washington, D.C.

Reagan, Albert
1925 Whaling of the Olympic Peninsula Indians of Washington. Natural History 25:24-32.

Renker, Ann M.
1980 The Makah Language Survey. (Manuscript in Makah Archives, Makah Cultural and Research Center, Neah Bay, WA.)
1985 The Makah Language Survey II. (Manuscript in Makah Archives, Makah Cultural and Research Center, Neah Bay, WA.)
1987 Rethinking Noun and Verb: An Investigation of AUX in a Southern Wakashan Language. Ph.D. Dissertation. The American University, Washington. University Microfilms International: Ann Arbor.
1988 The 1988 Reservation Household Fishing Survey. Ms. on file in the Makah Cultural and Research Center Archives.
1993 Expert Testimony: Shellfish Use in Makah Usual and Accustomed Places. US. vs. Washington, Part II.
1994 The Makah Forest Practices Study. National Park Service.

Renker, Ann M. (continued)
1994 The Makah in the Reference Encyclopedia of Native Americans in the 20th Century. New York: Garland Press.
2002 The Makah Household Whaling Survey. Manuscript on file at the Makah Tribal Council Archives. Neah Bay, WA.

Renker, Ann M. and Greig W. Arnold
1988 Exploring the Role of Education in Cultural Resource Management: The Makah Cultural and Research Center Example. Human Organization 47(4):302-307.

Renker, Ann M. and Erna Gunther
1990 The Makah. Pp. 422-430 in The Handbook of North American Indians, Vol. 7. The Northwest Coast. Wayne Suttles, volume ed., William C. Sturtevant, General ed. Smithsonian Institution: Washington.

Renker, Ann M. and Maria Parker-Pascua
1989 The Makah Traditional Cultural Property Study. (Manuscript on file at the Washington State Office of Archaeology and Historic Preservation, Olympia, WA

Swan, James
1870 Indians of Cape Flattery, at the Entrance to the Strait of Juan de Fuca, Washington Territory. Smithsonian Contributions to Knowledge 16(1):1-106. Washington. (Reprinted: Shorey Publications, Seattle, 1982.)
1884-1887 The Fur-seal Industry of Cape Flattery and Vicinity. Pp. 393-400 in The Fisheries and Fishery Industries of the United States. George B. Goode, ed. 8 vols. in 7. Washington: U.S. Government Printing Office.

Sapir, Edward and Morris Swadesh
1939 Nootka Texts: Tales and Ethnological Narratives, with Grammatical Notes and Lexical Materials. Philadelphia: Linguistic Society of America.
1955 Native Accounts of Nootka Ethnography. Indiana University. Research Center in Anthropology, Folklore and Linguistics Publications 1:1-457. Bloomington. (Reprinted: AMS Press, New York 1978.)

Scammon, Charles M.
1874 The Marine Mammals of the Northwestern Coast of North America. San Francisco: John H. Carmany. (Reprinted: Dover Publications, New York, 1968.)

Singh, Ram Raj Prasad
1966 Aboriginal Economic System of the Olympic Peninsula Indians, Western Washington. Sacramento Anthropological Society Papers 4. Sacramento, CA.

Smith, A.W.
1853-1935 Collection of Letters and Documents. Suzzalo Library, University of Washington. Seattle, WA.

Stevens, L.J., S.S. Zentall, J.L. Deck, et al.
1995 Essential Fatty Acid Metabolism in Boys with Attention-Deficit Hyperactivity Disorder. American Journal of Clinical Nutrition 62: 761-768.

Stordy, Jacqueline
1995 Benefit of Docosahexaenoic Acid Supplements to Dark Adaptation in Dyslexics. Lancet, August 5, 1995.

Swan, James G.
1857 The Northwest Coast; or, Three Years' Residence in Washington Territory. New York: Harper.
1859-1866 [Unpublished Diaries.] (In Manuscript Collection, Suzzallo Library, University of Washington, Seattle.)

Swanson, Earl H.
1956 Nootka and the California Gray Whale. Pacific Northwest Quarterly 47:52-56.

Taylor, Herbert C.
1974 Anthropological Investigation of the Makah Indians; Relative to Tribal Identity and Aboriginal Possession of Lands. Pp. 27-89 in Coast Salish and Western Washington Indians, III. (American Indian Ethnohistory; Indians of the Northwest.) 5 vols. New York: Garland.

Van Arsdell, Jon
1976 B.C. Whaling: The Indians. In Raincoast Chronicles, First Five: 20-28. Madiera Park, B.C.: Harbour Publishing.

Walker, Ernest
1968 Mammals of the World, Volume 2. 2nd edition. JH Press: Baltimore.

Waterman, Thomas T.
1920 The Whaling Equipment of the Makah Indians. University of Washington Publications in Anthropology 1(2). Seattle, WA.
[1920a] [Puget Sound Geography.](Manuscript No. 1864 in National Anthropological Archives, Smithsonian Institution, Washington.)

Webb, Robert Lloyd
1988 On the Northwest: Commercial Whaling in the Pacific Northwest 1790-1967. Vancouver: University of British Columbia Press.

Wein, Eleanor, Milton Freeman, and Jeanette Makus
1996 Use of and Preference for Traditional Foods among the Belcher Island Inuit. Arctic 49: 256-264.

Wessen, Gary
1982 Shell Midden as Cultural Deposits: A Case Study from Ozette. Ph.D. Dissertation. Washington State University, Pullman. University Microfilms International:Ann Arbor.
1990 The Archaeology of the Ocean Coast of Washington. Pp. 412-420 in the Handbook of North American Indians, Vol. 7. The Northwest Coast. Wayne Suttles, volume ed., William C. Sturtevant, General ed. Smithsonian Institution: Washington.
1991 An Overview of the Archaeology and Archaeological Resources of Neah Bay, WA. Reports of Investigations, No. 2. Makah Cultural and Research Center, Neah Bay, WA.
1993 Reports, Maps and Exhibits presented as evidence for US v. Washington No. 9123.

Whitner, Robert, L.
1977 Culture Conflict in the Agency School:An Introduction to a Case Study, the Neah Bay Reservation, 1861-1896. (Manuscript in Makah Archives, Makah Cultural and Research Center, Neah Bay, WA.)
1984 Makah Commercial Sealing, 1860-1897:A Study in Acculturation and Conflict. Pp. 121-130 in Rendezvous: Selected Papers of the Fourth North American Fur Trade Conference, 1981. Thomas C. Buckley,ed. St. Paul,MN:North American Fur Trade Conference.

Wilcox, William
1895 The Fisheries of the Pacific Coast. In Report of the Commission for the Year Ending June 30, 1893 to the United States Commission of Fish and Fisheries. Washington, D.C.: GPO.

Wooley, Christopher B.
1984 A Reassessment of Westcoast (Nootka) Whaling. M.A. Thesis. Department of Anthropology, Washington State University. Pullman, WA.

TREATY WITH THE MAKAH, 1855.

Jan. 31, 1855.

12 Stat., 939. Ratified Mar. 8, 1859. Proclaimed Apr. 18, 1859.

Articles of agreement and convention, made and concluded at Neah Bay, in the Territory of Washington, this thirty-first day of January, in the year eighteen hundred and fifty-five, by Isaac I. Stevens, governor and superintendent of Indian affairs for the said Territory, on the part of the United States, and the undersigned chiefs, head-men, and delegates of the several villages of the Makah tribe of Indians, viz: Neah Waatch, Tsoo-Yess, and Osett, occupying the country around Cape Classett or Flattery, on behalf of the said tribe and duly authorized by the same.

Surrender of lands to the United States.

Boundaries.

ARTICLE 1. The said tribe hereby cedes, relinquishes, and conveys to the United States all their right, title, and interest in and to the lands and country occupied by it, bounded and described as follows, viz: Commencing at the mouth of the Oke-ho River, on the Straits of Fuca; thence running westwardly with said straits to Cape Classett or Flattery; thence southwardly along the coast to Osett, or the Lower Cape Flattery; thence eastwardly along the line of lands occupied by the Kwe-déh-tut or Kwill-eh-yute tribe of Indians, to the summit of the coast-range of mountains, and thence northwardly along the line of lands lately ceded to the United States by the S'Klallam tribe to the place of beginning, including all the islands lying off the same on the straits and coast.

Reservation.

Boundaries.

ARTICLE 2. There is, however, reserved for the present use and occupation of the said tribe the following tract of land, viz: Commencing on the beach at the mouth of a small brook running into Neah Bay next to the site of the old Spanish fort; thence along the shore round Cape Classett or Flattery, to the mouth of another small stream running into the bay on the south side of said cape, a little above the Waatch village; thence following said brook to its source; thence in a straight line to the source of the first-mentioned brook, and thence following the same down to the place of beginning; which said tract shall be set apart, and so far as necessary surveyed and marked out for their exclusive use; nor shall any white man be permitted to reside upon the same without permission of the said tribe and of the superintendent or agent; but if necessary for the public convenience, roads may be run through the said reservation, the Indians being compensated for any damage thereby done them. It is, however, understood that should the President of the United States hereafter see fit to place upon the said reservation any other friendly tribe or band to occupy the same in common with those above mentioned, he shall be at liberty to do so.

Whites not to reside thereon unless, etc.

Roads may be made.

Other friendly bands may be placed thereon.

Indians to settle on reservation within a year.

ARTICLE 3. The said tribe agrees to remove to and settle upon the said reservation, if required so to do, within one year after the ratification of this treaty, or sooner, if the means are furnished them. In the mean time it shall be lawful for them to reside upon any land not in the actual claim and occupation of citizens of the United States, and upon any land claimed or occupied, if with the permission of the owner.

Rights and privileges secured to Indians.

ARTICLE 4. The right of taking fish and of whaling or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States, and of erecting temporary houses for the purpose of curing, together with the privilege of hunting and gathering roots and berries on open and unclaimed lands: *Provided, however*, That they shall not take shell-fish from any beds staked or cultivated by citizens.

Proviso.

Payments by the United States.

ARTICLE 5. In consideration of the above cession the United States agree to pay to the said tribe the sum of thirty thousand dollars, in the following manner, that is to say: During the first year after the ratification hereof, three thousand dollars; for the next two years, twenty-

five hundred dollars each year; for the next three years, two thousand dollars each year; for the next four years, one thousand five hundred dollars each year; and for the next ten years, one thousand dollars each year; all which said sums of money shall be applied to the use and benefit of the said Indians, under the direction of the President of the United States, who may from time to time determine at his discretion upon what beneficial objects to expend the same. And the superintendent of Indian affairs, or other proper officer, shall each year inform the President of the wishes of said Indians in respect thereto.

How to be applied.

ARTICLE 6. To enable the said Indians to remove to and settle upon their aforesaid reservation, and to clear, fence, and break up a sufficient quantity of land for cultivation, the United States further agree to pay the sum of three thousand dollars, to be laid out and expended under the direction of the President, and in such manner as he shall approve. And any substantial improvements heretofore made by any individual Indian, and which he may be compelled to abandon in consequence of this treaty, shall be valued under the direction of the President and payment made therefor accordingly.

Appropriation for removal and for clearing and fencing land, etc.

ARTICLE 7. The President may hereafter, when in his opinion the interests of the Territory shall require, and the welfare of said Indians be promoted thereby, remove them from said reservation to such suitable place or places within said Territory as he may deem fit, on remunerating them for their improvements and the expenses of their removal, or may consolidate them with other friendly tribes or bands; and he may further, at his discretion, cause the whole, or any portion of the lands hereby reserved, or such other land as may be selected in lieu thereof, to be surveyed into lots, and assign the same to such individuals or families as are willing to avail themselves of the privilege, and will locate thereon as a permanent home, on the same terms and subject to the same regulations as are provided in the sixth article of the treaty with the Omahas, so far as the same may be practicable.

Indians may be removed from the reservation.

Tribes may be consolidated.

Ante, p. 612.

ARTICLE 8. The annuities of the aforesaid tribe shall not be taken to pay the debts of individuals.

Annuities of tribe not to pay individual debts.

ARTICLE 9. The said Indians acknowledge their dependence on the Government of the United States, and promise to be friendly with all citizens thereof, and they pledge themselves to commit no depredations on the property of such citizens. And should any one or more of them violate this pledge, and the fact be satisfactorily proven before the agent, the property taken shall be returned, or in default thereof, or if injured or destroyed, compensation may be made by the Government out of their annuities. Nor will they make war on any other tribe except in self-defence, but will submit all matters of difference between them and other Indians to the Government of the United States or its agent for decision and abide thereby. And if any of the said Indians commit any depredations on any other Indians within the Territory, the same rule shall prevail as that prescribed in this article in case of depredations against citizens. And the said tribe agrees not to shelter or conceal offenders against the United States, but to deliver up the same for trial by the authorities.

Indians to preserve friendly relations.

To pay for depredations.

Not to make war, except.

To surrender offenders.

ARTICLE 10. The above tribe is desirous to exclude from its reservation the use of ardent spirits, and to prevent its people from drinking the same, and therefore it is provided that any Indian belonging thereto who shall be guilty of bringing liquor into said reservation, or who drinks liquor, may have his or her proportion of the annuities withheld from him or her for such time as the President may determine.

Annuities to be withheld from those drinking ardent spirits.

ARTICLE 11. The United States further agree to establish at the general agency for the district of Puget's Sound, within one year from the ratification hereof, and to support for the period of twenty years, an agricultural and industrial school, to be free to children of the said tribe in common with those of the other tribes of said district and to

United States to establish an agricultural, etc., school for the Indians; to provide tools and employ mechanics, etc.

provide a smithy and carpenter's shop, and furnish them with the necessary tools and employ a blacksmith, carpenter and farmer for the like term to instruct the Indians in their respective occupations. *Provided, however*, That should it be deemed expedient a separate school may be established for the benefit of said tribe and such others as may be associated with it, and the like persons employed for the same purposes at some other suitable place. And the United States further agree to employ a physician to reside at the said central agency, or at such other school should one be established, who shall furnish medicine and advice to the sick, and shall vaccinate them; the expenses of the said school, shops, persons employed, and medical attendance to be defrayed by the United States and not deducted from the annuities.

A physician, etc.

The tribe is to free all slaves and not to acquire others.

ARTICLE 12. The said tribe agrees to free all slaves now held by its people, and not to purchase or acquire others hereafter.

Not to trade out of the United States.

Foreign Indians not to reside on the reservation.

ARTICLE 13. The said tribe finally agrees not to trade at Vancouver's Island or elsewhere out of the dominions of the United States, nor shall foreign Indians be permitted to reside in its reservation without consent of the superintendent or agent.

When treaty to take effect.

ARTICLE 14. This treaty shall be obligatory on the contracting parties as soon as the same shall be ratified by the President of the United States.

In testimony whereof, the said Isaac I. Stevens, governor and superintendent of Indian affairs, and the undersigned, chiefs, headmen and delegates of the tribe aforesaid have hereunto set their hands and seals at the place and on the day and year hereinbefore written.

Isaac I. Stevens, governor and superintendent. [L. S.]

Tse-kauwtl, head chief of the Makah tribe, his x mark. [L. S.]
Kal-chote, subchief of the Makahs, his x mark. [L. S.]
Tah-a-howtl, subchief of the Makahs, his x mark. [L. S.]
Kah-bach-sat, subchief of the Makahs, his x mark. [L. S.]
Kets-kus-sum, subchief of the Makahs, his x mark. [L. S.]
Haatse, subchief of the Makahs, his x mark. [L. S.]
Keh-chook, subchief of the Makahs, his x mark. [L. S.]
It-an-da-ha, subchief of the Makahs, his x mark. [L. S.]
Klah-pe-an-hie, or Andrew Jackson, subchief of the Makahs, his x mark. [L. S.]
Tsal-ab-oos, or Peter, Neah village, his x mark. [L. S.]
Tahola, Neah village, his x mark. [L. S.]
Kleht-li-quat-stl, Waatch village, his x mark. [L. S.]
Too-whaii-tan, Waatch village, his x mark. [L. S.]
Tahts-kin, Neah village, his x mark. [L. S.]
Nenchoop, Neah village, his x mark. [L. S.]
Ah-de-ak-too-ah, Osett village, his x mark. [L. S.]
William, Neah village, his x mark. [L. S.]
Wak-kep-tup, Waatch village, his x mark. [L. S.]
Klaht-te-di-yuke, Waatch village, his x mark. [L. S.]
Oobick, Waatch village, his x mark. [L. S.]
Bich-took, Waatch village, his x mark. [L. S.]
Baht-se-ditl, Neah village, his x mark. [L. S.]
Wack-shie, Neah village, his x mark. [L. S.]
Hah-yo-hwa, Waatch village, his x mark. [L. S.]
Daht-leek, or Mines, Osett village, his x mark. [L. S.]
Pah-hat, Neah village, his x mark. [L. S.]
Pai-yeh, Osett village, his x mark. [L. S.]
Tsah-weh-sup, Neah village, his x mark. [L. S.]
Al-is-kah, Osett village, his x mark. [L. S.]
Kwe-tow'tl, Neah village, his x mark. [L. S.]
Kaht-saht-wha, Neah village, his x mark. [L. S.]
Tchoo-quut-lah, or Yes Sir, Neah village, his x mark. [L. S.]
Klatts-ow-sehp, Neah village, his x mark. [L. S.]
Kai-kl-chis-sum, Neah village, his mark. [L. S.]
Kah-kwt-lit-ha, Waatch village, his x mark. [L. S.]
He-dah-titl, Neah village, his x mark. [L. S.]
Sah-dit-le-uad, Waatch village, his x mark. [L. S.]
Klah-ku-pihl, Tsoo-yess village, his x mark. [L. S.]
Billuk-whtl, Tsoo-yess village, his x mark. [L. S.]
Kwah-too-qualh, Tsoo-yess village, his x mark. [L. S.]
Yooch-boott, Tsoo-yess village, his x mark. [L. S.]
Swell, or Jeff. Davis, Neah village, his x mark. [L. S.]

MAKAH TRIBE

P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

The Makah Tribe is an equal opportunity employer.

RESOLUTION NO.: **17-05**
DATE ENACTED: **02-03-05**

RESOLUTION NO. 17-05 OF THE MAKAH TRIBAL COUNCIL

WHEREAS, the Makah Tribal Council is the governing body of the Makah Indian Tribe of the Makah Indian Reservation, Washington, by authority of the Constitution and Bylaws of the Makah Indian Tribe as approved on May 16, 1936, by the Secretary of the Interior; and

WHEREAS, the Makah Tribe has a documented whaling tradition and has depended on whaling as the basis of its economy, subsistence, and culture for at least 1,500 years; and

WHEREAS, the 1855 Treaty of Neah Bay secures in perpetuity the Tribe's right of taking fish and whaling and sealing at all usual and accustomed grounds and stations; and

WHEREAS, the June 7, 2004 second amended opinion by the Ninth Circuit Court of Appeals on *Anderson v. Evans* 371 F.3d 475 (9th Cir. 2004) requires the Makah Tribe to seek a waiver and/or permit under the Marine Mammal Protection Act (MMPA) in order to exercise the whaling rights secured in the Treaty of Neah Bay.

NOW THEREFORE BE IT RESOLVED the Chairman of the Makah Tribal Council is authorized to submit the attached application under Section 101(a)(3) of the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1371(a)(3), to the National Oceanic and Atmospheric Administration for a waiver of the moratorium on the taking of taking of marine mammals which would allow the Tribe to conduct a Treaty ceremonial and subsistence (C&S) harvest of up to 20 gray whales from the Eastern North Pacific (ENP) stock in a five-year period, with a maximum of five whales per year.

MAKAH TRIBAL COUNCIL

Ben Johnson Jr

Ben Johnson, Jr.
Chairman

CERTIFICATION

The foregoing Resolution was adopted at a regular meeting held on February 3, 2005, at which a quorum was present, and the Resolution was adopted by a vote of _3__ FOR and _0__ AGAINST, the Chairperson, or the Vice-Chairperson in his absence, being authorized to sign the Resolution.

By: _____
JoDean Haupt-Richards
Tribal Secretary

MAKAH TRIBE

P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

January 24, 2006

William T. Hogarth, Ph.D.
Assistant Administrator
National Oceanic and
Atmospheric Administration
Room 14636
1315 East-West Hwy
Silver Spring, MD 20910

Re: Makah Tribe's clarification of MMPA waiver request application

Dear Dr. Hogarth,

On February 11, 2005, the Makah Tribal Council (Tribe) submitted a request to the National Marine Fisheries Service (NMFS) for a waiver of the Marine Mammal Protection Act (MMPA) take moratorium that would allow a limited harvest from the Eastern North Pacific stock of gray whales as secured in the 1855 Treaty of Neah Bay. We specified in the 2005 request that the total take of gray whales for which the Tribe seeks a waiver is up to 20 gray whales in any five-year period, subject to a maximum of five gray whales in any calendar year.

While our prior request focused on the MMPA waiver and also sought a simultaneous review under the National Environmental Policy Act (NEPA), we recognize that NMFS must analyze the proposed hunting activities in the context of additional laws and regulations. This letter clarifies that the Tribe is asking NMFS to analyze the 2005 request to conduct Treaty ceremonial and subsistence hunting of gray whales under whatever authorities it may deem applicable. In making this request, the Tribe reserves its right to contest a future determination by the United States government that a particular law or regulation may be applied to restrict the Tribe's ability to exercise its whaling rights under the Treaty of Neah Bay.

Sincerely,

MAKAH TRIBAL COUNCIL

Ben Johnson, Jr.
Chairman

CC: Robert Lohn, NMFS Northwest Regional Administrator
Stanley Speaks, BIA Northwest Regional Director

Resolution No. 57-01
Date Enacted 5-30-01
subject Matter: Makah Gray Whale Management Plan Amendments

RESOLUTION NO. 57-01 OF THE MAKAH TRIBAL COUNCIL

WHEREAS, the Makah Tribal Council is the governing body of the Makah Indian Tribe of the Makah Indian Reservation, Washington, by authority of the Constitution and By-Laws of the Makah Indian Tribe as approved on May 16, 1936, by the Secretary of the Interior;

WHEREAS, the Treaty of Neah Bay secures in perpetuity the Tribe's right of taking fish and whaling and sealing at all usual and accustomed grounds and stations;

WHEREAS, on October 23, 1997, the International Whaling Commission approved the Makah Tribe's request for an aboriginal subsistence quota of 20 gray whales which my be taken between the years 1998 and 2002;

WHEREAS, on January 341998, the Council adopted Resolution No. 67-98 which adopted the Management Plan for Makah Treaty Gray Whale Hunting for the Years 1998-2002;

WHEREAS, after consultation with the Makah Whaling Commission and the National Marine Fisheries Service, the Council has determined that it is necessary to amend the Management Plan so as to allow for greater flexibility in the times and areas in which Tribal members are permitted to hunt while still providing a high margin of safety for the conservation of the gray whale and public safety;

NOW THEREFORE BE XT RESOLVED that Makah Gray Whale Management Plan for 1998-2002 is hereby amended as set forth in the Makah Gray Whale Management Plan for 1998-2002 As Amended April 2001 attached hereto.

MAKAH TRIBAL COUNCIL

By: Greig A. Arnold

Greig Arnold
Chairman

CERTIFICATION

The foregoing Resolution was adopted at a regular meeting; held on 5-30-01 at which a quorum was present, and the Resolution was adopted by a vote of 3 FOR and 0 AGAINST, the Chairman or the Vice Chairman in his absence, being authorized to sign the Resolution.

By: _____
Tribal Secretary

MANAGEMENT PLAN FOK MAKAH TREATY GRAY WHALE · HUNTING FOR THE YEARS 1998-2002 AS AMENDED APRIL 2001

I. Introduction.

The purpose of this plan is to set forth the Makah Tribe's management intent and applicable Tribal regulations to govern the exercise of treaty ceremonial and subsistence whaling rights during the period 1998 through 2002. This management plan is adopted pursuant to Article 4 of the Treaty of Neah Bay, and the International Convention for the Regulation of Whaling ("ICRW") Schedui: Amendment adopted by the International Whaling Commission ("IWC") on October 23, 1997, Under the ICRW Schedule Amendment, the Makah. Tribe is authorized to share a five year aboriginal subsistence quota of 620 gray whales with the indigenous people of Chukotka, Russia.

The IWC was informed that under an Agreement between NOAA and the Council, the Makah gray whale harvest would not exceed 5 1 anded whales per year. The management plan contains a number of additional manage nent measures adopted voluntarily by the Tribe to ensure the orderly development of safe, humane, and culturally appropriate whale hunts. In accordance with the ICRW Schedule Amendment, the management plan strictly prohibits com nercial sale of whale products except for traditional handicrafts (including artwork) made from non-edible parts of the whale. No international trade is permitted.

It is the Tribe's intent to provide for the gradual development of ceremonial and subsistence whale hunts over the five-year period so as to allow for the development of Tribal management capabilities, refinement of hunting methods, and assessment of the Tribe's cultural and subsistence needs. The Tribe intends to utilize the experience and information collected during the five year term of this plan to develop a second multi-year plan, pending IWC review of the current ICRW Schedule. The conservative management approach provided for in this management plan is not intended to limit, waive or modify any of the Tribe's whaling rights under the Treaty of Neah Bay and any such construction of this plan is improper and unauthorized.

11. Definitions.

A. "Calf" means any whale less than 1 year old or having milk in its stomach.

B. "Council" means the Makah Tribal Council.

C. "Commission" means the Makah Whaling Commission.

D. "Landing" means bringing a whale or any parts of a whale onto land in the course of whaling operations.

E. "Member" means an enrolled member of the Makah Indian Tribe.

F. "Natural Resources Department" or "NRD" means the Makah Natural Resource Department.

G. "Strike" means any blow or blows delivered to a whale by a harpoon, lance, rifle, explosive device or other weapon., When used as a verb, "strike" means the act of delivering such a blow or blows to a whale. A harpoon blow is a strike only if the harpoon is embedded in the whale. Any rifle shot which hits a whale is a strike, For purposes of Parts III.C and III.F, multiple strikes on a single whale shall count as a single strike.

H. "Take" means to flag, buoy or make fast to a whale catcher, including a canoe, chase boat or support boat.

I. "Tribe" means and "tribal" refers to the Makah Indian Tribe.

J. "Whale products" means any unprocessed part of a whale and blubber, meat, bones, whale oil, meal and baleen.

K. "Whaling" means the scouting for, hunting, striking, killing, or landing of a whale.

L. "Whaling captain" means the member in charge of a whaling team who holds a whaling permit issued by the Commission and approved by the

Council under this management plan.

M. "'Whaling expedition" means a complete voyage in which a whaling team leaves port or shore for the purpose of whaling and returns to port or shore.

N. "Whaling team" means a group of members under the control of a whaling captain who holds a whaling permit issued by the Commission and approved by the Council under this management plan.

III. Harvest **Quotas/Strike** Limits.

A. The total number of gray whales taken by members in any one calendar year shall not exceed five (5).

B. The total number of gray whales taken by members between 1998 and 2002 shall not exceed twenty (20).

C. The total number of gray whales struck by members between 1998 and 2002 shall not exceed thirty-three (33), provided that the Commission and the Council will take prudent management measures to reduce the ratio of struck whales to landed whales in any one calendar year to no more than 2:1. The total number of gray whales struck by members between 2001 and 2002 shall not exceed fourteen (14).

D. No member may strike a gray whale calf or a female gray whale accompanied by a cal for calves.

E. No member may strike a whale other than a gray whale.

F. The total number of gray whales struck by members between 2001 and 2002 in the Strait of Juan de Fuca east of the Tatoosh-Bonilla line or between June 1 and November 30 in the Pacific Ocean west of the Tatoosh-Bonilla line shall not exceed five (5).

IV. Permits.

A. No member may engage in whaling except under the control of a whaling captain who is in possession of a valid whaling permit issued by the Commission and approved by the Council. All whaling permits issued by the Commission and approved by the Council shall incorporate all of the requirements of this management plan and any additional requirements the Commission and Council deem appropriate. Upon reaching the strike limit in Part III.F above. whaling permits shall be issued with the intern of targeting migrating, whales.

B. Any whaling permit issued by the Commissior and approved by the Council shall be issued only to a whaling captain certified by the Commission pursuant to Part V below. The permit shall identify the vessels which will participate in the hunt, the mc ubers who will be part of the caplain's whaling team, and the boundaries of the designated area in which hunting will be permitted.

C. The Commission shall not issue and the Council shall not approve a whaling permit without determining that the whaling captain and each whaling team member has been certified by the Commission as qualified to perform his assigned role on the whaling, team.

D. The Council shall provide at least 24 hours advance notice to the National Marine Fisheries Service ("NMFS") and the United States Coast Guard ("USCG") prior to approving a whaling permit. The advance notice requirement shall not apply if a NMFS observer is already present on the Makah Reservation. The whaling captain shall coordinate with the on-site NMFS observer and the Coast Guard prior to departing on a whaling expedition.

E. A whaling permit shall terminate when any one of the following events occurs: (1) the whaling team lands a gray whale; (2) the whaling team. strikes a gray whale but is unable to land it; (3) the whaling team has not struck or landed a whale within 1.0 days of permit approval; or (4) the Commission or the Council determine, for any reason, to terminate the permit.

F. The Commission may issue a whaling permit only after determining that there is an unmet traditional subsistence or cultural need for whale products in the tribal community.

V. Training/Qualifications.

The Commission shall establish certification guidelines and a certification process for whaling captains, harpooners, riflemen, divers, canoe paddlers, and other whaling teammembers. The certification guidelines and the certification process shall ensure that every whaling captain and each member who serves on a whaling team has received adequate training to perform his assigned role on the team. Certification of riflemen shall include a demonstration of proficiency and accuracy under simulated hunting conditions.

VI. Whaling Vesselis, Equipment and Hunting Method:,.

A. A whaling team must include one or more canoes, one or more chase boats, and one or more support boats.

B. All canoes used in whaling must be at least 30 feet in length and manned by a harpooner and at least six paddlers.

C. All. chase boats used in whaling must be at least 18 feet in length and powered by an, engine large enough to tow an adult gray whale: to port, Each chase boat shall be manned by a pilot, diver, rifleman, and harpooner. The diver or an additional crew member shall act as a safety officer. One boat shall be equipped with a navigation system capable of precisely fixing the vessel's position on the water.

D. All whaling harpoons must be equipped with a toggle point, connected to one or more floats, and bear a permanent distinctive mark identifying the whaling captain who is in charge of the whaling team using the harpoon.'

E. The rifle used in gray whale hunts shall be ran adequate very high-powered rifle (.458 caliber or higher), approved by the Commission far use in whaling.

F. The first strike made upon a gray whale shal I be r ade by the harpooner on a canoe and shall affix one or more floats to the whale. The chase boat will pursue the whale and the rifleman aboard the chase boat will kill the whale as expeditiously as practicable with rifle shots directed at the whale's brain and upper spinal cord.

G. The rifleman on the chase boat shall not discharge his weapon until authorized to fire by the safety officer. The safety offices will. not authorize the discharge of the rife unless: (1) the barrel of the rifle is above and within 30 feet or less from the target area of the whale; and (2) the safety officer determines that the riflemar's field of view is clear of all persons, vessels, buildings:, vehicles, highways and other objects or structures that if hit by a rifle shot could cause injury to human life or property.

H. The whaling captain will suspend the hunt, if the safety officer determines that visibility is less than 500 yards in any direction.

I. Upon the death of a whale, the chase boat crew will secure the whale for towing to shore. The whale will be expeditiously towed to shore by a chase or support boats.

J. By following the general procedures set out herein , whaling teams shall make best efforts to land every whale that is struck and shall ensure that the hunt does not pose a risk to human life and property.

K. The Commission shall conduct research and development to further refine the hunting methods set out in this management plan. Upon consultation with the Commission and the National Marine Fisheries Service, the Council may periodically amend the provisions of this part to improve the safety, effectiveness and humaneness of gray whale hunts.

'VII, Area **Restrictions.**

A. All whaling shall occur within the adjudicated usual and accustomed grounds of the Makah Tribe.

B. Within the area open to whaling under paragraph A above, whaling may be confined to an area designated by the Commission and the Council in each whaling permit.

C. The initial strike of a whale shall not occur within 200 yards of Tatoosh Island or White Rock between May and September.

D. A whale shall not be struck within the "closed area" designated in Section 10.5.02 of the Makah Law and Order Code (Weapons Control Ordinance No, 43 enacted 9/5/89) or east of the "closed area" to a line extending from the southern end of Waadah Island to Baada Point

E. Whaling may occur only within the Regulated Navigation Area (RNA) established by the United States Coast Guard as amended.

VIII. Use of Meat and Whale Products.

A. Whale products taken pursuant to this management plan shall be used exclusively for local consumption and ceremonial purposes and may not be sold or offered for sale. No member may receive money for participation in whaling.

B. Notwithstanding paragraph A above, traditiona 1 handicrafts (including artwork) made from non-edible whale product,: may be sold or offered for sale within the United States. A member may not engage in international trade of these handicrafts.

C. The Commission shall periodically monitor the utilization of whale products within whaling families and the tribal community to determine when an unmet need for whale meat or other products exists The Commission may conduct research. in order to accurately and

systematically estimate the 'Tribe's traditional subsistence and cultural needs.

IX. Monitoring and Reporting.

A. A Makah Natural Resources Department ("NRD") representative will accompany each whaling team as an observer. Upon request of NMFS, the NRD representative will permit an additional observer from the Northwest Region of the National Marine Fisheries Service to observe the hunt.

B. The NRD observer shall. be responsible for recording the time, date and precise location of each whale struck. For each whale struck, the NRD observer shall record whether the whale is landed. If the whale is not landed, the NRD observer shall describe the circumstances associated with the striking of the whale and estimate whether the animal suffered a wound that might be fatal.

C. For each whale landed, the NRD observer shall record the body length (as measured from the point of the upper jaw to the notch between the tail flukes), the extreme width of the flukes, and the sex of the whale. The NRD observer shall also record the length and sex of any fetus in the landed whale.

D. The NRD observer shall record the time interval between the initial strike and the death of the whale.

E. The NRD shall be responsible for compiling and transmitting the weekly and annual reports required under the Agreement between the Council and NOAA. During periods in which whaling permits have been issued, the NRD will provide the National Marine Fisheries Service with a weekly oral report regarding the number of whales struck and landed. To the extent specified in any bilateral agreement, the NRD will also provide periodic oral or written reports regarding the number of whales struck and landed to representatives of the Russian Federation,

F. By January 30 of each year, the NRD and the National Marine Fisheries Service will prepare a joint written report compiling all of the data. accorded by the NRD under paragraphs B through D above, as well as any additional data recorded by National Marine Fisheries Service personnel.:

G. The NRD will assist National Marine Fisheries Service personnel in the collection of specimen material from landed whales, including but not limited to, ovaries, ear plugs, baleen plates, stomach contents, and tissue samples. The NRD may collect additional samples for its own use as part of the Tribe's research and management activities.

X. Enforcement.

A. The Natural Resources Enforcement Division shall be the Tribal law enforcement agency responsible for enforcing the requirements of whaling permits and this management plan.

B. Any member found whaling in violation of this management plan or the terms of a whaling permit issued by the Commission and approved by the Council. shall be subject to prosecution in Tribal Court for a Class AA criminal offense in accordance with the procedures set forth in Title 2 of the Makah Law and Order Code.

C. A whaling captain shall be deemed liable for any violations of a whaling permit or this management plan committed by a member of a whaling team under his control.

XI. Penalties.

A. Any member convicted by the Tribal Court of the offense of whaling in violation of this management plan or the terms of any whaling permit issued by the Council shall be subject to the penalties for a Class AA criminal offense under Section 5.8.01 of the Makah Law and Order

Code?

B. Members convicted of said offense may also be barred from exercising treaty fishing, hunting and/or whaling rights for up to three (3) years.

C. In determining the severity of punishment, the Court shall consult with the Commission and take into account the seriousness of the injury to the Tribe and Tribal resources.

XII. Amendments.

The Council may amend this management plan from time to time in consultation with the Commission and NOAA as new information becomes available, provided that the requirements of the management plan shall comply with the ICRW Schedule Amendment, any cooperative agreement between NOAA and the Council, and all applicable federal law.

[1] Section 5.8.01 of the Makah Law and Order Code currently provides that Class AA offenses are punishable by a fine not to exceed $5000 and imprisonment not to exceed 12 months.

Appendix B

Makah Tribe's 2013 Whaling Ordinance

RESOLUTION NO.: 118-13

DATE ENACTED: 8-13-2013

SUBJECT MATTER: Makah Whaling Ordinance

RESOLUTION NO. 118-13 OF THE MAKAH TRIBAL COUNCIL

WHEREAS, the Makah Tribal Council is the governing body of the Makah Indian Tribe under the Tribe's Constitution and Bylaws approved on May 16, 1936, by the Secretary of the Interior; and

WHEREAS, the Makah Tribe has a documented whaling tradition and has depended on whaling as the basis of its economy, subsistence, and culture for at least 1,500 years; and

WHEREAS, the Treaty of Neah Bay secures in perpetuity the Tribe's right of taking fish and whaling and sealing at all usual and accustomed grounds and stations;

WHEREAS, the Tribal Council is authorized under Article VI, § 1(i) of the Tribe's Constitution to promulgate and enforce ordinances governing the conduct of members of the Tribe, and under Article VI, § 1(j) to safeguard and promote the health, safety and general welfare of the Tribe; and

WHEREAS, the Tribal Council recognizes the paramount importance of whaling to the Makah Tribe and the central role that effective management of whales and regulation of whaling must play in the Tribe's exercise of its treaty whaling right; and

WHEREAS, the Makah Tribe previously managed and regulated whaling under a management plan adopted on January 30, 1998 by Resolution No. 67-98; and

WHEREAS, the Tribal Council finds that it is necessary to adopt the Makah Whaling Ordinance to implement the Makah Tribe's management, regulation and enforcement of the Tribe's treaty whaling right.

NOW THEREFORE BE IT RESOLVED, that the Makah Tribal Council hereby adopts the Makah Whaling Ordinance, a copy of which is attached to this Resolution. The Ordinance so adopted shall supersede all prior Makah whaling management plans and amendments thereto and whaling regulations upon approval by the Secretary of the Interior.

MAKAH TRIBAL COUNCIL

Timothy J. Greene, Sr.
Chairman

CERTIFICATION

The foregoing Resolution was adopted at a regular meeting held on Aug 13, 2013, at which a quorum was present, and the Resolution was adopted by a vote of 4 FOR and 0 AGAINST, the Chairperson, or the Vice-Chairperson in his absence, being authorized to sign the Resolution.

By: _____
JoDean Haupt-Richards
Tribal Secretary

APPROVED BY: _____
Stanley Speaks, Regional Director
Bureau of Indian Affairs – Northwest Regional Office

DATE: _____

MAKAH WHALING ORDINANCE

Introduction and Declaration of Policy

The Makah Tribe has a tradition of hunting whales off the northwestern tip of the Olympic Peninsula that has endured for at least 1,500 years. Whaling was, and continues to be, central to the Tribe's way of life, providing a primary means of subsistence as well as essential spiritual, social and cultural functions. The need to continue whaling was so important to the Tribe that when it negotiated the 1855 Treaty of Neah Bay with the United States, it reserved the right of whaling, making it the only tribe with whaling rights expressly protected by federal law. In the early twentieth century, Makah whaling declined because of the overexploitation of Pacific Ocean whale stocks by non-Indian commercial whaling operations. In contrast with this depletion by Yankee whalers, the Makah Tribe has always sought to live in harmony with the abundant resources of its marine environment. It is the purpose of the Tribe in adopting this Ordinance to control and manage all whaling by Tribal members in order to achieve sustainable utilization and conservation of whales, implement the whaling rights reserved by the Treaty of Neah Bay and preserve the treaty right for future generations of Makahs.

This Ordinance sets forth the Makah Tribe's management intent and applicable Tribal law governing the exercise of treaty ceremonial and subsistence whaling rights. The Makah Tribal Council enacts the Makah Whaling Ordinance pursuant to the inherent authority of the Council to manage Tribal members' exercise of the Tribe's treaty whaling rights and the authority vested in it by Article VI, Sections 1(i) and 1(j) of the Makah Constitution and Bylaws.

The Council's intent under this Ordinance is to authorize the hunting of only gray whales pursuant to the International Whaling Commission (IWC) aboriginal subsistence whaling catch limit and federal regulations promulgated pursuant to the Tribe's pending application for a waiver of the Marine Mammal Protection Act's take moratorium. The Council will amend this Ordinance to authorize the hunting of other species of whales only if approval for such whaling is obtained under international and federal law.

The Makah Whaling Ordinance contains general provisions for the exercise of whaling rights and provides for Council adoption of regulations regarding harvest quotas, strike limits and time and area restrictions and for Council issuance of whaling permits which may contain additional limitations. The Ordinance also contains a number of management measures to ensure the orderly development of safe, efficient, humane, and culturally appropriate whale hunts. The Ordinance strictly prohibits commercial sale of whale products except for sale within the United States of traditional handicrafts (including artwork) made from non-edible parts of the whale. The Ordinance contains provisions relating to the use of stranded whales.

The Ordinance also specifies penalties for violations of its provisions, Makah whaling regulations and whaling permits. Because the treaty whaling right is fundamental to the Tribe, the Council intends for the Ordinance and the regulations and permits issued under it to be applied strictly and for violations to be prosecuted to the full extent of Tribal law. The whaling right is central to the subsistence needs, culture and identity of the Makah Nation and belongs to present and future generations of Makahs. Any action by an individual that jeopardizes the Tribe's whaling right shall be subject to serious consequences.

The management of treaty ceremonial and subsistence whaling provided for in the Makah Whaling Ordinance and any regulations adopted or permits issued by the Council shall not limit, waive or modify any of the Tribe's whaling rights under the Treaty of Neah Bay and any such construction of this Ordinance, Makah whaling regulations or whaling permits is improper and unauthorized.

Chapter 1. General Provisions

1.010 Title.

This Ordinance shall be known as the "Makah Whaling Ordinance."

1.020 Prior Tribal Whaling Laws Superseded.

This Ordinance supersedes all prior Makah whaling management plans and whaling regulations.

1.030 Treaty Whaling Rights – Authority of the Makah Tribal Council.

The whaling rights reserved expressly to the Makah Tribe in the Treaty of Neah Bay are reserved to the Makah Tribe as a whole. The exercise of these treaty reserved whaling rights by a Tribal member is a privilege extended to that member by the Makah Tribe through its representative and governing body, the Makah Tribal Council.

1.040 Jurisdiction.

(a) Territory.

The provisions of this Ordinance and all regulations adopted under it shall apply to the full extent of the sovereign jurisdiction of the Makah Tribe, including but not limited to the Makah Reservation and the Makah Tribe's usual and accustomed whaling places as provided in the Treaty of Neah Bay.

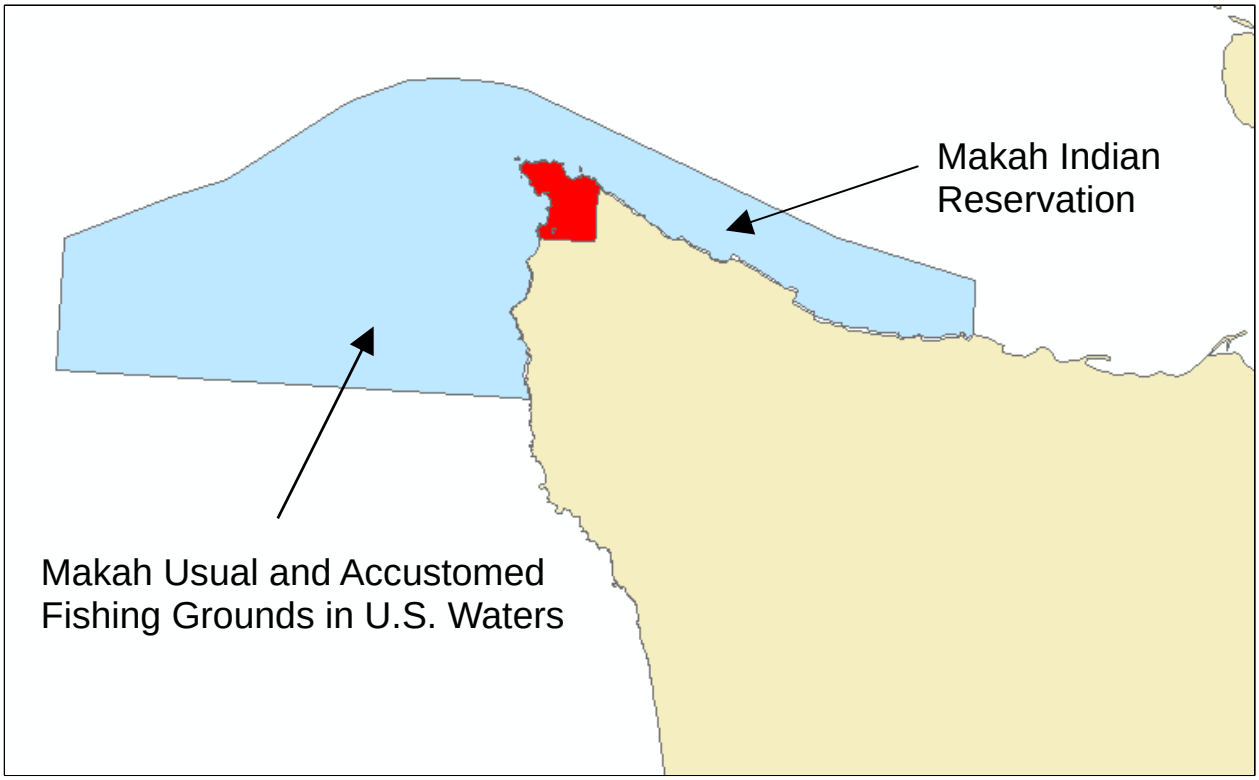


Figure 1: The Makah Tribe's adjudicated Usual and Accustomed Fishing Grounds in U.S. Waters.

(b) Persons.

The provisions of this Ordinance shall extend to all Tribal members who are exercising or purporting to exercise treaty whaling rights of the Makah Tribe while engaged in whaling, traveling to or from off-reservation areas on a whaling expedition, or any other activity regulated by this Ordinance.

1.050 General Closure.

All areas within the Tribe's jurisdiction are closed to whaling unless those areas are specifically opened by regulation. All times of the year are closed to whaling unless they are specifically opened by regulation. Areas and times opened by regulation are only opened to whaling in accordance with this Ordinance and all applicable regulations and permits.

Chapter 2. Definitions

2.010 Definitions.

The following terms have the meanings set forth below when they appear in this Ordinance, Makah whaling regulations and whaling permits, unless explicitly stated otherwise:

(a) "Calf" means any whale less than 1 year old.

(b) "Council" means the Makah Tribal Council.

(c) "Commission" means the Makah Whaling Commission.

(d) "Edible whale product" means whale meat or blubber. Edible whale products do not include whale products that are diseased, contaminated, or damaged in the course of the hunt.

(e) "Handicraft" is a term used in the Marine Mammal Protection Act and is not intended to denigrate the quality of work of Makah artists. As used in this Ordinance, the term "handicraft" means artwork and other items which are composed wholly or in significant part of non-edible whale products from a gray whale harvested under this Ordinance and Makah whaling regulations or from a

stranded gray whale, and which are individually produced, decorated or fashioned by a member.

(f) "Land" or "Landing," when used as a verb, means bringing a whale or any part of a whale onto land in the course of a whaling expedition.

(g) "Makah Fisheries" means the Makah Fisheries Management Department.

(h) "Member" means an enrolled member of the Makah Indian Tribe.

(i) "Non-edible whale product" means any whale product that is not an edible whale product.

(j) "Regulation" means any rule or regulation adopted by the Makah Tribal Council pursuant to this Ordinance.

(k) "Revocation of Whaling Privileges" means the loss of all rights and privileges to whale under this Ordinance and Makah whaling regulations until such time, if any, as whaling privileges are restored.

(l) "Stranded" means a whale that dies of causes other than a Tribal hunt or becomes live stranded and is floating or beach cast.

(m) "Strike" means any blow or blows delivered to a whale by a harpoon, lance, rifle, explosive device or other weapon which may result in death to a whale. When used as a verb, "Strike" means the act of delivering such a blow or blows to a whale. A harpoon blow is a strike if the harpoon penetrates and lodges in the whale. A harpoon that lodges in the whale counts as a strike even if the harpoon later pulls out of the whale. Any rifle shot which hits a whale is a strike. For purposes of determining strike limits, multiple strikes on a single whale shall count as a single strike.

(n) "Suspension of Whaling Privileges" means the loss of all rights and privileges to whale under this Ordinance and Makah whaling regulations for a period of time specified by this Ordinance, the Court or the Council.

(o) "Tribe" means and "Tribal" refers to the Makah Indian Tribe.

(p) "Tribal Court" or "Court" means the Makah Tribal Court.

(q) "Waste" means the taking of a whale subject to regulation under this Ordinance and Makah whaling regulations and allowing edible whale products to spoil or otherwise become unfit for human consumption or medicinal or spiritual use.

(r) "Wasteful manner" means a method of whaling that is not likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve a struck whale.

(s) "Whale product" means any part of a whale, including blubber, meat, bones, whale oil, meal and baleen. The definition of whale products excludes handicrafts that are made from non-edible whale products.

(t) "Whale" in its verb form, and such derivatives as "whaling," means the scouting for, hunting, striking, killing, or landing of a whale.

(u) "Whaling captain" means the member in charge of a whaling team who holds a whaling permit issued by the Council under this Ordinance and Makah whaling regulations.

(v) "Whaling expedition" means a voyage in which a whaling team leaves port or shore for the purpose of whaling and returns to port or shore.

(w) "Whaling team" means a group of members under the control of a whaling captain who holds a whaling permit issued by the Council under this Ordinance and Makah whaling regulations.

Chapter 3. Whaling Administration

3.010 Makah Tribal Council as Administrator; Delegation of Authority.

The exercise of treaty whaling rights pursuant to this Ordinance shall be subject to the exclusive management and administration of the Makah Tribal Council, with the advice of Makah Fisheries and the Makah Whaling Commission as sought by the Council or otherwise provided for by this Ordinance. The Council may delegate all or part of its authority to manage and administer tribal whaling to Makah Fisheries and/or the Commission, provided that any action taken pursuant to such delegation of authority shall be subject to final approval by the Council

and provided further that such delegation may be revoked, modified or withdrawn at any time by the Council.

3.020 Regulations.

Prior to each whaling season and at such other times as it may find appropriate, the Council shall by a duly-enacted resolution adopt regulations as are necessary to implement the policy of the Tribe with respect to whaling, this Ordinance, and any cooperative agreement with the National Oceanic and Atmospheric Administration ("NOAA"). Such regulations shall be consistent with any applicable federal regulations promulgated under the Marine Mammal Protection Act. The regulations adopted pursuant to this provision shall address, but are not limited to, the following:

(a) Annual harvest quotas and strike limits; and

(b) Time and area restrictions.

The Council may impose additional limitations on the exercise of whaling rights through its issuance of whaling permits under Chapter 5, below.

3.030 Notice of Regulations.

Makah whaling regulations shall be adopted, filed and made available to the Commission, National Oceanic and Atmospheric Administration, Coast Guard and Marine Mammal Commission at least thirty (30) days prior to the opening date of the applicable whaling season to ensure adequate notice. All regulations shall be posted in appropriate places, including the Natural Resources Enforcement and Makah Fisheries offices, and otherwise made available to tribal members as specified by general regulations designated to give adequate notice.

3.040 Revocation or Suspension of Whaling Privileges.

In addition to judicially imposed penalties for violations of this Ordinance, Makah whaling regulations or the terms of a whaling permit, any member's whaling privileges may be revoked or suspended by the Council for good cause shown when the Council by duly-enacted resolution determines that such revocation or suspension will be in the best interest of the Tribe. "Good cause" for suspension or revocation shall include, but not be limited to, a conviction for

violating this Ordinance, Makah whaling regulations or a whaling permit, conviction of a Class AA or Class A offense under the Makah Law and Order Code, failure to appear in Makah Tribal Court as required for charges or a conviction under this Ordinance, disobeying Court orders including sentencing orders for charges or a conviction under this Ordinance, assault on a Natural Resources Enforcement Officer, other law enforcement officer or other tribal official, reckless disregard for the safety of others when whaling, and any actions that might jeopardize the Tribe's ability or opportunity to responsibly manage its whaling rights or to otherwise accomplish the purposes of this Ordinance. Prior to any such revocation or suspension the Tribal Council shall make necessary arrangements to ensure that the member affected is given adequate notice of the proposed revocation or suspension and an opportunity to be heard before the Council. This Section shall be construed to be in addition to and not in conflict with or in derogation of those sections of this Ordinance dealing with judicial penalties for violations.

Chapter 4. Enforcement

4.010 Natural Resource Enforcement Officers.

It shall be the duty of every tribal Natural Resources Enforcement Officer to enforce this Ordinance, Makah whaling regulations and whaling permits, and to this end all such officers shall be vested with such authority to the full extent of Tribal law. Natural Resources Enforcement Officers may issue citations or make arrests and seizures in accordance with this Ordinance and the Makah Law and Order Code. Officers may use such vessels and/or vehicles as are necessary to perform their duties. The Tribal Council may also, from time to time, appoint and deputize persons to assist Natural Resources Enforcement Officers in the performance of their duties.

4.020 Arrests for Criminal Offenses.

Natural Resources Enforcement Officers shall have the authority to make an arrest of any person whaling under this Ordinance or Makah whaling regulations or issue citations or summons or other appropriate forms to assure appearance in Court whenever such person is in violation of any provision of this Ordinance, Makah whaling regulations or the terms of a whaling permit.

4.030 Searches.

Natural Resources Enforcement Officers may conduct limited searches without warrant. These include inspection and searching of gear and vessels, and patting down the person of a whaler who is of the same sex as the officer.

4.040 Seizure of Whale and Gear.

Upon arrest or the issuance of a citation, a Natural Resources Enforcement Officer may seize the whale and parts of the whale which the officer has reasonable grounds to believe have been taken, killed, possessed or used by the alleged violator contrary to the provisions of this Ordinance, Makah whaling regulations or a whaling permit. In lieu of seizing the whale, the officer may direct the whaling captain to tow the whale to land. A Natural Resources Enforcement Officer may, in addition, seize any weapons, vessels or other paraphernalia which the officer has reasonable grounds to believe have been used in the commission of a violation of this Ordinance, Makah whaling regulations or a whaling permit. The Natural Resources Enforcement Officer shall prepare an inventory of all items seized, which shall be signed by the officer and, if known, the owner or possessor. A copy of the inventory shall be given to the owner or possessor, if known, and to the Commission. If the owner or possessor is not known, a reasonable attempt shall be made to locate him or her to provide a copy of the inventory.

4.050 Disposition of Seized Whale Products and Handicrafts.

If whale products or handicrafts are seized from a whaling captain, whaling team member or other tribal member, the Natural Resources Enforcement office shall dispose of the property in a manner consistent with applicable Tribal and federal law. The Natural Resources Enforcement office shall consult with the Council, Makah Fisheries and the National Oceanic and Atmospheric Administration prior to making a decision regarding the disposition of any seized whale products or handicrafts.

4.060 Disposition of Other Seized Property.

This section applies only to seized property other than whale products or handicrafts. After: (1) final disposition of any charges arising from the events which led to the seizure of property under Section 4.040 above; (2) satisfactory proof of ownership or rightful possession; and (3) payment of reasonable costs for retrieval and storage, the Natural Resources Enforcement office may release such seized property (except contraband) to the owner or rightful possessor. Any person claiming ownership of rightful possession of seized property who is unable to obtain its release from the Natural Resources Enforcement office may petition the Tribal Court for an order releasing the property. The Court shall order the release of seized property only in conformance with this Section, provided that the Court may order the release of such property prior to final disposition of the charges if the Court finds: (1) it would cause undue hardship not to release the property; (2) the property is not needed for evidence; and (3) the Court has received satisfactory assurances that the property will not be used in violation of this Ordinance, Makah whaling regulations, or any other Tribal law. In circumstances where the owner or rightful possessor of seized property is unknown, and the property is neither contraband nor necessary evidence, the Natural Resources Enforcement office shall post a notice at the tribal Natural Resources Enforcement office and other appropriate places to ensure adequate notice to members which describes the items seized, the location, date and time of seizure, and states that the items shall be forfeited to the Tribe unless claimed by the owner or rightful possessor within thirty (30) days of the date the notice is posted. The notice shall state the date and time by when, and location where, the property must be claimed, as well as the amount of any retrieval or storage costs that must be paid.

Chapter 5. Permits

5.010 Issuance; Possession by Whaling Captain.

No member may engage in whaling except under the control of a whaling captain who is in possession of a whaling permit issued by the Council. To be valid, a whaling permit must be in writing, approved by a majority of the Council, and signed by the Chairman of the Tribal

Council or his designee. All whaling permits issued by the Council shall incorporate all applicable requirements of this Ordinance and Makah whaling regulations. The Council may also include in all whaling permits any additional requirements the Council deems appropriate.

5.020 Contents of Permit.

Any whaling permit approved by the Council shall be issued only to a whaling captain certified by Makah Fisheries or the Commission, as designated by the Council pursuant to Chapter 6 below. The permit shall identify the date the permit is approved by the Council, the vessels that will participate in the hunt, the members and any alternates who will be part of the captain's whaling team, and the boundaries of the designated area in which hunting will be permitted.

5.030 Certification of Whaling Captain and Whaling Team Prior to Issuance.

The Council shall not approve a whaling permit without determining that the whaling captain, each whaling team member and any alternates identified in the permit have been certified by Makah Fisheries or the Commission, as designated by the Council pursuant to Chapter 6 below.

5.040 Notice to Federal Government.

The Council shall provide at least 24 hours advance notice to the National Marine Fisheries Service ("NMFS") and the United States Coast Guard ("USCG") prior to approving a whaling permit, provided that, if a NMFS observer is already present on the Makah Reservation, the Council shall provide at least 3 hours advance notice to NMFS and the USCG prior to approving a whaling permit.

5.050 Coordination with NMFS Observer and Coast Guard.

The whaling captain shall coordinate with any on-site NMFS observer, the Coast Guard and the Tribal observer prior to departing on a whaling expedition.

5.060 Termination.

A whaling permit shall terminate and become invalid when any one of the following events occurs: (1) the whaling team lands a whale; (2) the whaling team strikes a whale but is unable

to land it; (3) the whaling team has not struck or landed a whale within 10 days of the Council's approval of the permit; (4) the applicable whaling season ends; or (5) the Council determines, for any reason, to terminate the permit.

5.070 Determination of Need.

The Council will issue a whaling permit only after determining, based on the advice of the Commission, that there is an unmet traditional, subsistence or cultural need for whale products in the Tribal community.

Chapter 6. Training/Qualifications

6.010 Certification of Whaling Captain and Whaling Team.

The Council shall establish, with the advice of the Commission, certification guidelines and a certification process for whaling captains, harpooners, riflemen, safety officers, other whaling team members and any alternates. Makah Fisheries or the Commission, as designated by the Council, shall implement the certification guidelines and the certification process. The certification guidelines and the certification process shall ensure that every whaling captain and each member who serves on a whaling team has received adequate training to perform his assigned role on the team. Certification of riflemen and harpooners shall include a demonstration of proficiency and accuracy under simulated hunting conditions. Certification of safety officers shall include a demonstration of proficiency under simulated hunting conditions.

Chapter 7. Whaling Vessels, Equipment and Hunting Methods

7.010 Vessels.

A whaling team must include one or more canoes, one or more chase boats, and one or more support boats.

7.020 Whaling Canoe.

All canoes used in whaling must be at least 30 feet in length and manned by a harpooner and at least six paddlers.

7.030 Chase Boat.

All chase boats used in whaling must be at least 18 feet in length. Each chase boat shall be manned by a pilot, rifleman, and harpooner. At least one chase boat shall be manned by a diver. The diver or an additional whaling team member shall act as a safety officer. One boat shall be equipped with a navigation system capable of precisely fixing the vessel's position on the water. If the chase boat is not powered by an engine large enough to tow an adult whale to port, it must be accompanied by at least one support boat with this capability.

7.040 Harpoons.

All whaling harpoons must be connected to one or more floats and bear a permanent distinctive mark identifying the whaling captain who is in charge of the whaling team using the harpoon. The whaling harpoon used for the initial strike must be equipped with a toggle point.

7.050 Rifle.

The rifle used in whale hunts shall be an adequate very high-powered rifle (.50 caliber or higher), approved by the Council, with the advice of the Commission, for use in whaling. The whaling team shall have at least two rifles available and sufficient ammunition to dispatch a whale.

7.060 Striking the Whale.

The first strike made upon a whale shall be made by the harpooner and shall affix one or more floats to the whale. The chase boat will pursue the whale, and the rifleman aboard the chase boat will kill the whale as expeditiously as practicable with rifle shots directed at the whale's brain stem and upper spinal cord.

7.070 Prohibition on Striking Whale Calf or Whale Accompanied by a Calf.

No member may strike a whale calf or a whale accompanied by a calf or calves.

7.080 Prohibition on Striking Whales Other Than Gray Whales.

No member may strike a whale that is not a gray whale (*Eschrictius robustus*).

7.090 Discharging the Rifle; Role of Safety Officer.

The rifleman on the chase boat shall not discharge his weapon until authorized to fire by the safety officer. The safety officer will not authorize the discharge of the rifle unless it is safe to do so.

7.100 Visibility – Suspension of Hunt.

The whaling captain shall suspend the hunt, if the safety officer determines that visibility is inadequate to ensure a safe hunt.

7.110 Towing the Whale.

Upon the death of a whale, the chase boat crew shall secure the whale for towing to shore. The whale will be expeditiously towed to shore by chase and/or support boats.

7.120 Best Efforts to Land Whales; Prohibition on Whaling in a Wasteful Manner.

A whaling captain shall make best efforts to land every whale that is struck, while minimizing risk to human life and property. It is a violation of this Ordinance for a whaling captain and whaling team to conduct a hunt in a wasteful manner.

Chapter 8. Area Restrictions

8.010 Usual and Accustomed Grounds – Pacific Ocean Waters.

All whaling shall occur within the portion of the Makah Tribe's adjudicated usual and accustomed fishing grounds in U.S. waters to the west of a line connecting the following points: the northwestern tip of Cape Flattery; the Tatoosh Island Lighthouse; the buoy adjacent to

Duntze Rock; and Bonilla Point on Vancouver Island, provided that a whale struck inside the area specified by this Section and a permit may be pursued to an area that is otherwise closed to whaling.

8.020 Area Restricted by Permit.

Within the area open to whaling under Section 8.010 above, whaling may be confined to an area designated by the Council in each whaling permit.

8.030 Closed Area under Weapons Control Ordinance.

A whale shall not be struck within the "closed area" designated in Section 10.5.02 of the Makah Law and Order Code (Weapons Control Ordinance No. 43 enacted 9/5/89) or east of the "closed area" to a line extending from the southern end of Waadah Island to Baada Point.

Chapter 9. Use of Meat, Whale Products and Handicrafts

9.010 Local Consumption.

Whale products harvested pursuant to this Ordinance and Makah whaling regulations or collected from a stranded gray whale shall be used exclusively for local consumption and/or ceremonial purposes and may not be sold or offered for sale. No member may receive money for participation in whaling.

9.020 Handicrafts - Sale.

Notwithstanding Section 9.010 above, handicrafts made from non-edible whale products may be sold or offered for sale only within the United States and in accordance with the requirements of this Ordinance and all federal regulations.

9.030 Handicrafts – Marking and Registration.

The Tribe shall develop and implement a registration system to ensure the authenticity of Makah whale handicrafts. Prior to any sale pursuant to Section 9.020 above, all Makah whale handicrafts must be marked and entered in the Tribe's official registry of whale handicrafts. All

handicrafts must bear a distinctive marking approved by the Council. For the official registry, the Tribe will collect and maintain records regarding the following information for each handicraft: (a) artist(s); (b) whale product(s) used; (c) a brief description, including subject matter and approximate size; and (d) registration number. The Tribe shall issue a certificate for each handicraft that must accompany any sale pursuant to Section 9.020. The official registry may be inspected upon request by NOAA.

9.040 Prohibition on Wasting.

A whaling captain and whaling team shall not, upon landing a whale, cause it to go to waste.

9.050 Stranded Whales.

Members may collect whale products from stranded gray whales in the Makah usual and accustomed fishing grounds in U.S. waters for subsistence and ceremonial use and for making handicrafts, but such collection may not occur until Makah Fisheries has had the opportunity to examine the carcass and take samples and has confirmed that the whale is a gray whale and that it did not die from a Tribal hunt. Makah Fisheries will provide timely notice to the National Marine Fisheries Service of all known whale strandings in areas within the Tribe's jurisdiction.

Chapter 10. Monitoring and Reporting

10.010 Whaling Observers.

A representative of Makah Fisheries, or another Tribal department as designated by the Council, will accompany each whaling team as a Tribal observer. Upon request of the National Marine Fisheries Service, the Tribal observer will permit an additional observer from the National Marine Fisheries Service to observe the hunt.

10.020 Responsibility of Tribal Observer – Recording Data from the Hunt.

The Tribal observer shall be responsible for recording:

(a) for each attempted strike,

(1) the time, date and precise location of the attempted strike(s);

(2) whether the whale is landed;

(3) if the whale is not landed, the circumstances associated with the attempted striking of the whale and an estimate of whether the animal suffered a wound that might be fatal;

(b) for each whale landed,

(1) the body length (as measured from the point of the upper jaw to the notch between the tail flukes);

(2) the extreme width of the flukes

(3) the sex of the whale; and

(4) the length and sex of any fetus in the landed whale;

(c) the time interval between the initial strike and the death of the whale; and

(d) such other information as NOAA regulations require.

10.030 Responsibility of Tribal Observer – Reporting.

The Tribal observer shall be responsible for compiling and transmitting such reports as are required under any regulations promulgated under the Marine Mammal Protection Act and any cooperative agreement with the National Oceanic and Atmospheric Administration to the Council.

10.040 Joint Annual Report.

Following a season in which whaling has occurred, Makah Fisheries shall prepare a written report compiling all of the data for the season recorded by the Tribal observer(s) under Sections 10.020 and 10.030 above, as well as any additional data provided by National Marine Fisheries Service personnel, and transmit such report to the Council and the appropriate representative of the National Marine Fisheries Service within thirty (30) days of the last day of the season.

10.050 Collection of Specimen Materials.

Makah Fisheries may collect specimen materials from all landed whales, including but not limited to ovaries, ear plugs, baleen plates, stomach contents, and tissue samples. A

representative of the National Marine Fisheries Service shall have reasonable access to all landed whales to collect specimen materials.

10.060 Photography of Landed Whales.

Makah Fisheries shall photograph all landed whales and transmit a copy of such photos to the National Marine Fisheries Service.

10.070 Observer Access.

Makah Fisheries, and the representative of the National Marine Fisheries Service as appropriate, shall have adequate access to landed whales to comply with the requirements of this Chapter. No person shall interfere with the actions necessary to comply with this Chapter.

Chapter 11. Violations

11.010 Responsibility of Whaling Captain and Whaling Team; Strict Construction.

It is the responsibility of every member engaging in whaling to know the contents of this Ordinance, Makah whaling regulations and the permit under which the member is whaling. This Ordinance, Makah whaling regulations and the terms of a whaling permit shall be strictly construed against such persons, taking into account the importance of the Tribe's management of the treaty whaling right and the whaling resource and the purpose and intent of the Council in enacting this Ordinance. Copies of this Ordinance and current Makah whaling regulations shall be available for review in the Makah Fisheries and Natural Resources Enforcement offices. Any member shall have the opportunity to have the Ordinance and regulations read to him or her upon request.

11.020 Criminal Offenses.

(a) Any member who whales without authorization under a valid whaling permit is guilty of a Class AA Offense under the Makah Law and Order Code.

(b) Any member who whales in violation of a time, area or species provision of this Ordinance, Makah whaling regulations, or the terms of a whaling permit is guilty of a Class AA Offense under the Makah Law and Order Code.

(c) Any member who strikes a whale calf or whale accompanied by a calf and who knows or should know that such whale is a calf or whale accompanied by a calf, is guilty of a Class AA Offense under the Makah Law and Order Code.

(d) Any member who violates a provision of this Ordinance, Makah whaling regulations or the terms of a whaling permit that is not specified in Sections 11.020(a) through 11.020(c) is guilty of a Class A Offense under the Makah Law and Order Code.

11.030 Liability of Whaling Captain.

A whaling captain shall be deemed liable if a member of a whaling team identified in a permit issued to the whaling captain, or otherwise under his control, violates a provision of this Ordinance, Makah whaling regulations or the terms of the whaling permit.

Chapter 12. Penalties

12.010 Law and Order Code Penalty.

(a) Any member convicted by the Tribal Court of an offense in Sections 11.020(a) through 11.020(c) shall be sentenced pursuant to the penalties provided for Class AA criminal offenses under Section 5.8.01 of the Makah Law and Order Code.[1]

(b) Any member convicted by the Tribal Court of an offense in Sections 11.020(d) or 11.020(e) shall be sentenced pursuant to the penalties provided for Class A criminal offenses under Section 5.8.02 of the Makah Law and Order Code.[2]

12.020 Suspension of Treaty Privileges.

(a) For any member convicted by the Tribal Court of an offense in Sections 11.020(a) through 11.020(c), the Court shall suspend the member's treaty fishing, hunting and

[1] Section 5.8.01 of the Makah Law and Order Code currently provides that a Class AA offense is punishable by a fine not to exceed $5000 and imprisonment not to exceed 12 months.

[2] Section 5.8.02 of the Makah Law and Order Code currently provides that a Class A offense is punishable by a fine not to exceed $500 and imprisonment not to exceed 6 months.

whaling privileges for a minimum of three (3) years and a maximum of five (5) years. The length of the suspension of treaty privileges is not required to be identical for all treaty privileges. The Court may not impose a suspended sentence for this portion of the penalty.

(b) For any member convicted by the Tribal Court of an offense in Sections 11.020(d) or 11.020(e), the Court may suspend the member's treaty fishing, hunting and whaling privileges for a maximum of five (5) years. The length of the suspension of treaty privileges is not required to be identical for all treaty privileges.

12.030 Commission Disqualification.

(a) Any member convicted by the Tribal Court of an offense in Sections 11.020(a) through 11.020(c) shall be ineligible to hold a position as a member or alternate of the Commission for ten (10) years and shall be permanently ineligible to serve as an officer of the Commission.

(b) Any member convicted by the Tribal Court of an offense in Sections 11.020(d) or 11.020(e) shall be ineligible to hold a position as a member or alternate of the Commission for two (2) years and shall be permanently ineligible to serve as an officer of the Commission.

12.040 Sentencing Considerations.

In determining the sentence, the Court shall take into account the harm caused by the person to the Tribe, the Tribe's treaty right and Tribal resources. The Court may seek written recommendations with respect to these factors from the Council and the Commission.

Chapter 13. Miscellaneous Provisions

13.010 Amendments.

The Council may amend this Ordinance from time to time as new information becomes available from Makah Fisheries, the Commission, the National Oceanic and Atmospheric Administration and other reliable sources, provided that the requirements of the Ordinance shall comply with the applicable International Convention for the Regulation of Whaling ("ICRW")

Schedule Amendment, any cooperative agreement between NOAA and the Council, and all applicable federal and Tribal law.

13.020 Severability.

The provisions of this Ordinance are severable. If any provision of this Ordinance or its application to any person or legal entity or circumstances is held invalid, the reminder of this Ordinance, or the application of the provision to other persons or legal entities or circumstances, shall not be affected.

Appendix C

Responses to Frequent and Substantive Comments on the Makah Tribe Request to Hunt Gray Whales

Responses to Frequent and Substantive Comments on the 2015 Draft Environmental Impact Statement (DEIS) and the 2022 Supplemental DEIS on the Makah Tribe Request to Hunt Gray Whales

Table of Contents

Introduction

On March 13, 2015, the West Coast Region of the National Marine Fisheries Service (NMFS) released a Draft Environmental Impact Statement (DEIS), pursuant to the National Environmental Policy Act (NEPA), concerning the Makah Indian Tribe's February 2005 request for a waiver from the Marine Mammal Protection Act (MMPA) to resume limited hunting of eastern North Pacific (ENP) gray whales for ceremonial and subsistence purposes. We made the DEIS available for public review for 90 days (80 FR 13373, March 13, 2015) and, in response to several stakeholder requests, extended the initial public comment period by an additional 50 days (80 FR 30676, May 29, 2015). In April 2005, we held two public meetings, in Seattle and Port Angeles, Washington on the DEIS (80 FR 14912, March 20, 2015).

On July 1, 2022, the West Coast Region of NMFS released a Supplemental Draft Environmental Impact Statement (SDEIS) after determining that the purposes of NEPA concerning the Makah Tribe's 2005 request would be furthered by doing so (40 CFR § 1502.9(d)). We made the SDEIS available for public review for 45 days (87 FR 39517, July 1, 2022) and, in response to several stakeholder requests, extended that comment period as well by an additional 60 days (87 FR 49827, August 12, 2022). We briefly reopened the comment period after additional stakeholder requests for another 7 days (87 FR 65202, October 28, 2022).

We received more than 57,000 comments on the 2015 DEIS and 47 comments on the 2022 SDEIS by mail, fax, email, and submissions to www.regulations.gov. All written comments, regardless of submission format, were published under Docket ID: NOAA-NMFS-2012-0104 on www.regulations.gov. Over 99 percent of comments were submitted as form letters. Individual commenters included state and federal entities, tribal governments, nonprofit organizations and interested individuals from the United States and around the world.

NEPA implementing regulations require agencies to consider and respond to public comments. After carefully reviewing the comments received on the DEIS and SDEIS, we have updated the analysis in the FEIS to include the most recent information available and improved our analysis where necessary. In preparation for the ALJ hearing, we drafted a response to frequent comments on the 2015 DEIS (see Appendix E), compiled a separate table with all comments received on the DEIS (see Appendix F), and submitted our responses to those comments as part of the hearing record. We have compiled a separate table with all comments received on the SDEIS (see Appendix D). This document responds to frequent and substantive comment received on the 2015 DEIS and the 2022 SDEIS. In this document, we bin frequent and substantive comments received by topic and provide detailed responses to them.

1. Potential for a hunt to cause pain or suffering to whales

Some commenters on the DEIS and SDEIS object to a Makah gray whale hunt on moral or emotional principles, stating that a hunt is cruel and would subject whales to unnecessary suffering. Several commenters assert that no whale hunt (including the 1999/2000 Makah hunt) is humane, that the Makah Tribe's proposed hunting methods are not humane, that the inexperience of the Makah whalers make it less likely that any hunt would be humane, and/or that the DEIS and SDEIS do not provide adequate information to demonstrate that hunting would be humane. Some commenters also point to the prolonged death of a gray whale in the unauthorized 2007 hunt by Makah tribal members as evidence of the inhumanity of a hunt and/or the lack of skill of Makah tribal hunters. Others commented on the weapons used, recommending the use of explosive projectiles or particular caliber rifles.

Response

We understand that hunting in general—and whale hunting in particular—can elicit strong reactions. The FEIS evaluates and describes those likely human reactions under the different alternatives in Subsection 4.8, Social Environment. Nevertheless, Section 101(a)(3)(A) of the MMPA provides for a waiver of the moratorium on take for hunting, among other actions, if certain conservation standards are met. The FEIS does not attempt to resolve the question of whether any particular method of hunting would meet the humaneness test of MMPA Section 104, which defines 'humane' as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

If a waiver of the moratorium is authorized, Section 104 of the MMPA provides for a separate permit process to evaluate a subsequent permit application addressing the method of hunting. Section 104 of the MMPA provides that, before issuing a permit, NMFS must determine that the hunting method is 'humane.' We prepared the FEIS to assist in our review of the Makah Tribe's request to waive the MMPA moratorium and authorize the Tribe to hunt ENP gray whales, including the evaluation of any permit application that might be submitted by the Makah Tribe in the future if the take moratorium is waived and regulations are issued. To inform the determination at the permit stage, the FEIS provides factual information and analyzes in detail the impact of a hunt on individual whales under a range of alternatives. This includes analyzing weapon type, manner and time to death, and the feasibility of alternative methods of hunting (FEIS Subsection 4.4.2.5, Welfare of Individual Whales – Method of Striking and Killing; Time to Death; Hunting Efficiency). The FEIS also includes, as an Appendix, the Makah Tribe's 2013 Ordinance to govern any authorized hunt and provide for training and a certification processes for the whaling team and rifleman (FEIS Appendix B). Adopted by the Makah Tribal Council in 2013, the Whaling Ordinance includes provisions, such as required training for hunters, to improve the

humaneness of a hunt (FEIS Subsection 2.3.2.2.12, Other Environmental Protection Measures). The FEIS concludes that these proposed measures could help mitigate impacts to the welfare of individual whales (see also Substantive Comment No.22), as could improved enforcement of the moving exclusionary zone and allowing a hunt during better weather conditions (FEIS Subsection 3.4.3.5.4, Method of Killing and Time to Death). These training requirements should also help mitigate concerns that the inexperience of Makah hunters could result in a less humane hunt.

To help evaluate potential scenarios regarding the manner and time to death of a whale killed in a Makah tribal hunt, the FEIS examines the May 1999 hunt. It also compares the results of that hunt to the results from Chukotkan gray whale hunts and concludes that it is reasonable to expect that average time to death in a Makah hunt using a .50 or .577 caliber rifle as the killing weapon would be shorter than average time to death in the Chukotka Native hunt because the Makah Tribe would use a higher caliber rifle, which would kill a gray whale more effectively than a lower caliber rifle used by the Chukotka Native hunters.

Some commenters cite the unauthorized hunt by Makah tribal members in 2007 (see FEIS Subsection 3.4.3.5.4, Method of Killing and Time to Death) as evidence that the hunt is not humane. The unauthorized hunt is not predictive of the likely manner and time to death of whales in a possible future hunt because the unauthorized hunt did not follow any of the procedures recommended by the Tribe in its request (such as training of the shooter), the main killing weapon was lost overboard, and the Coast Guard intervened and stopped the hunt.

During review of the permit application, NMFS would also seek and include relevant information developed by the IWC Working Group on Whale Killing Methods and Associated Welfare Issues that regularly reviews whale killing methods as the science and methodology is evolving (IWC 2018a). This Working Group, in which the United States participates, regularly reviews data on the Chukotkan Russian gray whale and Alaskan bowhead hunt. The IWC has focused on reducing the time to death of a whale (i.e., reducing the amount of time between the strike and death of a whale) to improve the humaneness of whaling (IWC 2004; IWC 2007; IWC 2012a), while taking into account hunter safety. Our review of this work will help ensure that permits incorporate best available science and methods related to humane hunts that is available at the time of permit review. As required under the MMPA, the public would be provided with an opportunity to review and comment on the Tribe's permit application, including the method of hunting proposed by the Tribe, prior to NMFS' decision whether to issue a permit.

2. Aboriginal subsistence whaling (ASW) status of the Makah Tribe and U.S. request to the IWC on behalf of the Makah Tribe.

Several commenters on the DEIS assert that the Makah Tribe does not qualify under the ASW provisions of the International Convention for the Regulation of Whaling (ICRW), or the Whaling Convention Act (WCA), which is the domestic law implementing the ICRW. Commenters raise a number of arguments including the 70-year hiatus in the Tribe's whaling tradition, the lack of a 'subsistence need,' and the process by which the International Whaling Commission (IWC) allocated the United States an ASW quota for ENP gray whales. One commenter states: "any claim of an ASW right must be legitimate, substantiated and incontrovertible," citing the position of the IWC that the ASW exception should not undermine the conservation of whales.

Response

These assertions have been routinely raised and reviewed in public forums, facilitated by NMFS and the State Department, to hear from interested parties and to develop the United States' positions before the IWC since 1996 when the United States first submitted a request and needs statement on behalf of the Makah Tribe for international review pursuant to the ICRW and domestically pursuant to the Whaling Convention Act. The United States has supported the Makah Tribe's request at the IWC, and the IWC has repeatedly reviewed and approved catch limits for ENP gray whales in response to the joint U.S.-Russia request for " aborigines or a Contracting Government on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines" (IWC 2018b). The current 7-year harvest limit runs through 2025 and is for 980 ENP gray whales with an annual cap of 140 whales. A bilateral agreement between the United States and the Russian Federation sets overall and annual limits for the two countries (Fominykh and Smith 2023). The FEIS describes the position taken by the United States on this issue, which is that the Tribe does qualify within the meaning of the 1946 ICRW (United States 1996). The United States has also consistently taken the position that the Makah Tribe are qualified under the current IWC definition of aboriginal subsistence whaling that was agreed by the Commission in 1982:

Definitions for aboriginal subsistence whaling (IWC 1982)

1) Aboriginal subsistence whaling means whaling for purposes of local consumption carried out by or on behalf of aboriginal, indigenous or native peoples who share strong community, familial, social, and cultural ties related to a continuing traditional dependence on whaling and on the use of whales.

2) Local aboriginal consumption means the traditional uses of whale products by local aboriginal, indigenous or native communities in meeting their nutritional, subsistence and cultural requirements. The term includes trade in items which are by-products of subsistence catches.
3) Subsistence catches are catches of whales by aboriginal subsistence whaling operations.

The current comments provide no new information or analysis to support their assertions. The FEIS details the factors supporting the U.S. determination that the Makah Tribe's request meets the ICRW standards for aboriginal subsistence whaling as articulated by the IWC (FEIS Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah):

> "United States delegates and Makah representatives responded that the Makah Tribe had continued aspects of its whaling tradition through names, dance, songs, and other cultural traditions (IWC 1997; United States 1996). The United States also noted that nutritional need is a factor in considering and setting aboriginal subsistence whaling catch limits, but not a threshold requirement. United States delegates used the example of the IWC setting a catch limit for the bowhead stock for many years after considering the United States' requests on behalf of the Alaska Natives, even though the Nutrition Panel at the 1979 workshop for aboriginal subsistence whaling of bowhead concluded that nutritional needs of Alaska Natives could be met through local subsistence or western-type foods (IWC 1979b; United States 1996). Moreover, the Makah needs statement (Renker 1996) had demonstrated a continued subsistence reliance on traditional marine foods available to the Makah, and a nutritional need based on poverty and economic conditions on the Makah Reservation (Renker 1996; United States 1996). The United States noted that federal agents in the last 5 decades had actively prevented Makahs from consuming and utilizing whales that drifted onto Makah beaches, by burying or burning the drift whales and by threatening Makah members, who tried to access the products, with jail and other federal sanctions (United States 1996). As late as the 1970s, federal agents were still entering Makah households and searching freezers for the presence of marine mammal products (United States 1996)."

The FEIS also describes the process at the IWC by which the United States requested and received an ASW quota on behalf of the Makah Tribe, including U.S. actions at the 1996 IWC meeting, where some delegates opposed the U.S. request for an ASW quota on behalf of the Makah Tribe (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah):

> "At the annual meeting of the IWC in 1996, the United States, on the Makah's behalf, requested that the IWC revise the Schedule to set a catch limit for the ENP gray whale stock of 20 ENP gray whales over 5 years (with no more than five in any one year) from 1997 through 2000. At the Aboriginal Subsistence Whaling Subcommittee meeting, many delegates supported the United States' request. Other delegates indicated they would vote against the proposal. One reason given for this opposition was that the United States did not ask the Russian Federation to share the existing 1995 to 1997 catch limit of 140 ENP gray whales per year, which was based on the cultural and nutritional needs of the Chukotka Natives (IWC 1997; 63 FR 16701, April 6, 1998). Instead, the United States adhered to a prior position that each contracting government requesting a revision to the Schedule for aboriginal subsistence whaling catch limits must submit its own proposal before the IWC (IWC 1997; 63 FR 16701, April 6, 1998). Opponents noted that granting the United States' request would increase the total ENP gray whale catch limit beyond what had already been set by the IWC in paragraph 13(b)(2) of the Schedule (IWC 1997). At the 1996 meeting, the Russian Federation had also requested a catch limit of five bowhead whales a year, but withdrew its request when a consensus could not be reached among delegates. The bowhead stock catch limit was already set for the United States and was not shared with Russia (IWC 1997).
>
> Another reason for the opposition was that some delegates questioned whether the Makah had a "continuing traditional dependence" on whaling (IWC 1997), a component of the working definition for aboriginal subsistence whaling developed by the 1981 *Ad Hoc* Technical Working Group (Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Natives). The delegates noted that the Makah had not hunted gray whales since the 1920s (IWC 1997)."

The U.S. delegation responded to this concern, as noted above, that "the Makah Tribe had continued aspects of its whaling tradition through names, dance, songs, and other cultural traditions." (FEIS Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah)

Before its actions at the IWC, the U.S. delegation conducted an internal review and a public review, as it does before making any request to revise catch limits in the IWC schedule (e.g., 83 FR 33210, July 17, 2018). As described in the FEIS (Subsection 1.2.4.1.4, United States' IWC Interagency Consultation):

> "When the United States receives a request from a Native American tribe to whale for subsistence purposes, NMFS' Office of International Affairs, Trade, and Commerce, the United States Commissioner to the IWC, and the Department of State first review the request. The United States Commissioner may also consult with other federal agencies as appropriate. Before each IWC meeting, the United States Commissioner presents the draft United States position on whaling issues, including proposals to revise aboriginal subsistence whaling catch limits, to the public at the IWC Interagency Committee meeting. These interagency meetings take place before each full meeting of the IWC, in the Washington D.C. area, and they are open to the public with an interest in whaling, except for individuals representing foreign interests. Representatives of environmental and animal rights groups, Native American groups, sustainable use groups, and other concerned stakeholders typically attend. When relevant, Makah whaling issues have been discussed at public IWC Interagency meetings since May of 1995."

We agree with the IWC position and with the comment that ASW claims should meet certain standards. To that end, the United States has promoted IWC efforts to standardize need statements and better understand the relationship between needs and consumption patterns for ASW hunts (see, for example, the report of the meeting of the Aboriginal Subsistence Whaling Working Group - IWC/67/ASW/Rep/01 (IWC 2018c)).

The Makah Tribe's request for MMPA authorization to hunt whales refers to the international catch limit authorized by the IWC under the ICRW (IWC, 2018a), even though the MMPA has no eligibility requirement similar to the ICRW's ASW requirement. If NMFS waives the MMPA take moratorium for ENP gray whales and issues regulations governing a tribal hunt, the Makah Tribe and NMFS will need to complete procedures established in domestic law that implements the ICRW, the WCA and its implementing regulations at 50 CFR Part 230. Any authorization granted under the WCA to allocate a domestic catch limit for ENP gray whales would need to be consistent with the IWC schedule and bilateral agreement between the United States and the Russian Federation.

3. Makah Tribe's desire to revive its whaling tradition

Several commenters assert the Tribe does not have a cultural or subsistence need for whale products. This argument is made both to support a claim that the Tribe does not qualify for an ASW quota through the IWC (Substantive Comment No. 2) and to support arguments against the Tribe's waiver request. These arguments include that whaling is outdated and anachronistic, no longer a central aspect of Makah culture and tradition, and unlikely to benefit the Tribe culturally, spiritually, materially or otherwise. They also

question surveys of tribal members used by the Makah Tribe to support their request and question the objectivity of anthropologists (Drs. Renker and Braund) conducting surveys and/or assessments of tribal views on the resumption of whaling. Several commenters assert that the right to whale is not guaranteed by the Treaty of Neah Bay (Substantive Comment No. 8). A number of commenters also state that authorization of a tribal hunt would circumvent the protections of the MMPA (Substantive Comment No. 17).

Response

The FEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings, including sorrow, frustration, and anger, among persons and groups who oppose the hunt (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations). Although whaling may seem outdated to some people, the Makah Tribe, as a sovereign nation, decides which cultural traditions it pursues, within the bounds of applicable law.

Regarding the assertion that whaling is no longer a central aspect of Makah culture and tradition, the FEIS describes the U.S. position that whaling has continued to be a part of various Makah cultural traditions (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah, which is quoted above in response to substantive comment No.2). The Makah Tribe asserts that a revival of tribal culture is necessary to combat social ills and that a resumption of whaling is necessary to pursue cultural revival (Makah 2005a). The FEIS concludes that the hunting and harvest of gray whales under all action alternatives are likely to have beneficial impacts on the Tribe's cultural identity, including its traditional knowledge and activities and its spiritual connection to whaling.

We disagree with comments questioning the objectivity of anthropologists Dr. Ann Renker and Dr. Stephen Braund, both of whom provided valuable information for the FEIS regarding the history, culture, and significance of Makah whale hunts that support the U.S. position noted above. Dr. Renker has lived on the reservation for many years, conducted extensive research on the Makah Tribe since the 1980s, and served for several years as the Executive Director of the Makah Cultural and Research Center. Since 1996, Dr. Renker has conducted four randomized household whaling surveys of Makah tribal members utilizing consistent methodology over time. A detailed description of the methods of the surveys can be found in Appendix two of Renker (2018). These surveys formed the basis of four needs statements prepared by the Makah Tribe for the IWC. The United States has adopted the four needs statements as part of its joint request with Russia for a gray whale quota, and the IWC's Aboriginal Subsistence Whaling Sub-committee has consistently accepted these needs statements. To provide context for Dr.

Renker's household surveys, the FEIS includes a discussion of the limitations of the data from the surveys.

For nearly four decades Dr. Braund has conducted dozens of anthropological and cultural resource assessments on Native American communities, and he visited the Makah reservation and interviewed tribal members as part of our NEPA assessment. Dr. Braund also reviewed Dr. Renker's work and included references to it in his report, indicating he found Dr. Renker's work credible. We also retained cultural anthropologist Dr. Kennedy to review our presentation of Dr. Renker's work and provide comments. Dr. Kennedy did not find any major flaws with the analysis conducted by Dr. Renker or our interpretation of that analysis. The names of both of these cultural anthropologists appear in the list of preparers.

The FEIS discusses the social or cultural effects of authorizing or not authorizing a Makah whale hunt as, for example, this passage from Subsection 4.10.3.2.5, Cultural Identity:

> "Under Alternative 2, Makah whale-hunting rituals, spiritual training, songs, dances, and ceremonial activities would likely increase compared to the No-action Alternative and would regularly recur, thus reinforcing Makah cultural identity. The opportunity under Alternative 2 to regularly harvest, process, share, and consume whale products could lead to increased communal activities and an increase in tribal members' sense of community. The whale-hunting ceremonies that whalers and family members would follow for the hunt could provide the Makah with an additional social framework, which could contribute to social and spiritual community stability."

The FEIS also describes the subsistence effects to tribal members of authorizing or not authorizing a whale hunt (Subsection 4.10.3.2.2, Subsistence Use). Although tribal members may have access to other food sources, the FEIS concludes that the ability to hunt whales would increase the Tribe's opportunities to pursue subsistence practices and increase the satisfaction of tribal members as a result of those opportunities.

In the Treaty of Neah Bay of 1855, the Makah Indian Tribe secured the right to hunt whales. Treaties with Indian Tribes are federal law, coequal with all other federal law. Regarding legal arguments about the role and scope of the Treaty of Neah Bay in evaluating application of the MMPA to the Tribe's gray whale hunt, the Ninth Circuit stated in *Anderson v. Evans* that "[u]nlike other persons applying for a permit or waiver under the MMPA the Tribe may urge a treaty right to be considered in the NMFS's review of the

application submitted by the Tribe under the MMPA." *Anderson v. Evans*, 371 F.3d 475, 501 n.26 (9th Cir. 2004). To inform future decision making under the MMPA, the FEIS describes the treaty and issues surrounding its negotiation as context for the examination and analysis of effects of alternatives on the human environment. The FEIS describes other relevant federal laws also for background and context. See also the responses below to substantive comment No. 8 regarding the Treaty of Neah Bay and substantive comment No. 17 regarding lawfulness of a waiver.

The Makah Tribe is seeking a waiver of the MMPA take moratorium in accordance with the Ninth Circuit's decision in *Anderson v. Evans*, and as allowed under Section 101(a)(3)(A) of the MMPA. The FEIS describes the waiver process and requirements in more detail in Subsections 1.2.3.3, Section 101(a)(3)(A)—Waiver of the Take Moratorium, and 3.17.3.1, Waivers of the MMPA Take Moratorium. NMFS is responding to the Tribe's request through the legal processes of the MMPA. Thus, we disagree with the comment that a waiver would circumvent the protections of the MMPA.

4. Precedential effect of waiver internationally and domestically

Several commenters on the DEIS assert that if NMFS waives the MMPA take moratorium and authorizes a tribal hunt, it will lead to increased requests for and take of marine mammals, including whales, in the United States and/or increased whaling worldwide. These comments included:

- Future requests from the Makah Tribe to hunt other species (e.g., delisted humpback whale stocks).
- Requests from other coastal tribes that historically whaled.
- First Nations in Canada being prompted to resume whaling.
- Precedential effects on the efforts by Japan to promote small-type coastal whaling by traditional Japanese peoples, which commenters assert is not adequately addressed in the DEIS.

Members of the public recently submitted additional comments regarding a case in which the Ninth Circuit Court of Appeals held that historic whaling by the Quinault and Quileute Tribes counted as "fishing" for purposes of interpreting their treaties and establishing their usual and accustomed (U&A) fishing areas (*Makah Indian Tribe v. Quileute Indian Tribe*, 873 F.3d 1157 (9th Cir. 2017), *cert. denied*, No. 17-1592, 2018 WL 2364652 (U.S. Oct. 1, 2018)). These commenters state that the Court's decision could renew the interest of those tribes to resume whaling. One commenter suggests that other tribes have not requested MMPA waivers as a strategic maneuver in support of the Makah Tribe's request.

Response

The FEIS examines the potential for authorization of a gray whale hunt to have precedential effects on hunts for marine mammals in the United States and whaling world-wide (Subsection 4.17, Regulatory Environment Governing Harvest of Marine Mammals) using three criteria: (1) the potential change in requests for waiver of the MMPA take moratorium to allow harvest in the United States of marine mammals other than whales; (2) the potential change in requests for regulatory action to authorize harvest of whales in the United States, which would require application to the IWC for a catch limit, waiver of the MMPA take moratorium (with associated MMPA regulatory actions following NEPA review), and completion of a cooperative agreement under the Whaling Convention Act (WCA); and (3) the potential change in IWC regulation of commercial, scientific, or aboriginal subsistence whaling. The response below is organized around the comments we received rather than the three evaluation criteria in the FEIS.

(1) Additional requests for MMPA waivers for marine mammals other than whales

Regarding requests for MMPA waivers, the FEIS (Subsection 4.17.2.1, National Regulation of Marine Mammal Harvest) notes that authorization of a gray whale hunt by NMFS, and a gray whale hunt by the Makah Tribe:

> "…could lead other parties to seek similar authorizations to harvest marine mammals other than whales. Some Indian tribes traditionally harvested and used products from seals, sea otters, and other marine mammals. Northwest Indian tribes have, in the past, expressed an interest in harvesting marine mammals (Schmitten 1994). Authorization of a Makah gray whale hunt could revive the interest of the Makah or other tribes in hunting marine mammals. It could also lead to interest by non-Indians in sport or commercial hunting of marine mammals. Such interest could lead to additional requests for MMPA waivers from Indian tribes or non-Indians, and could, ultimately, lead to the federally authorized harvest of additional marine mammals if such harvest is consistent with the MMPA."

The FEIS (Subsection 4.17.3.2.1, National Regulation of Marine Mammal Harvests) concludes that under the action alternatives:

> "…there could be an increased likelihood of future [waiver] requests. We consider the increased likelihood to be small. First, as described in Subsection 3.17.3.1, Waivers of the MMPA Take Moratorium, there have been very few requests for waiver of the take moratorium, and none since 1987 except the Makah Tribe's request. This is likely the result of the complexity of the waiver

> process, the length of time required to complete the process, and the lack of resulting harvest opportunities. These factors would continue to limit interest in seeking MMPA waivers, even if a Makah whale hunt were authorized under one of the action alternatives. The most likely increase in waiver applications would come from other treaty tribes, who might view the approval of the Makah's application as a precedent for approval of additional waiver applications to take marine mammals that they had harvested traditionally and that remained important to them for cultural or other reasons. If authorization of a hunt under one of the action alternatives (Alternatives 2 through 7) did lead to additional waiver requests, the outcome of any process to consider them would depend on a number of facts specific to the requests that are not presently known, making it speculative to conclude that the harvest of marine mammals nationally would change as a result of implementing Alternatives 2 through 7. Any additional waiver requests for marine mammals would be subject to analyses under NEPA as well as the MMPA."

None of the commenters submitted new information that would change this conclusion or that supports the assertion that other tribes are strategically withholding waiver requests. We, therefore, conclude this assertion to be speculative.

(2) Additional requests for MMPA waivers for large whales

Regarding additional requests for whale hunts in the United States, the DEIS (Subsection 4.17.3.2.2, National Regulation of Whaling) states:

> "Although it has been over 35 years since Alaska Natives first received a WCA allocation and over 25 years since the Makah Tribe received its [original] allocation, no other Indian tribe or Alaska native group has requested an allocation or inquired about receiving an allocation for whales under the WCA. This history suggests that, beyond the Makah and the Alaska Eskimo Whaling Commission, there is little interest by other native groups to seek authorization to harvest whales. In addition, the complexity of the process and length of time required to complete it would probably limit the interest of most potential applicants. It therefore seems unlikely that implementation of Alternatives 2 through 7 would lead other Indian tribes to seek authorization to hunt whales.
>
> Nevertheless, tribes other than the Makah traditionally hunted gray whales (Subsection 3.4.3.6.1, Aboriginal Subsistence Whaling), and authorization of a Makah gray whale hunt could encourage them to seek a similar authorization. If authorization of a hunt under Alternatives 2 through 7 did

> lead to additional requests to hunt gray whales, the outcome of any process would depend on a number of facts specific to those requests that are not presently known, making it speculative to conclude that the harvest of gray whales nationally would change as a result of implementing Alternatives 2 through 7."

The recent Ninth Circuit decision does not change this conclusion as it is based on the complexity of international and domestic processes, not the underlying potential existence of a claim to aboriginal subsistence whaling. For example, if the Tribes in that case wished to assert a whaling right, they would need to satisfy domestic and international requirements regarding ASW claims, MMPA waiver, and WCA authorization. The commenters point to no additional information and we are not aware of any other new information that would change the conclusion in the FEIS. The suggestion that other tribes are strategically withholding requests is speculative.

(3) Future requests by the Makah Tribe to hunt other large whale species

The request currently being considered by NMFS is for a waiver of the take moratorium on ENP gray whales (see Subsection 2.3.2.2, Gray Whale Hunt Details). Regarding future requests by the Makah Tribe for waiver of the take moratorium for other large whale species, this would require evaluation and approval via separate processes under the IWC, NEPA, MMPA, and WCA. Before the Tribe could receive authorization to hunt any other species of large whale, the United States would have to request a quota on behalf of the Tribe and present a needs statement to the IWC, which would then have to approve a catch limit in light of that request. NMFS would then have to complete a NEPA evaluation of the request, engage in formal rulemaking under the MMPA, and enter into a cooperative agreement under the WCA. For these reasons, we conclude the analysis in the FEIS regarding requests by other tribes (see above) for ENP gray whale hunts is equally applicable to the likelihood of a request by the Makah Tribe for hunts of other large whale species besides gray whales.

During the hearing on the waiver, an administrative law judge (ALJ), also found that the concerns that granting a waiver to allow the Makah Tribe to hunt is a slippery slope and will result in others seeking to hunt in the future to be speculative and that no party identified any expression of such interest (Recommended Decision p. 125). This is supported by the analysis in the FEIS.

(4) Increased whaling worldwide

Regarding an increase in whaling worldwide, the FEIS examines in detail all whaling under the IWC—commercial, scientific, and aboriginal—before and after NMFS' authorization of Makah whaling in 1999

and 2000 and finds no change or pattern that would lead one to conclude another authorization more than a decade later would cause increased whaling world-wide. The FEIS notes that since 1997 "there have been no requests from additional countries for an aboriginal subsistence catch limit and no requests on behalf of additional aboriginal groups" (Subsection 4.17.3.2.3, International Regulation of Whaling).

The FEIS specifically examines claims, repeated by some commenters, that Japan could use domestic authorization of a Makah whale hunt under the MMPA to justify its request for small-type coastal whaling (see Subsection 4.17.3.2.3, International Regulation of Whaling [Commercial and Scientific Whaling]):

> "Though Japan attempted to use the bowhead catch limit by the United States request in 2002 in its pursuit of small-type coastal whaling, there is no evidence that this move led to a fundamental change in the U.S. position, in the positions of other countries, or in the international regulation of whaling. There is also no evidence that whaling proponents such as Japan could successfully use the U.S. authorization of a Makah hunt under domestic law as leverage to change the regulation of commercial or scientific whaling. It is more likely that the outcome of Japan's requests for small-type coastal whaling, or the pro-whaling nations' efforts to remove the moratorium on commercial whaling, depends on the balance of power in the IWC rather than on strategic maneuvers such as those that took place in 2002 over the bowhead catch limit.
>
> The support of Japan and the other pro-whaling countries for the ENP gray whale catch limit even as they were opposing the U.S. ASW bowhead catch limit in 2002 (3.17.3.2.2 Aboriginal Subsistence Whaling) also suggests that pro-whaling countries do not view the Makah hunt as leverage to change the regulation of commercial or scientific whaling. In 2007, bowhead and ENP gray whale aboriginal subsistence catch limits were set by consensus at the annual meeting of the IWC (Subsection 1.4.1.2.1, Relevant Overview of Requests for Bowhead Whales on Behalf of Alaska Eskimos; Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). The IWC has subsequently set these catch limits in a block vote with the humpback catch limit request of St. Vincent and the Grenadines (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah).
>
> Pro-whaling nations have argued that all whaling should be treated equally, limited only by principles of sound science and management. These nations could argue that the resumption of whaling by the Makah Tribe justifies an increase in other types of whaling. They might also argue that the ability of

> the Makah Tribe to sell handicrafts made from inedible parts (which would be authorized under Alternatives 2 through 7) makes the hunt "commercial," although this is allowed under the IWC's definitions for "subsistence use" and "aboriginal subsistence whaling." We consider it unlikely, however, that pro-whaling nations would be able to use this argument as leverage to change the regulation of commercial or scientific whaling. The United States and several other countries have a long history of opposing commercial and scientific whaling while supporting aboriginal subsistence whaling; thus, authorization of a Makah hunt would not introduce a new element into the long-standing debate over whether there is a difference between commercial and subsistence hunts. Moreover, Alaska Natives have been authorized under domestic law to make and sell handicrafts made from bowhead whales.
>
> Another piece of evidence suggests that aboriginal subsistence whaling generally, and authorization of a Makah hunt in particular, would not influence the debate over commercial and scientific whaling. The working group proposal presented at the 2010 IWC meeting included trade-offs between scientific and commercial whaling (Subsection 3.17.3.2.1, Commercial and Scientific Whaling). Aboriginal subsistence whaling appears not to have been a consideration in the proposed compromise between scientific and commercial whaling interests."

The FEIS also notes that the Canadian government and First Nations reached an agreement in 2006 in which the First Nations agreed to forgo whaling for 25 years in exchange for land, a share of mineral and timber resources, and a cash settlement (Subsection 1.4.1.1, Worldwide Catch Limits). It is possible that, at the conclusion of their 25-year agreement, First Nations (including those on the west coast of Vancouver Island affiliated with the Makah Tribe) would be encouraged by a Makah Tribe whale hunt to end their whaling hiatus. However, it is speculative at this time to consider what would happen in that regard in 2031.

Although some commenters made assertions about the intentions of other countries, particularly Japan, and past deal-making within the IWC, they did not bring forward any new evidence beyond what was considered in the DEIS and now the FEIS. We have also examined the IWC proceedings since the DEIS was released and found no new information that would change the conclusions in the FEIS.

5. Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales

Several commenters assert the PCFG should be designated and/or treated as a marine mammal population stock under the MMPA. Commenters present scientific, policy, and legal arguments supporting this

position. Some commenters also state that NMFS is biased and has avoided designating the PCFG as a stock to protect the ability of the Makah Tribe to whale. Several commenters urge NMFS to pursue the precautionary principle and treat the PCFG as a stock because of uncertainties surrounding its stock status. One commenter notes that if NMFS treated the PCFG as a stock and prepared a dedicated stock assessment report it would allow for a more informed decision.

Response

Section 117 of the MMPA directs NMFS to complete stock assessment reports (SARs), which, among other things, serve to identify the status of marine mammal "population stocks," the fundamental unit of legally mandated conservation under the MMPA. The MMPA provides general guidance on preparing SARs, and more detailed guidance is contained in agency "Guidelines for Assessing Marine Mammal Stocks" (GAMMS), which undergo public review and comment, including by the Marine Mammal Commission, and are periodically updated. The most recent GAMMS define a stock as an "MMPA management unit that identifies a demographically independent population, where demographic independence means the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than immigration or emigration (external dynamics)."

NMFS scientists develop SARs according to the GAMMS. Section 117 of the MMPA requires that the SARs be reviewed by regional scientific review groups (SRG) and made available for public review and comment. The Marine Mammal Commission routinely reviews and comments on the SARs during the public comment period (e.g., Carretta et al. 2023; 88 FR 54592, August 11, 2023). The SARs are officially published by the NMFS' Scientific Publications Office as part of the NOAA Technical Memorandum series. Prior to 2019, this statutory process was the appropriate mechanism for designating population stocks of marine mammals under the MMPA. In 2019, NMFS established procedural directive 02-204-03: *Reviewing and Designating Stocks and Issuing Stock Assessment Reports under the Marine Mammal Protection Act* (NMFS 2019), which separates the stock designation process from the SAR development. Prior to the annual SAR revision, NMFS identifies if "there are (1) any stocks that should be examined for possible revision or (2) potential new stocks that should be added" (NMFS 2019). The procedural directive outlines examples and criteria for when a stock revision may need to occur, as well as the steps involved in conducting such an assessment.

The 1995 (the first) SAR (Small and DeMaster, 1995) stated that "gray whales have been reported feeding in the summer in waters off Southeast Alaska, British Columbia, Oregon, and Washington." The 2005 SAR was the first to refer to such whales as a "Pacific coast feeding aggregation." The term

"feeding aggregation" is used by biologists to describe concentrations of whales that forage in a specific area but is not used to signify a stock as defined in the MMPA. In 2011, the International Whaling Commission (IWC) referred to this feeding aggregation as the "Pacific coast feeding group" (PCFG) and defined it as gray whales observed (i.e., photographed) in multiple years between 1 June and 30 November in the PCFG area (between 41°N and 52°N) (IWC 2011). The IWC does not have a stock identification process similar to the MMPA. NMFS has used the term 'PCFG' since the 2012 SAR (Carretta et al. 2013), which was the first to estimate various population metrics (e.g., minimum abundance estimates and levels of potential biological removal (PBR)) for such whales. In their comments on the 2012 SAR, the Alaska SRG recommended NMFS not recognize the PCFG as a separate stock and (consistent with views expressed by the Pacific SRG). They also recommended that NMFS not refer to the PCFG as a "prospective stock." In 2012, the Pacific SRG assumed responsibility for reviewing the gray whale SAR. In 2014, the Pacific SRG deliberated whether it is appropriate to calculate a PBR for the PCFG since it is not a separate stock under the MMPA. Ultimately, the SRG recommended that a separate PBR be calculated for the PCFG "for informational purposes only as the evidence was not persuasive enough at that time for the SRG to recommend that it be considered a separate stock." The ENP gray whale SAR was last updated in July 2021 (i.e., in the 2020 SAR), and the SRG reviews since then have not recommended a change in the status of the PCFG (Carretta et al. 2022; Carretta et al. 2023).

During the NEPA process, we asked agency scientists to further evaluate PCFG whales, which included convening a Task Force of agency scientists (Weller et al. 2013) specifically tasked with providing advice on the primary question: Is the PCFG a 'population stock' under the MMPA? The FEIS notes that this question has immediate management implications, including how future SARs will address gray whale stock structure in the North Pacific and how to respond to the Makah Tribe's waiver request. The Task Force reviewed all available information regarding the demographic independence of the PCFG. The Task Force framed their task as follows (from Weller et al. 2013):

> "That is, if the PCFG experiences little external recruitment then it would be considered demographically independent and should be recognized as a stock. If most of the recruitment into the PCFG were external, however, then it would not be considered demographically independent and would not be recognized as a stock. The [Task Force] concurred that the resolution of the existing photo-identification data in combination with uncertainly[sic] surrounding the accuracy of assigning whales as external or internal recruits prevent this question from being fully resolved. Increased genetic sampling in tandem with increased photo-id effort over both space and time may be the only way to better address this question."

The Task Force reviewed the available genetic information and noted that various studies found differences in mitochondrial DNA (mtDNA) between PCFG whales and whales from northern feeding areas, indicating some level of demographic independence. At the same time, they noted the lack of support for differences in nuclear DNA between PCFG whales and the rest of the ENP and concluded "it is most likely that PCFG animals are interbreeding with animals coming from other areas" (Weller et al. 2013). The Task Force "agreed that the critical issue for additional research to address was better determining the levels of internal versus external recruitment in the PCFG" (Weller et al. 2013) as that was the key to determining the demographic independence of the PCFG.[1]

After reviewing the best scientific information available from photo-identification, genetics, tagging, and other studies, the Task Force applied the GAMMS guidance to conclude that there is a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the PCFG. Consequently, the Task Force was unable to provide definitive advice as to whether the PCFG is a population stock under the MMPA and the GAMMS guidelines. The Task Force report was reviewed during the SAR process which, since 2012, has continued to result in NMFS finding that the PCFG is a feeding group that "may warrant consideration as a distinct stock in the future" (Carretta et al. 2023).

Subsequent to the Task Force findings and in response to our 2015 DEIS, the MMC acknowledged the uncertainty surrounding the status of PCFG whales and, consistent with recommendations by other commenters, supported the precautionary approach in the DEIS of including alternatives that separately manage and analyze impacts to the PCFG. Specifically, the MMC recommended that we adopt a hunt management scheme that would "keep [the PCFG] within its OSP [optimum sustainable population level] or some proxy for OSP." In addition, we evaluated the impacts of the alternatives at various scales, including impacts to the PCFG. While it is not known whether the PCFG is within a theoretical OSP (Punt and Moore 2012), the analysis in the FEIS considers how the alternatives might affect the OSP status of the PCFG.

Contrary to the assertions of some commenters, NMFS has not delayed analysis of ENP gray whale stock structure. Rather, as described in the FEIS, NMFS has devoted considerable resources to studying, monitoring, and evaluating the PCFG (see summary of research in Appendix 4 of NMFS 2018). NMFS has engaged in an ongoing review of ENP gray whale stock structure for more than 15 years and its

[1] Appendix 4 of the NMFS Biological Report on the Eastern North Pacific (ENP) Stock of Gray Whales (NMFS 2018) summarizes the NMFS research and monitoring activities addressing North Pacific gray whales.

determinations on stock structure have been routinely reviewed during the SAR process and published as NOAA Technical Memoranda (see FEIS Subsection 3.4.3.4.1, PCFG Population Structure). In 2012, NMFS undertook additional expert evaluation, establishing a NMFS Task Force comprising agency scientists from five different organizational units, most of whom have not been involved in reviewing the Tribe's request. These scientists used a structured decision-making process to allocate votes among plausible scenarios. The conclusion of the Task Force was reviewed during the SAR process by the Pacific SRG and made available for public review and comment; except for the Makah Tribe, none of the commenters on the DEIS or SDEIS have provided comments or information addressing ENP stock structure during the public process/review of the gray whale SARs. Nor do the commenters on the DEIS or SDEIS provide any new information for our review on this issue. Regarding a separate stock assessment for the PCFG, the information on PCFG whales contained in the ENP gray whale SAR is similar to what would be contained in a separate PCFG SAR. We therefore disagree that having a separate SAR for PCFG whales would improve our information base. We will continue to review and evaluate the stock structure of North Pacific gray whales through the process outlined in procedural directive 02-204-03.

6. Waiver of the take moratorium for WNP whales and/or PCFG whales

Several commenters on the DEIS suggest that tribal hunters would not be able to distinguish between ENP and Western North Pacific (WNP) whales, or between PCFG and non-PCFG whales, and therefore waiver determinations must be made for WNP and PCFG whales in addition to the ENP stock of whales. Many commenters cite the 1988 court decision in Kokechik Fishermen's Ass'n v. Sec'y of Commerce, 839 F.2d 795 (D.C. Cir. 1988) ("*Kokechik*"), to support this contention. Regarding WNP whales, commenters note they are listed as endangered under the Endangered Species Act (ESA), are therefore considered depleted under the MMPA, and are thus not eligible for waiver under the MMPA. Regarding PCFG whales, commenters argue that since NMFS has concluded the PCFG "may qualify for stock status in the future" NMFS should treat the group as a stock in making a determination on the Makah Tribe's waiver request. Some commenters also suggest that if the PCFG were designated as a stock in the future, additional decision-making would be required to waive the take moratorium for PCFG whales.

Response

The Makah Tribe has requested a waiver of the MMPA take moratorium, pursuant to the court's decision in *Anderson v. Evans*, for ENP gray whales only, and has requested approval of a gray whale hunt under the WCA for ENP gray whales only. The Tribe has not requested, and the alternatives do not contemplate, waiver of the take moratorium for WNP whales. Therefore, the moratorium remains in effect for

WNP whales. Since WNP whales are depleted and the moratorium has not been waived for these whales, the Agency may only authorize take of WNP whales through an authorization for incidental take, scientific research, photography, or enhancement

The FEIS describes a supporting analysis that shows the likely rate of a whaler encountering a WNP is substantially lower than that of an ENP gray whale based on 1) the low number of WNP relative to ENP gray whales, 2) the even lower number that are known to migrate to the ENP, and 3) their limited seasonal presence in the area of the hunt (Moore et al. 2023). Further, the FEIS provides information and analyses regarding the likelihood of the Makah Tribe killing, attempting to strike, and approaching a WNP whale under various action alternatives (see, for example, Subsection 4.4.3.2.2, Change in Abundance and Viability of the WNP Gray Whale Stock and Substantive Comment No.12) during an ENP gray whale hunt. This analysis was extremely conservative, assuming:

- WNP whales are homogenously mixed with ENP whales during migration and that a high proportion of WNP whales transit through the Makah U&A, even though few whales have actually been recorded there;
- The probability of a strike on a WNP gray whale vs. an ENP gray whale is the same throughout the Tribe's U&A;
- The annual limits on approaches, unsuccessful strikes, and strikes of 353 approaches would all occur during a winter/spring hunt season; and
- The maximum number of annual harpoon attempts would be achieved and would occur during the winter/spring hunt season.

Thus, the analysis likely overestimates the risk to WNP gray whales. This is particularly true for alternatives with a summer/fall hunt season, such as the Preferred Alternative, as some hunting and training would likely occur in those months. As required by NEPA, this analysis provides the factual basis for and illuminates the potential impacts of different alternatives on WNP gray whales. Relevant laws are described in FEIS Table 1-2, International, national, state, and tribal treaties, laws, regulations, policies, and processes that may be required for Makah whaling, but it is not the purpose of FEIS to resolve legal disputes related to the WNP or the applicability of the *Kokechik* case to the current waiver proceeding.

Regarding the argument that NMFS must separately waive the take moratorium for PCFG whales, as described in the FEIS and the response to Substantive Comment No.5, NMFS considers the PCFG to be a feeding aggregation within the ENP marine mammal stock and does not recognize the PCFG as a separate marine mammal stock as defined under the MMPA (Carretta et al. 2023). A waiver of the MMPA take

moratorium for ENP gray whales would, therefore, apply to PCFG whales, which are a component of the ENP stock. After weighing the best available scientific evidence, an ALJ found that the evidence supports NMFS' stock designation. That is, while the PCFG could be recognized as a stock in the future, currently available evidence suggests that the PCFG is a feeding aggregation in the ENP stock (see Recommended Decision Section IV.D.1). In consideration of the role of the PCFG in the local environment, the Tribe's request identified a management goal of avoiding local depletion of the PCFG. The action alternatives in the FEIS also incorporate a management goal of avoiding local depletion by including various protections for PCFG whales.

The FEIS contains sufficient information regarding the alternatives' potential impacts to ENP, WNP, and PCFG whales to inform future decision-making. If the PCFG were designated a population stock pursuant to Section 117 of the MMPA in the future, we would consider whether additional decision-making was needed at that time.

7. Calculation and use of 'potential biological removal' (PBR) for a PCFG mortality limit

Some commenters on the DEIS and SDEIS take exception to the method used in the SAR for calculating an informational PBR level for the PCFG or the way in which NMFS used the PBR formula to establish a mortality limit for PCFG whales in a hunt under the action alternatives in the DEIS. Objections include: the PBR formula should use the default reproductive rate for marine mammals instead of the rate for ENP gray whales; that there is no evidence that the net productivity rate doubled and this would be biologically impossible; the PBR formula should use a different recovery factor, similar to that used for endangered whale stocks; more of the hunt alternatives should have used a PBR based on a subset of the PCFG and not the entire PCFG; and a mortality limit set for the Tribe should account for the fact that the PCFG is a "transboundary stock" that experiences human-caused mortality outside U.S. waters. One commenter also faults the DEIS analysis as failing to analyze impacts at the local level because only one alternative would establish a PCFG mortality limit based on the PBR of whales in the OR-SVI survey areas. Another commenter notes that if abundance estimates become stale it compromises the value of PBR in managing mortality.

Response

NMFS calculates PBRs for marine mammal stocks through the SAR process in accordance with the requirements of the MMPA Section 117 and as outlined in the GAMMS. That process includes scientific review through the Scientific Review Groups, independent regional bodies which advise NMFS on a range of marine mammal science and management issues. There is also opportunity for comment by the

public and the Marine Mammal Commission, and the reports are published by the NMFS Scientific Publications Office, through which process they undergo additional review. That is, the PBR analysis that commenters have expressed concern about has gone through extensive scientific, peer, and public review. While PBRs are generally calculated at the stock level, the SAR calculates an informational PBR for the PCFG, a feeding aggregation of the ENP, to assess whether levels of human-caused mortality are likely to cause local depletion.

The SAR uses the reproductive rate of the ENP stock to calculate an informational PBR for both ENP and PCFG whales. This is appropriate in light of the fact that the PCFG is a subset of ENP gray whales, the product of interbreeding within the ENP stock, and there is no information to suggest that the reproductive rate would different. The SAR uses a reproductive rate for ENP gray whales from Punt and Wade (2012), which is the best available information regarding that rate. Where an actual estimate of reproductive rate exists, it would not make sense to use the NMFS default rate (which is 4 percent for cetaceans). Commenters provided no information to suggest that the ENP reproductive rate should be something other than the Punt and Wade (2012) estimate or that it would be more scientifically sound to use the NMFS default reproductive rate rather than the measured ENP reproductive rate for the PCFG.

The 2022 SAR uses a recovery factor for the PCFG of 0.5, giving the following explanation:

> "Use of the recovery factor of 0.5 for PCFG gray whales, rather than 1.0 used for ENP gray whales, is based on uncertainty regarding stock structure and guidelines for preparing marine mammal stock assessments which state that "Recovery factors of 1.0 for stocks of unknown status should be reserved for cases where there is assurance that Nmin, Rmax, and the kill are unbiased and where the stock structure is unequivocal" (NMFS 2005, Weller et al. 2013). Given uncertainties in external versus internal recruitment levels of PCFG whales, the equivocal nature of the stock structure, and the small estimated population size of the PCFG, NMFS will continue to use the default recovery factor of 0.5 for PCFG gray whales.

The recovery factor used in NMFS' SARs is based on the overall status of the population stock (or in the case of the PCFG, the feeding aggregation) in question. For example, blue whales and sperm whales are listed as endangered and therefore have an appropriately low recovery factor. The PCFG, in contrast, has remained relatively stable over the past nearly two decades, declining slightly in recent years from a peak in 2015 (Harris et al. 2022). There is no evidence that the PCFG warrants the same level of concern as an endangered species of whale. The SAR authors did err on the side of caution, with the agreement of the

Scientific Review Group and Marine Mammal Commission, in using a 0.5 recovery factor in the PBR equation. The ENP as a whole has a recovery factor of 1.0, which was another option considered for the PCFG during the SAR process. While considered, this recovery factor was rejected because the GAMMS states a recovery factor of 1.0 is only appropriate where stock structure is unequivocal (Carretta et al. 2023).

While the DEIS relied on the ENP gray whale SAR for the informational PBR for PCFG gray whales, the most recent ENP gray whale SAR had not been updated to include the most recent PCFG abundance estimates at the time this FEIS was in preparation. Therefore, the FEIS calculated the informational PCFG PBR based on the most recent PCFG abundance estimate (Harris et al. 2022) and the recovery factor and maximum net productivity rate used in the SAR. This is the best available scientific information on the status of the PCFG to inform the PBR estimate.

Regarding the comment about the maximum net productivity rate used in the SAR, the commenter stated that the productivity rate "increased from 3.2 percent to 6.25 percent," noted that there was no evidence to support a doubling of the rate, and stated that such a doubling would be biologically impossible. A population's net productivity rate (R) is the ratio of births to deaths. A population that is growing will have more births than deaths. For example, a population that has 104 births and 100 deaths has an R of .04, or 4 percent. At some level of abundance below carrying capacity (K), a population will have the maximum possible rate of net productivity (Rmax). This level of abundance is known as the 'maximum net productivity level' or MNPL. In the absence of data to establish an Rmax for use in the PBR calculations, NMFS generally uses a default value of 4 percent for large whales. As a population grows from MNPL toward K, the rate of reproduction will decrease toward zero. A population at K will have an equal number of births and deaths, or an R of zero.

There are two problems with this commenter's statement that Rmax in the gray whale SARs has "grown" from 3.2 to 6.25%, which is "biologically impossible." First, the SAR has never set Rmax at 3.2 percent. Rather, the first gray whale SAR in 1995 stated that abundance estimates for the period 1967-1968 to 1993-1994 indicated an Rmax of 3.3 percent but this conclusion was regarded as questionable by the IWC Scientific Committee. That SAR recommended using the default Rmax (4 percent) until scientific consensus could be reached. Through the 2010 SARs, values of 4 percent to 4.7 percent were used, based on the best available information at the time the SARs were developed. In the 2012 SAR, NMFS raised its estimate of Rmax to 6.2 percent, based on new abundance data and new analyses of population parameters. Again, this does not signal that NMFS believes the ENP population's maximum potential rate

of increase "grew" from 4 percent to 6.2 percent. Rather, it represents a new understanding and revision of the productivity rate, based on the new and best available information.

The second problem is that the commenter appears to confuse the concept of "the estimated annual rate of increase," which is an average over a period of time, with Rmax, which is a measure of the rate of increase at a single point in time. The 2013 SAR reports that Punt and Wade (2012), based on the entire abundance series from 1967/1968 through 2006/2007, estimated that the annual "rate of increase" (i.e., the average annual net gain in abundance) was 3.2 percent. That is, from 1967/1968 through 2006/2007, the population grew 3.2 percent on average each year. As would be expected, the stock's rate of increase would be higher when the abundance was low. As the population approaches K, the rate of increase would be very low. Combining the early high rate of increase (estimated to be 6.2 percent) and the low rate of increase as the population approaches K (approaching zero) yields an average rate of increase of 3.2 percent.

With respect to the comment that hunt alternatives should have used informational PBRs based on a subset of the PCFG and not the entire PCFG, we disagree. Various approaches, including PBR-based approaches, were used under the alternatives to calculate an allowable mortality limit for PCFG whales (see Subsection 2.3, Alternatives Considered for Detailed Study). Alternatives 2 through 6 include a PBR-based approach. Alternative 2 represents the Tribe's 2005 proposal, which includes a PBR-based harvest limit on PCFG whales that is calculated using the abundance of whales in the survey areas from Oregon to southern Vancouver Island (OR-SVI). The Tribe's proposal was submitted several years before the IWC considered the PCFG as a separate management stock (which is may not be equivalent to a stock as defined under the MMPA) and was based on the recommendation of Calambokidis et al. (2004) that the OR-SVI area was the appropriate region for estimating an abundance level to be used in an abundance-based harvest regime. In 2012, through the SAR process, NMFS described the PCFG as a feeding aggregation and adopted a definition of the PCFG based on a considerable body of new information. The SAR adopted the definition agreed by the IWC, which is whales that are observed in more than one year in the area from Northern California to Northern British Columbia during the months of June through November. The SAR and Harris et al. (2022) also calculate an informational PBR for the PCFG based on its estimated abundance in the entire summer range, not just the OR-SVI region within that range. We consider the approach used in the SAR and Harris et al. (2022) to represent the best scientific information available regarding delineation of this feeding aggregation. The FEIS designed the management regimes for the other action alternatives, 3 through 7, around that unit of interest rather than the smaller group of whales frequently seen in the OR-SVI. Regardless of how the various alternatives use PBR to calculate an

allowable mortality limit for PCFG whales, the FEIS analyzes impacts to PCFG whales at all scales mentioned by commenters—the entire PCFG, the OR-SVI survey areas, and the Makah U&A. This provides information on impacts at several scales that will aid future decision-making by NMFS.

Contrary to the assertions of commenters, this approach meets NEPA's requirement to analyze impacts at a local scale. The Ninth Circuit Court of Appeals in *Anderson v. Evans* (2004), required NMFS' NEPA analysis to consider the impact of the alternatives on the "local" area, which the court stated was the Makah Tribe's U&A. *Anderson*, 371 F.3d at 489–93. The FEIS analyzes impacts to that area, as directed by the court, at the larger OR-SVI area (for example, Subsection 4.4.3.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas), the PCFG, and the ENP. That is, the analysis considers impacts on the local population through to the stock level. The court's ruling did not require that management measures in the alternatives focus on any particular area, only that impacts be analyzed at the local scale. In constructing action alternatives other than the Tribe's proposal, we selected the area identified by the IWC and the NMFS SAR process as the relevant area for considering management of PCFG whales.

We agree that any hunting regime should take into account that the PCFG spends time outside of U.S. waters and experiences human-caused mortality beyond the mortality occurring in U.S. waters. We also agree that the human-caused mortality reported in the SARs does not represent the total of human-caused mortality experienced by the PCFG. For example, lethal ship strikes or entanglements may go unobserved and undocumented. However, there is no information on the extent to which cryptic (i.e., unobserved mortality) of PCFG whales occurs. The analysis in the FEIS is based on the best available information. We also agree that stale abundance estimates have the potential to compromise the use of PBR in setting mortality limits. Thus, we have included measures under some alternatives to address this concern. Alternative 7 (Composite Alternative – Preferred) implements multiple protective measures for the PCFG, including 1) a strike limit of 16 whales over 10 years (no more than 8 of which may be female), 2) a low-abundance threshold of 192 whales (N) or 171 (Nmin) based on the most recent or forecasted abundance estimates below which hunting must cease, and 3) a permitting scheme that allows NMFS to further restrict the number of PCFG whales that may be struck in any given season. For more information on these measures, refer to the response to substantive comment No.20 on the use of a PCFG "dimmer switch."

8. The Treaty of Neah Bay

Several commenters on the DEIS and SDEIS assert that the United States abrogated the Treaty of Neah Bay between the United States and the Makah Tribe when the United States entered into the ICRW or enacted the MMPA or both. They argue that the United States therefore no longer has "the legal right" to authorize whaling by the Makah Tribe or anyone else.

Several commenters also assert that the Makah Tribe's treaty does not give the Tribe the right to whale. Some commenters suggest the Tribe's right to whale ended when adoption of the WCA prohibited other U.S. citizens from whaling. In other words, it is not possible for tribal members to whale "in common with" other citizens. Other commenters invoke other reasons for why the treaty provisions regarding whaling are no longer valid or argue only that whaling is outdated, without analysis.

Response

The Tribe submitted its request for a waiver of the MMPA consistent with the Ninth Circuit's holding in *Anderson v. Evans*. The purpose of the NEPA process is not to litigate the role or scope of the Makah's treaty right in pursuing an ENP gray whale hunt. Rather the purpose of the FEIS is to analyze potential impacts of alternatives to inform decision-making under the MMPA and the WCA. The relevance and/or weight attributed to the Makah's Treaty will be addressed as appropriate during decision-making pursuant to the relevant processes and criteria defined in the MMPA and WCA.

9. Non-lethal action alternatives

Several commenters on the DEIS considered the NEPA process deficient, arguing that the DEIS did not fully analyze non-lethal alternatives, including compensation by the federal government, federal support of alternative activities such as a whale watching operation or a ceremonial type hunt. One commenter suggested that NMFS could remove the speculation about alternative compensation to the Tribe by negotiating the deal first, then conducting the NEPA analysis. Some commenters urged adoption of non-lethal hunt alternatives to avoid any risks to WNP gray whales.

Response

The FEIS did consider non-lethal alternatives, including a ceremonial type-hunt and one that would provide other means of compensation to the Tribe, such as to establish a whale-watching business. A non-lethal, ceremonial type hunt alternative was eliminated from detailed analysis (Subsection 2.4.1, Non-lethal Hunt) because it would not meet the purpose and need for the proposed action and would not result in different impacts than the No-action Alternative.

A compensation alternative was considered in the FEIS but eliminated from detailed analysis for several reasons (Subsection 2.4.7, Alternative Compensation to the Makah Tribe), including that it was too speculative to consider and it would not meet the U.S. Government's federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights or the Tribe's purpose to resume its traditional gray whale hunt under its treaty right, and impacts would be similar to the No Action alternative (thus, not providing additional information).

As noted in the FEIS and described by some commenters, the Makah Tribe declined a 1990s offer by a private party for money in exchange for a voluntary moratorium on hunting. Commenters offer no evidence to suggest the Tribe would be interested in an offer at this time, and the Tribe's request for a waiver of the MMPA take moratorium is evidence that the Tribe's desired course of action is a hunt rather than compensation. The suggestion that NMFS could remove the speculation by negotiating a deal first is outside the scope of the NEPA analysis. When an applicant to a federal agency proposes an action, NEPA does not require the agency to negotiate a different course of action with the applicant before analyzing the impacts of the applicant's proposal, along with a reasonable range of alternatives.

The non-lethal alternatives, similar to the No-action Alternative, would preclude a hunt, and our analysis of their potential effects on the human environment revealed that the impacts would not be different from the No-action Alternative. Detailed analysis of these alternatives would provide no additional information to inform a reasoned choice for the public or decision-maker. Nor do the commenters identify information on any additional or different impacts that these additional alternatives might reveal, beyond the potential economic impact to the Tribe. Because the Tribe expressed no willingness to entertain such a negotiation, providing speculative information regarding potential economic benefit that the Tribe has not requested and has previously rejected would not further inform the decision-making process.

10. Response of gray whales to being hunted

Some commenters raise concerns that PCFG and non-PCFG whales would alter their distribution and avoid the hunt area as a result of disturbance from hunt-related activity. They disagree with the analysis in the DEIS that analogizes Makah hunt-related activity with hunting by Chukotkan Natives, whale watching operations that involve pursuit and close approaches, and research-related activity that involves pursuit, close approaches, and biopsies. One commenter suggests that PCFG whales not exposed to hunting by Chukotkan Natives would experience hunting as a "novel threat" and recommended we compare whale reactions to other novel threats. One commenter asserts there is a high probability of

WNP gray whales being approached, then asserts the DEIS is inadequate because the analysis of the impacts of unsuccessful harpoon attempts on WNP gray whales is deficient.

Response

The FEIS considers the potential for PCFG whales to change their distribution in the PCFG feeding area, including abandoning the Makah U&A, in response to a hunt (see Subsection 4.4.2.4, Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Areas). To assess potential impacts of a Makah tribal hunt on gray whale behavior, the FEIS examines available information on how gray whales and other baleen whales respond to pursuit by vessels, including approaches by whale watching vessels, approaches and biopsy sampling by researchers, and hunts by Chukotkan Natives. We also consider gray whale responses to other types of human activities such as activities that produce sound. We found evidence that these activities could cause immediate reactions such as diving, swimming away, altering breathing patterns, etc. In one case human-generated sounds appear to have caused gray whales to abandon a breeding lagoon during the season in which the sounds occurred. Some of these sources of human activity may have been familiar to whales while others may have been novel.

Commenters took exception to the comparisons with other activities, noting the differences in the activities or the incompleteness of the information and, therefore, took exception to the conclusion drawn in the DEIS that it is unlikely a Makah tribal hunt would cause gray whales to abandon the Makah U&A or otherwise significantly alter their distribution. However, they offered no additional information beyond what was considered in the DEIS that would better inform the analysis. Lacking direct information about how gray whales in the Makah U&A might react over time to a Makah tribal hunt, we used the best available information about how gray whales react to similar activities to assess the impact of the hunt components—that is, approaching whales in motorized and non-motorized vessels, throwing harpoons at whales, and making noise—and examined available information about how gray whales react to similar activities.

Subsection 3.4.3.6.6, Vessel Interactions, of the FEIS describes studies of whale watching operations that show proximate changes in behavior of individual whales but do not show long-term changes in distribution of whales in response to whale watching operations. That subsection also describes changes in gray whale tagging that show no long-term behavioral changes and studies of other baleen whales subjected to biopsies, showing dramatic short-term responses but no long-term behavioral changes. Therefore, our FEIS analysis reflects the fact that none of these studies show a permanent shift in gray whale distribution.

We disagree with the assertion that a comparison with the Chukotkan hunt is not informative and that different gray whales use the PCFG feeding areas than use the Chukotkan feeding areas. The FEIS notes that the PCFG includes a large number of animals that do not return to the PCFG seasonal range each year, so it is reasonable to expect that some of the whales sighted in the PCFG seasonal range may have been exposed to Chukotkan hunts. It is also reasonable to conclude that whales frequenting the PCFG feeding areas would become habituated to hunting, as whales frequenting Chukotkan feeding areas appear to have. There is no information to support a conclusion that whales feeding in the PCFG range would have vastly different reactions compared to whales feeding off Chukotka.

Regarding the suggestion that we seek out information on how gray whales might react to novel threats, Subsection 3.4.3.6.5, Offshore Activities and Underwater Noise, of the FEIS does describe gray whale responses to noise suddenly introduced in breeding lagoons. That subsection describes a number of studies involving gray whale reactions to noise and other anthropogenic disturbance. Such reactions include diving, changing course, changing calls, stress response, etc. In one study whales largely abandoned a breeding lagoon following a month of noise transmission, although they returned to the lagoon the following year (Jones et al. 1994).

The FEIS notes that although the gray whale population is exposed to whale-watching vessels and other disturbances on the wintering grounds and along much of the migration route, it has demonstrated a tolerance and resiliency to whale watching and other noisy human activities as reflected by the successful recovery of the population from over-exploitation. Thus, available evidence suggests that gray whales will return to the area of disturbance and resume normal activities and behaviors.

While the FEIS was informed by the best available information, we acknowledge that there is limited information specific to gray whale responses to the approaches, attempted strikes, and strikes associated with a canoe-based hunt. In evaluating MMPA research permit applications, the agency typically uses a 100-yard threshold as a criterion to identify approaches that might disrupt whale behavior. Such close approaches do not always disrupt whale behavior. Our reference to possible similarities between whales reacting to hunting approaches and tagging is based on discussions with researchers involved in tagging efforts.

Regarding the comment that there is a high probability of an approach and a strong likelihood of an attempted strike on a WNP gray whale, and that these actions could have severe impacts on WNP gray whales, the FEIS notes that under the Tribe's proposal (Alternative 2),

> "Modeling based on Moore et al. (2023) estimates that between 2.8 and 4.2 WNP gray whales may be approached per year under Alternative 2. This assumes that all 353 training and hunting approaches are utilized annually, that each approach is made on a unique individual, and that all approaches are made during the winter and spring months when WNP gray whales may be present in the hunt area. Assuming that all harpoon attempts are made each year, between 0.056 and 0.084 WNP gray whales may be subjected to unsuccessful harpoon attempts annually. It is unlikely that all of these assumptions will be met, therefore this is a precautionary estimate of the potential impacts to WNP gray whales under Alternative 2."

Under the Preferred Alternative (Alternative 7), the number of WNP gray whales that may be subjected to unsuccessful harpoon attempts is even lower: between 0.024 and 0.035 whales annually. The comment overstates both the probabilities and the potential for this level of interaction to have an impact on WNP gray whales, given the low probabilities for interaction discussed above in a worst-case scenario that is unlikely to happen (Subsection 4.1.2.4, Potential Number of Unsuccessful Harpoon Attempts and Approaches), as well as any short-term behavioral response expected (Subsections 3.4.3.6.5, Offshore Activities and Underwater Noise, and 3.4.3.6.6, Vessel Interactions).

We also disagree with the commenter's assertion that the DEIS analysis is deficient and that we are required to conduct additional studies in the face of incomplete or uncertain information. The commenter points to no studies that could be done short of mounting an actual hunt in the Makah U&A. We have analyzed whale reactions to analogous activities, including aboriginal subsistence hunting by Chukotkan Natives and are unaware of studies that could be done to better inform this portion of the analysis. Alternatives 6 and 7 in the FEIS include a 10-year term for regulations authorizing a hunt, which would create an opportunity to assess the effect a hunt is having on gray whale distribution in the Makah U&A and more generally in the PCFG area. All of the action alternatives contemplate ongoing monitoring.

11. Safety of gray whale products for human consumption.

Several commenters on the DEIS raise concerns about contaminant levels in gray whales that would be consumed by Makah tribal members. Some commenters urge NMFS to prohibit a hunt based on human health concerns. Some commenters assert that the DEIS analysis is inadequate because we did not

conduct additional studies to compare contaminant levels in foods that would be replaced if Makah tribal members consumed gray whale products in place of foods they currently consume. One commenter asserts that no gray whale products would pass Washington State standards for safe consumption. Another commenter notes that the DEIS does not identify state and federal food safety standards relevant to edible gray whale products and does not compare contaminants found in gray whales with those standards except for PCBs.

Response

The FEIS presents the available information regarding nutrients found in gray whale products (Subsection 3.16.3.1, Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods). It also describes contaminants found in gray whales sampled to date (Subsection 3.16.3.2, Environmental Contaminants in Gray Whales) and risks of exposure to food-borne pathogens from consuming subsistence foods (Subsection 3.16.3.3, Exposure to Food-Borne Pathogens).

Regarding contaminants in the sampled gray whale products, including the one whale harvested by the Makah Tribe in 1999, the FEIS (Subsection 3.16.3.2, Environmental Contaminants in Gray Whales) reports:

> [C]oncentrations for some of these contaminants in whale blubber can be quite high, resulting in quite low "allowable consumption rates." For example, the unweighted average PCB concentration for the 13 sets of gray whale blubber samples in Table 3-47 is 386 µg/kg. While the Washington State Department of Health has not developed screening levels for gray whale blubber, this value - combined with the estimated per capita blubber consumption rates in the Tribe's needs statement (approximately 20-25 grams/day; Renker 2018) and other values applied by the Washington Department of Health (e.g., an 8-oz [227-gram] meal size) - yields a calculated "allowable consumption rate" of 0.49 meals of blubber per month. This level would likely result in a 'no consumption' recommendation by the Washington State Department of Health (rounded to 0 meals per month). One of the lower PCB concentrations observed in gray whale blubber (87 µg/kg) would yield an allowable consumption rate of 2 meals of blubber per month and a recommended maximum of two 8-oz (227 gram) meals per month (E. Christie, Washington State Department of Health, pers. comm., March 22, 2023)."

In other words, whether it would be considered safe under the Washington State Department of Health PCB guidelines to consume gray whale blubber would depend on the PCB concentrations in a particular

whale. The FEIS notes that contaminants are not a concern for whale meat, as opposed to blubber (Table 3-47). It is therefore an overstatement to claim that no consumable part of a harvested gray whale would pass Washington State standards for safe consumption, although, it is correct to raise concerns about consumption of more than 6 pounds of gray whale blubber per year under the most favorable assumptions.

In terms of the net effect of consuming whale products on tribal members, the FEIS (Subsection 4.16.2.2 Environmental Contaminants) notes:

> Whether consuming freshly harvested gray whale food products would affect contaminant exposure in Makah tribal members would depend largely on the types and levels of contaminants present in an individual tribal member's existing diet relative to several factors: (1) what part(s) of the whale and how much of each would be consumed, (2) what currently consumed food items (and associated contaminants) would be replaced by gray whale food products, (3) the age and sex of the whale, (4) possibly the time of year and body condition of the whale, and (5) how each food item would be collected, stored, and prepared for consumption. None of this information is currently available or could reasonably be obtained.

The FEIS makes the same conclusion regarding net nutritional benefit to Makah tribal members of consuming gray whale products.

Federal and state regulations regarding contaminants in food do not apply to subsistence foods harvested by Native American Tribes. Nevertheless, we agree it is useful to include references to relevant food safety standards in our environmental analysis. The U.S. Food and Drug Administration (FDA) publishes The FDA Compliance Policy Guide[2], which has action levels for pesticides, some of which are found in gray whales, as reported in FEIS Table 3-47. None of the pesticides found in gray whale muscle samples exceed the FDA action levels. For blubber, one whale sampled slightly exceeded the FDA guidance for Chlordane. FDA regulations at 21 CFR 109.30 specify an action standard for PCBs of 2 ppm, which was not exceeded in any of the gray whale blubber samples reported in Table 3-47. However, the Environmental Protection Agency (EPA) recommends safe consumption amounts of seafood based on PCB levels, as reported in the FEIS and discussed above. The FDA does not regulate most metals in food.

[2] Available at https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/compliance-manuals/manual-compliance-policy-guides (last visited October 24, 2023).

The FDA and EPA provide joint guidance[3] for pregnant women on mercury consumption but this would appear not to be a concern for gray whales, which have low levels of mercury in their muscle and no detectable mercury in their blubber (Table 3-48). The State of Washington guidance follows EPA and FDA guidance[4].

While the information regarding the effect of contaminants on human health is limited, the information is adequate to describe in general terms the potential positive and negative health effects of consuming gray whale products and to compare the alternatives in the FEIS based on the amount of gray whale products that would be available for consumption under each of the action alternatives.

Executive Order #12898 on Environmental Justice, with regard to subsistence consumption of fish and wildlife, requires federal agencies "whenever practicable and appropriate" to "collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence." Federal agencies are to communicate risks associated with those consumption patterns to the public. We have met this requirement by collecting the available data and including it in the FEIS. This information is available to the Makah Tribe for consideration when assessing the potential risks of consuming gray whale blubber. EO 12898 also requires federal agencies "whenever practicable and appropriate" to work together "to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife." Although NMFS does not have expertise regarding safe consumption levels of contaminants, the agency does coordinate with the U.S. Food and Drug Administration and the EPA through the seafood safety program. EPA has issued guidance on safe consumption levels for various contaminants, which is available to state, tribal, and local authorities. During development of the FEIS we consulted with the Washington State Department of Health regarding concentrations of certain contaminants found in gray whale tissue samples, in particular PCB levels in blubber. While there are no known contaminant screening levels for gray whale blubber, we did provide guidance in the FEIS regarding likely 'allowable consumption rates' based on observed levels of PCBs (3.16.3.2 Environmental Contaminants in Gray Whales). If the Tribe is allowed to resume hunting gray whales, it may be possible to conduct real-time studies to more rigorously evaluate contaminants and human health risks.

[3] Available at https://www.fda.gov/food/consumers/advice-about-eating-fish#pattern (last visited October 24, 2023)
[4] See Fish and Shellfish Reports at https://doh.wa.gov/data-statistical-reports/environmental-health/fish-and-shellfish (last visited October 24, 2023).

A memorandum from the President accompanying E.O. NO. 12898 clarifies that federal agencies are to analyze effects on human health under NEPA, "including effects on minority communities and low-income communities." It also requires that federal agencies provide for minority and low-income communities to have input into the environmental review process. The FEIS has met these requirements as well.

12. Risks to WNP gray whales

Several commenters on the DEIS and SDEIS object to the risk posed to WNP gray whales from a tribal hunt, asserting that too little is known about the stock and any risk is too high for this endangered stock. Several commenters note that tribal hunters would be unable to distinguish WNP whales from ENP whales, and some commenters stated that hunters would not be able to identify and therefore avoid killing a pregnant female WNP whale.

Response

The FEIS presents the likelihood of striking a WNP whale for each of the action alternatives, which ranges from a zero percent chance under Alternative 4 (Summer Hunt) to a 5.6-8.4 percent chance per year under Alternative 2 (Tribe's Proposed Action) (Table 4-1). We considered a number of alternatives that would have reduced risk to WNP gray whales. Alternative 4, included in response to public comments, considers authorizing a hunt at a time when WNP whales would not be present. Alternative 5 (Split Season Hunt) and Alternative 7 (Composite alternative - Preferred) were also developed to reduce the likelihood killing a WNP whale. The hunting seasons under Alternative 5 were designed to occur when WNP whales would be expected to be traveling to or from the feeding grounds off Sakhalin Island. The FEIS analysis revealed that there is insufficient information to support an assumption that WNP whales would not be present during the hunting seasons proposed in Alternative 5 or during the winter hunt proposed in Alternative 7. These alternatives reduce the risk to WNPs when compared to some of the other action alternatives.

The FEIS notes that the death of a single WNP whale would be a conservation concern because of the small population size, and several commenters echoed this concern. In response to concerns raised in these comments, we present the following additional discussion based on information from the WNP gray whale SAR, which is cited in the FEIS. The PBR for WNP whales in U.S. waters is 0.12 whales per year, which translates to about 1 whale mortality due to human causes every 8.3 years (Carretta et al. 2023). PBR is the maximum number of whales, not including natural mortalities, that may be removed from a stock while allowing that stock to reach or maintain its optimum sustainable population. The 2.4-3.5

percent chance of killing a WNP whale each year under the Preferred Alternative (Alternative 7) would translate into about 0.024-0.035 WNP whales being killed annually (see Table 4-1 in the FEIS) or 1 WNP whale being killed every 29-49 years. In other words, under Alternative 7, the likely mortality level would be about one-third to one-fifth of the PBR. This information is consistent with the conclusions in the FEIS about likely effects of the action alternatives.

We agree that tribal hunters would not be able to distinguish between ENP and WNP whales (except known whales with highly visible and unique markings), and that it may be difficult to identify pregnant females during certain times of the year. Given the similarity in appearance, the action alternatives include measures to mitigate the likelihood of taking a WNP whale, and the analysis is sufficiently robust to compare the alternatives with respect to impacts to WNPs. The FEIS acknowledges that for the WNP whales, the No-action Alternative would result in no change in health, abundance, or habitat conditions (Subsection 4.4.3.1, Alternative 1, No Action (because zero whales would be killed by hunting). As potential mitigating measures for alternatives that would authorize hunting at a time when WNP whales may be present, the FEIS suggests photo-identification procedures to determine whether a struck whale was a WNP whale and cessation of a hunt if a WNP whale is struck. In response to these comments, we identified additional potential mitigation measures that were incorporated into Alternative 7, which could include: (1) requiring a waiting period after a whale is struck, to allow for identification of a struck whale before additional whales are struck and to avoid the possibility of striking multiple WNP whales that may be traveling together and (2) allowing only one hunting party on the water at a time to avoid the possibility of a second whale being struck before there is an opportunity to identify a whale that is struck.

The FEIS also presents the risk that WNP gray whales would be subjected to attempted strikes and approaches by vessels (Table 4-1 in the FEIS). As discussed in the response to substantive comment No. 10 regarding the response of gray whales to being hunted, available information suggests these activities would result in minor short-term reactions that would not harm the viability of individual whales or cause WNP whales to abandon the hunt area. Since 2010 (i.e., when WNP gray whales were first satellite-tracked to the ENP), NMFS has completed over 160 ESA consultations to determine whether such whales might be affected by various proposed activities. Typically, these consultations have concluded that effects would be insignificant due to the nature of the activities and/or discountable because the potential exposure of WNP gray whales to actions that occur along the U.S. west coast is very limited given the small population size of the WNP stock and the rarity of sightings off the U.S. west coast. The limited risks or extent of adverse impacts that could be anticipated was considered in context of risk for the entire population of WNP gray whales that may migrate through the U.S. west coast each year. In the limited

number of formal consultations for WNP gray whales that have occurred (four in total as of 2023), the actions that were determined likely to adversely affect WNP gray whales were related to environmental contaminants. On November 8, 2023 NMFS completed consultation on the impacts of the ALJ's recommended decision (Alternative 7) to WNP gray whales. In a letter of concurrence, the West Coast Region concluded that the proposed action was not likely to adversely affect WNP gray whales due to the extremely low probability that training and hunting activities would overlap in space and time with the limited number of WNP gray whales that may be transiting through the MUA on their south and north migrations (see NMFS 2023 for more information).

None of the comments regarding risks to WNP whales present evidence that was not considered in the DEIS or that contradicts or augments the analysis in the FEIS.

13. Risks to PCFG whales

Several commenters on the DEIS and SDEIS express concern about risks to PCFG whales in general as a result of a Makah hunt, and to those PCFG whales that frequent the Makah U&A in particular (referred to in some comments on the DEIS as the 33 "resident whales"). Commenters also express concern about ecosystem effects in the Makah U&A if whales are killed that frequently spend summers feeding in that area. One commenter notes that allowing more than one hunting party to hunt at a time could lead to hunters exceeding the limits on PCFG whales. Some commenters assert that under Alternative 1, even though the same number of ENP whales might be killed, at least there will be no risk to PCFG whales.

Response

The alternatives considered in the FEIS consider the status of the PCFG whales and the risks to this population. In their request, the Makah Tribe proposed protections for PCFG whales, as reflected in Alternative 2, and all of the action alternatives contain some level of protection for PCFG whales. To conserve PCFG whales, and in response to these comments, the proposed waiver and regulations analyzed under Alternative 7 (the Preferred Alternative) contain a number of protections for PCFG whales that are more restrictive than Alternative 2. The term of the waiver is 10 years, which ensures a timely reassessment of all factors related to a hunt, in particular potential impacts on PCFG whales and whales that frequent the Makah U&A. The proposed regulations limit the number of PCFG whales that may be killed over 10 years to 16 and set a PCFG abundance threshold below which no hunting would be allowed. For hunts during the feeding period, when only about half of the whales present are PCFG whales, any whale killed will be counted towards the overall PCFG limit. Also for hunts during the

feeding period, whale hunts must stop once a single whale is harvested, even though the strike limit during that hunting period allows for two strikes. There are also limits on the numbers of PCFG whales that may be approached and that may be subjected to attempted harpoon throws. Although there is no direct evidence that a Makah whale hunt would cause PCFG whales to abandon the Makah Tribe's U&A, these limits are intended to minimize that possibility and other impacts to PCFG whales.

Regarding concerns about removals from the group commenters refer to as the 33 "resident whales," this comment is misleading. As reported in Calambokidis et al. (2014) and reflected in DEIS Table 3-7, there were an estimated 81 Makah U&A (MUA) whales, with an average of 33 MUA whales in any single year. Harris et al. (2022) recently updated those numbers to 119 MUA whales, with an average of 39 sighted in any single year (see FEIS Table 3-7). The regulations under Alternative 7 would restrict the potential mortality of PCFG whales to no more than 16 over a 10-year period and the actual number may be smaller because of the protections in place, as described above. Thus, the number of PCFG whales killed (a maximum of 16) would be out of 119 (if all PCFG whales killed were also sighted in the MUA between June 1 and November 30), not 33. In addition, as reported in the DEIS, PCFG whales range widely throughout the feeding season and are likely attracted to areas based on availability of prey, thus if a tribal hunt removed MUA whales, there is a likelihood that new whales would recruit to the area to take advantage of prey resources (Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas).

We disagree that the removal of PCFG whales from the Makah U&A will have an effect on the local ecosystem. As noted in the FEIS, the area where the hunt would occur is highly energetic and shaped by large-scale environmental forces and the effects of hunting would not be appreciable either as a result of hunt activities or the removal of PCFG whales (e.g., Subsections 4.3.3.2.1, Pelagic Environment and 4.3.3.2.2, Benthic Environment). Commenters present no new information that is contrary to that contained in the FEIS and supporting its conclusions.

The 33 "resident whales" referred to in these comments are presumably members of the larger group of PCFG whales. FEIS Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas, notes that "it is possible that a killed PCFG whale that would otherwise have spent all or part of the summer in the Makah U&A or OR-SVI areas (whether returning or not) could be replaced during the same year by a whale from outside those areas, as many whales feeding during the summer throughout the PCFG range move great distances among survey areas, likely attracted by the presence of prey. During the course of the summer feeding period, it is therefore possible that whales not previously

seen in the Makah U&A or the OR-SVI survey areas (e.g., from West Vancouver Island or northern California) would travel through these areas and stay to feed on available prey. Whether replacement would occur in the same year would depend on the number of whales removed, the availability of prey within the local survey areas relative to its availability in outside areas, and the opportunity for whales from outside the area to discover an unexploited source of prey." The FEIS acknowledges that for the PCFG, the No-action Alternative would result in zero whales killed by hunting versus Alternative 2, which could result in up to 11 PCFG whales killed by hunting over 6 years (Table 4-14).

14. Cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats

Several commenters on the DEIS and SDEIS raise concerns about waiving the take moratorium to allow a tribal hunt of ENP gray whales, asserting that the whales face an uncertain future from climate change, ocean acidification, and increased human activities such as shipping, ocean energy projects, and military exercises. Some commenters point to the ENP gray whale die-off in 1999-2000, as well as the current UME, as evidence of an uncertain future. Some commenters assert that our analysis is inadequate because it is limited to the project area. Some commenters express concern that lack of funds for future monitoring or the lag time associated with monitoring the population could result in delayed and untimely management responses to drops in abundance. Several commenters presented additional scientific information related to gray whale biology and threats that was not included in the DEIS or SDEIS.

Response

The FEIS contains a thorough discussion of the best available information regarding threats to the future viability of the ENP gray whale population (Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts). This subsection specifically deals with climate change and expected future impacts to ENP gray whales in Subsection 3.4.3.6.11, Climate Change and Ocean Acidification. This subsection of the FEIS addresses threats to ENP gray whales across their migration range and life history, contrary to the assertion of some commenters that it is limited to the project area. The information contained in the FEIS is sufficient to support an analysis of the effects of the Tribe's proposal and alternatives on ENP gray whales (e.g., Subsection 4.4.3.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock) as well as cumulative effects (Subsection 5.4, Gray Whales).

The FEIS analysis includes a number of scientific studies, including a 2008 report on ecological impacts of climate change by the National Academy of Sciences that noted there is only a very limited understanding of how global climate change might affect whole ocean ecosystems (Subsection 5.1.3.9,

Climate Change and Ocean Acidification). Contrary to the assertions of some commenters, this subsection does refer to gray whales. For example, we note that "Moore (2008) characterized gray whales as useful “sentinels” of climate change, citing various lines of evidence that the health and habits of gray whales seem to be tracking changes in the North Pacific and western Arctic ecosystems" and Bluhm and Gradinger (2008) who noted that "marine mammal species that exhibit trophic plasticity (such as gray whales that feed on both benthic and pelagic prey) will adapt better than trophic specialists" (Subsection 5.1.3.9, Climate Change and Ocean Acidification). We have examined the papers cited by commenters that were not included in the DEIS and found they do not change the conclusions in the DEIS. In the FEIS, we considered recent research since publication of the DEIS with respect to gray whales and climate change, and also found that they do not change the conclusions in the DEIS. We state that “recent research has affirmed this characterization and documented climate-related impacts to gray whale distribution, abundance, phenology, and calf production in the Pacific Arctic feeding grounds.”

The thrust of these comments is that the DEIS does not adequately account for threats to ENP gray whales that could have a cumulative impact when combined with the effects of the action alternatives. We disagree for the following reasons. First, it is reasonable to expect that if the Makah Tribe does not harvest any ENP gray whales, the Chukotka Natives will continue to harvest them instead, as they have since the United States originally secured an ENP gray whale quota on behalf of the Makah Tribe and entered into a bilateral agreement with Russia to share the quota. Even if the Chukotka Natives did not harvest the Makah Tribe’s share of the quota, the number of whales not killed in a Makah hunt (a maximum of 7 per year under Alternative 2 or a maximum of 5 over two years under Alternative 7) is so small (less than a tenth of a percent of the ENP gray whale population) that the effect would be undetectable (Subsections 4.4.3.2.1 and 4.4.3.7.1, Change in Abundance and Viability of the ENP Gray Whale Stock). In addition, the purpose of a cumulative effects analysis is to ensure that the agency has considered whether there might be effects to a resource beyond those identified in the analysis because they would combine with the effects of other factors to in some way magnify those effects. Given how minor the effects of a tribal hunt would be on the ENP gray whale population, it is extremely unlikely that those minor effects would accumulate with the effects of other threats to result in effects not considered in the FEIS.

The die-off of ENP gray whales between 1998 and 2000, as well as the current UME, remain a concern, though the recovery of the population from that event is encouraging. The FEIS describes that event and reviews the scientific literature analyzing that event (Subsection 3.4.3.1.5, Strandings). While it is difficult to draw inferences about future abundance trends based on the die-off, the ENP stock is known to

experience large-scale fluctuations in abundance. The population has shown the ability to recover from these declines which may represent short-term events that do not result in any detectable longer-term impacts to the population (Eguchi et al. 2023a). The FEIS evaluates potential scenarios for the future of the population in the discussion of cumulative effects (Subsection 5.4, Gray Whales). In addition, all of the action alternatives include a management regime that would respond to a decline in PCFG abundance, via a PBR calculation or low abundance thresholds, and Alternatives 6 and 7 include a 10-year limit on hunt regulations to provide an opportunity for managers to reconsider any hunting regime based on experience. Changes in the PCFG abundance, should they occur, can also be considered when issuing a hunt permit.

Past, present, and reasonably foreseeable future actions considered in our cumulative impact analysis included: harvest, shipping, fisheries, tourism, marine energy and mining projects, scientific research, natural mortality, climate change and ocean acidification, U.S. government policy, and military exercises (including Navy sonar). Chapter 4 of the FEIS examines the effects of the proposed action and alternative actions on affected resources. Chapter 5 examines the effects of other actions to determine whether the proposed action, when combined with these other actions and stressors (e.g., climate change), will have effects beyond those analyzed in Chapter 4. The cumulative effects analysis must be sufficient for that purpose but need not provide an exhaustive quantitative analysis of every activity that may affect a given resource. Section 5.4, Gray Whales, of the FEIS analyzes the factors affecting the overall ENP population and concludes that these factors are likely to similarly affect PCFG whales.

The FEIS presents an extensive analysis of the status of the ENP gray whale population, more than sufficient to support an analysis of the effects of the proposed action considered alone and in combination with other past, present, and reasonably foreseeable future actions. The individual factors mentioned in this comment are described and considered in the FEIS.

15. Use of modern weapons

Several commenters assert that if the Makah Tribe wants to have a traditional whale hunt, they should use only traditional weapons and not modern weapons such as rifles and motorized vessels. Other commenters support the Tribe's proposed use of both traditional and modern weapons. Some commenters offer opinions against or in favor of particular weapons, such as a .577 caliber rifle or penthrite grenades.

Response

Section 104 of the MMPA requires that if the take moratorium is waived and animals are killed, the method of killing must be "humane," which the MMPA defines as "that method of take which involves the least possible degree of pain and suffering practicable to the mammal involved." The IWC has focused on reducing the time to death of a whale (i.e., reducing the amount of time between the strike and death of a whale) to improve the humaneness of whaling (IWC 2004; IWC 2007; IWC 2018a). The Makah Tribe proposes to use both traditional and modern methods for hunting whales to balance the preservation of traditional cultural methods with safety and the need for increased hunting efficiency (see Subsection 2.3.2.2.10, Proposed Hunting Method). The Tribe's proposal to use a .50 caliber rifle, fired by a rifleman on board a motorized vessel, to dispatch a harpooned whale is in consideration of MMPA requirements as well as the safety of the public and hunting party. The use of modern technologies (e.g., support vessel, rifle) will also help ensure that the hunt is humane by reducing the time to death over using traditional measures. The FEIS also examines the possibility of using a darting gun with a penthrite grenade.

16. Amount of time allowed to comment on the DEIS

Several commenters raised concerns that the initial 100-day comment period was not sufficient given the size and complexity of the DEIS. This comment was raised again for the initial 45-day comment period on the SDEIS.

Response

For the DEIS and SDEIS, the comment periods were extended beyond the initial deadline. The DEIS was published on May 9, 2015. On May 29, 2015, the EPA published a Federal Register notice (80 FR 30676) at our request that extended the 90-day comment period by an additional 50 days, until July 31, 2015. The SDEIS was published on July 1, 2022. On August 12, 2022 the EPA published a Federal Register notice (87 FR 49827) at our request that extended the 45-day comment period by an additional 60 days, until October 14, 2022. On October 28, 2022, the EPA published another Federal Register notice (87 FR 65202) at our request, reopening the comment period for an additional week, until November 3, 2022.

17. Lawfulness of a waiver

Several commenters on the DEIS and SDEIS assert that if NMFS waives the MMPA take moratorium and authorizes a whale hunt by the Makah Tribe, NMFS will be "breaking a law" and undermining the MMPA.

Response

We disagree that a waiver of the take moratorium and authorization of a gray whale hunt by the Makah would amount to "breaking a law." The MMPA authorizes waivers of the "take" moratorium if the Secretary of Commerce determines that the waiver would be compatible with the conservation standards in the MMPA (16 U.S.C. § 1371(a)(3)(A)). Preparation of the FEIS is one step in the full evaluation of the Tribe's request to waive the MMPA take moratorium. As provided for in the MMPA, that evaluation includes initial and final waiver determinations, formal rulemaking, and permit processing if a waiver is granted. For a more detailed discussion of the waiver process, see Subsections 1.2.3.3 and 3.17.3.1 of the FEIS. NMFS's final decision in response to the Tribe's request is subject to judicial review.

18. Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations

Several commenters on the SDEIS expressed concerns over the ability of the U.S. government to maintain access to Russia's WNP gray whale photo identification catalog. These commenters suggest that shifting relations between the United States and Russia beginning in early 2022 could significantly impair efforts to compare struck or harvested whales with the WNP catalog, or prevent researchers from accessing updated information to maintain the catalog, resulting in missing information that could lead to misidentification of WNP gray whales.

Response

The Russian Gray Whale Project (RGWP) has provided a long time-series (1994-2022) of photo-ID and genetic data used in the assessments of WNP gray whales, including those conducted by the Scientific Committee of the IWC and others (e.g. IUCN, NOAA/NMFS). In 2021 and 2022, research on WNP gray whales continued, conducted by the RGWP, as has been done since 1994. Summary reports of this research have been reviewed by the IWC during their annual meetings.

In light of the Russian invasion of Ukraine, concern has been expressed about the ability of researchers to continue collecting data on gray whales in the WNP off Russia. Fortunately, thus far the work of the RGWP has been able to continue collecting photo-identification data off Sakhalin and Kamchatka and, in turn, providing information to the IWC. In tandem with the work of the RGWP, a similar but separate photo-ID program funded and directed by industry was initiated off Sakhalin in 2002. The status of this industry-funded research effort is presently unknown as a result of limited information exchange following the onset of the Russian invasion of Ukraine. While it has been expected for many years that a common RGWP/Industry photo-ID catalog and database would eventually become available, to be managed under the auspices of the IWC, this objective has never been accomplished. That being said, the

1994-2021 catalog maintained by the RGWP (Dr. Alexander Burdin, PI) is archived with the IWC's Secretariat and is openly available.

The IWC has repeatedly commended the RGWP for making available its 25+ year photo-ID catalog, providing access to science and conservation practitioners in general. It is hoped that continued collection of data in the WNP (2023 and beyond) by the RGWP will happen and that provision of related data summaries and photo-identification images will be possible despite the aforementioned geopolitical situation in Russia and Ukraine.

19. Ongoing UME

Several commenters on the SDEIS opined that NMFS' analysis of the ongoing (2019 to present) UME was inadequate, expressing concern about the possible continued decline and low calf production. Some commenters also noted that impacts of the UME on the PCFG whales should be examined. One commenter expressed that a waiver should not be granted for a population that is currently undergoing a UME.

Response

In 2019, NMFS declared a UME for the ENP stock of gray whales that is still ongoing as of publication of this document. In the FEIS, we use the best available science and all known information regarding the UME to put the analysis of the alternatives in context. While as many carcasses are being collected and studied to the extent possible, there are still several open questions regarding the UME. As described in the SDEIS and FEIS (Subsection 3.4.3.1.5, Strandings):

> The full extent of the mortality from this event is unknown. Although some carcasses have been recovered, it is likely that many carcasses either sank, washed out to sea, or stranded in remote locations and were unobserved by humans. However, it is possible to estimate mortality resulting from this UME through ongoing population surveys conducted by NMFS, and noted above in Subsection 3.2.1.2. The current UME coincides with a recent 46 percent decline in abundance observed in the 2019/2020 survey (Stewart and Weller 2021a; Eguchi et al. 2022a; Eguchi et al. 2023a).
>
> NMFS has relied on the West Coast Marine Mammal Stranding Network for compiling reports of stranded animals, collecting data, conducting necropsies, and collecting samples from carcasses when possible in Washington, Oregon, and California. So far, full or partial necropsies have been performed on just a few of the stranded animals. Samples can be difficult or impossible to collect

> if the whale has become too decomposed or has stranded in an inaccessible location. NMFS does not mandate what necropsy data to collect. However, stranding network partners often record as much basic data as possible (referred to as Level A data), such as the state of decomposition and condition of the animal, the location of the stranding, and a list of samples that were collected, if any. Some but not all of the stranded whales have shown evidence of emaciation, but more research is needed to determine the cause(s) of the UME."

NMFS used the most recent abundance estimates in the FEIS analysis, which accounts for the current UME's impacts on the ENP population. From 2016 to 2020, the ENP gray whale population experienced a 23% decline in abundance, from 26,960 (Durban et al. 2017) to 20,580 (Stewart and Weller 2021a). When taking into account the current (2023) population size of 14,526, the overall population decline from 2016 to 2023 was 46% (Eguchi et al. 2023a). In 2023, NMFS published a Technical Memorandum that showed nearly a doubling in the number of calves compared to the year prior (Eguchi et al. 2023b). However, calf counts are still much lower than in years prior to the current UME. While it is impossible to predict how long the current UME will last, our FEIS analysis uses all the available information to assess the impact of the alternatives in light of a potential, and ongoing, UME. An ALJ recommended that the Secretary consider setting a lower limit on the ENP abundance, below which hunting would not be permitted (Recommended Decision, pg. 151). Comments on the recommended decision were in support of and opposed to this recommendation. Nevertheless, commenters recommended a range of low abundance thresholds. Alternative 7 considers the effects of the alternative under four scenarios (no abundance threshold and three low abundance thresholds).

Furthermore, the IWC conducts regular Implementation Reviews that, among other things, ensure that catch limits set by the Commission meet the conservation objectives of the IWC given the available data (e.g., population abundance and trends, reproduction and survivorship, and environmental conditions). The IWC conducted its last Implementation Review in 2020 and has reviewed the proposed management plan (that matches the Preferred Alternative in the FEIS) as recently as 2023. As stated in the FEIS (Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates [IWC Implementation Review of ENP Gray Whales]:

> After a review of the Makah Management Plan in 2018 (IWC 2018a), the IWC concluded that levels of harvest and other human-caused mortality are sustainable and that the management plan meets the IWC's conservation objectives for the ENP stock. The most recent Implementation Review occurred in 2020 (IWC 2021), and the Scientific Committee recommended that "Gray

> Whale SLA and the Makah Management Plan remain the appropriate basis for the provision of advice on the Chukotkan and proposed Makah hunts." In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events (Punt et al. 2023, IWC 2023)."

It is currently unknown how the UME may be affecting the PCFG. To date, only two known PCFG animals have died during the current UME; however, it is not clear whether they were part of the UME (J. Calambokidis pers. comm., Cascade Research Collective, October 23, 2023). Although the abundance estimate for the ENP stock demonstrated a 46% decline from the 2015/2016 to 2022/2023 abundance surveys, the PCFG abundance estimate has not experienced a proportional decline from pre-UME levels to 2020 (Harris et al. 2022). However, it is important to note that this assessment (Harris et al. 2022) is only through 2020, just one year into the UME. NMFS and other researchers conduct annual monitoring of the PCFG population through coastal surveys in Oregon, Washington, and British Columbia (e.g. see Calambokidis et al. 2019). As such, abundance estimates have been produced through regular reports since the mid-1990s. Given the time delay with photo-identification processing and modeling efforts, the PCFG abundance estimates are on a 2-year time lag. This also occurs because the definition of a PCFG is any whale seen between NCA and NBC in two or more years. Animals need the chance to be seen a second time in at least one year following in order to be classified as a PCFG. Alternative 7 (Preferred) incorporates measures (i.e., lower limits on the mean and minimum PCFG abundance estimates below which hunting would cease) to address concerns about declines in the PCFG.

20. PCFG Abundance "Dimmer Switch"

Several commenters on the SDEIS suggest the use of a "dimmer switch" in regulating the level of PCFG harvest in addition to the low abundance thresholds included in the Preferred Alternative (Alternative 7). One commenter noted that there can be a delay of two or more years between PCFG abundance surveys and their results due to the time required for photo-ID matching. Another commenter suggested that NMFS disregarded the ALJ's recommendation that a dimmer switch for the PCFG be included in the Preferred Alternative to limit strikes "if there are early signs of decline, rather than waiting for more extensive decline, to cease it entirely."

Response

Alternative 7 (Preferred) of the FEIS includes two stop-hunt triggers for PCFG gray whales: (1) a strike limit of 16 PCFG whales over the course of the 10-year waiver period, up to 8 of which may be female

and (2) a low-abundance threshold of 192 whales (N) or 171 whales (Nmin) based on the most recent or forecasted abundance estimates. Table 4-14 depicts the maximum number of PCFG whales that may be killed under each alternative over a 10-year period if the low abundance thresholds are not triggered. Under Alternative 7, the maximum number of PCFG whales that may be killed is 16 over the 10-year waiver period, with an additional limit of eight strikes on PCFG females. However, it is unlikely that 16 would actually be killed, given the proportion of PCFG whales present in the Makah U&A (27.3 percent PCFG whales) during the winter and spring months .Using these mixing proportions and assuming the full allowable strike limits are authorized and used, it is more likely that no more than 14 PCFG whales would be killed over 10 years (see Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested).

Section 216.114(a) of the proposed regulations (84 FR 13604) states that the Regional Administrator must "notify the Makah Indian Tribe in writing of the maximum number of PCFG whales, including females, that may be struck during the upcoming hunt season." The regulations also outline a hunt permitting process, wherein the initial hunt permit "may not exceed three years from its effective date, and thereafter the duration of a hunt permit may not exceed five years," (§216.113(a)(1)). The regulations do not require NMFS to authorize the full number of allowable strikes or issue permits lasting the maximum possible duration. Rather, NMFS can further limit strike limits and the number of days that hunting may occur during the hunting seasons The provisions set forth under Alternative 7 and the proposed regulations already allow NMFS to adopt a "dimmer switch" approach in the event that the PCFG abundance estimate shows signs of decline above the low abundance threshold.

The comment regarding the ALJ's recommendation is misleading. The ALJ did not recommend that NMFS adopt a dimmer switch for the PCFG, but rather agreed that the existing language of the proposed regulations already incorporated such a provision. In his recommended decision, the ALJ states, "Considering the existing language to constitute a 'dimmer switch,' which would be determined as part of the permitting process, accords with the MMPA's conservation principles."

21. Managing "Sounders" as a separate population

Some commenters on the DEIS and SDEIS suggested that the "Sounders," a group of ENP gray whales that frequent the Puget Sound during the spring while en route to the Arctic feeding grounds, should be managed separately from the ENP stock given their defined habitat use and there should be specific mitigation efforts to avoid Sounders in a potential hunt.

Response

Cascadia Research Collective's website notes that "The North Puget Sound gray whales, also known as the "Sounders," represent roughly a dozen individual whales, part of the larger population of the Eastern North Pacific gray whales. They are also sometimes referred to as the Puget Sound Regulars or the Saratoga Grays. During their northern migration from Baja California, these individuals break off of the migration route to feed on ghost shrimp for 2-3 months each spring (approx. March-May) in the North Puget Sound waters. They then continue north to the Bering and Chukchi seas for summer feeding." Further, FEIS Subsection 3.4.3.4.1, PCFG Population Structure, notes that "[a]lthough interior waters making up Puget Sound are within the PCFG latitudinal boundaries of 41°N to 52°N, whales sighted in Puget Sound…are considered outside the range of the PCFG. Previous research has found that the few whales sighted in Puget Sound (especially in northern Puget Sound) are typically seen only in the spring, are less likely to be seen in multiple years and regions, and likely represent migratory animals." As such, gray whales that occupy the Salish Sea are part of the broader ENP gray whale population. They are not recognized as a marine mammal population stock or a feeding aggregation.

Given that the range of the ENP migratory animals encompasses the Puget Sound region discussed above, we considered and included a discussion of the Salish Sea (i.e., inland waters of Washington State and southern BC) as part of the affected environment in the SDEIS (Subsection 3.3.3.3.1, Physical Features and Processes [Dynamic Processes and Variability]). As stated in the FEIS, Subsection 3.3.1, Introduction, "we have included information about the Salish Sea in this chapter to clarify its overlap with the action area and the potential for the action alternatives to have indirect effects on resources in these waters."

Although whales that use the Salish Sea are not treated separately in the FEIS analysis, none of the FEIS alternatives contemplate a hunt in the Strait of Juan de Fuca, making it unlikely that a hunt would affect one of the dozen or so Sounder whales. This chance is further reduced given their small number in a population of over 14,000 migrating whales.

22. Authorization of training activities

One commenter on the SDEIS asserts that NMFS failed to consider all reasonable alternatives by not analyzing an alternative in which hunting but not training is authorized. They argue that such an alternative would represent a mid-range alternative with fewer impacts to gray whales.

Response

Alternative 2 (Tribe's Proposed Action) includes a training and certification program to ensure that the hunt is carried out in as efficient, safe, and humane a manner as practicable (see Subsections 3.4.3.5.6, Training and Weapons Improvement, and 3.15.2.2, Weapon Safety Regulations and Authorities, of the FEIS). NMFS included these training and certification requirements in all action alternatives and did not contemplate an action alternative that would authorize hunting without allowing tribal members who engage in whaling to train. The training activities that the commenter refers to include positioning a vessel that does not carry weapons ordinarily used to strike a whale within 100 yards of a gray whale (defined in the proposed regulations as a training approach) and attempting to contact a gray whale with a blunted spear-like device that is incapable of penetrating the skin of a gray whales (defined in the proposed regulations as a training harpoon throw).

The FEIS analyzes the effects of training activities on gray whales and other living marine resources, as well as on public safety. While we agree that training activities may increase the total amount of adverse effects experienced by gray whales through interactions such as close approaches and training harpoon throws, training also allows for increased efficiency in a hunt. NMFS' stated purpose in the FEIS is to implement the Whaling Convention Act (WCA) in addition to the MMPA and the Treaty of Neah Bay (see Subsection 1.3.1, Purpose for Action). The implementing regulations of the WCA prohibit whaling captains from engaging in whaling in a manner that is wasteful (50 C.F.R. 230.4(k)). Therefore, maximizing the efficiency of the hunt by reducing the number of struck and lost whales aligns with the purpose set forth by NMFS in the FEIS. In a report to the 58th meeting of the IWC, the Alaska Eskimo Whaling Commission reported a multifaceted approach to improving the efficiency of their hunt of bowhead whales. One component of that approach was placing a renewed focus on hunter training, including training younger harpooners in the more traditional methods that will be adopted by the Makah Tribe (as opposed to the use of penthrite grenades, which have become more common in the Alaska hunts but are less likely to be adopted in the Makah hunts). Historically, Alaska Native hunters lost approximately 50% of the whales they struck. Through their dedicated efforts to increase their efficiency, including their heavy focus on training, they were able to increase this rate to nearly 80%, a level that they have maintained in the years since (AEWC 2006, 2018).

Training may also facilitate reducing the time to death of any struck whale, as harpooners and shooters can learn to target more vulnerable areas that are most likely to result in a faster death (AEWC 2006). As stated in our response to substantive comment No. 15, Section 104 of the MMPA requires that if the take moratorium is waived and animals are killed, the method of killing must be "humane," which the MMPA defines as "that method of take which involves the least possible degree of pain and suffering practicable

to the mammal involved." The IWC has focused on reducing the time to death of a whale (i.e., reducing the amount of time between the strike and death of a whale) to improve the humaneness of whaling (IWC 2004; IWC 2007; IWC 2018a). Therefore, training activities are essential to improving the humaneness of the hunt and considering an alternative in which hunting is authorized while training is prohibited would go against NMFS' stated purpose to implement the MMPA alongside the WCA and Treaty of Neah Bay.

The FEIS also analyzes the effects of the action alternatives on public safety and concludes that weapons-related injuries could be reduced by training (see Subsection 4.15.2.1, Injury from Weapons). These injuries include those to Makah Tribal hunters as well as hunt observers and spectators.

References Cited

Alaska Eskimo Whaling Commission (AEWC). 2006. Report on Weapons, Techniques, and Observations in the Alaskan Bowhead Whale Subsistence Hunt. Unpublished report, submitted to the International Whaling Commission's Workshop on Whale Killing Methods by the United States, St. Kitts and Nevis, June 2006 (IWC/58/WKM&AWI22).

Alaska Eskimo Whaling Commission (AEWC). 2018. Report on Weapons, Techniques, and Observations in the Alaskan Bowhead Whale Subsistence Hunt. Unpublished report, submitted to the International Whaling Commission's Workshop on Whale Killing Methods by the United States, Florianopolis, Brazil, September 2018 (IWC/67/WKMWI/06).

Anderson v. Evans, 371 F.3d 475 (9th Cir. 2004)

Bluhm, B., and R. Gradinger. 2008. Regional variability in food availability for Arctic marine mammals. Ecol. Appl. 18:S77-S96.

Braund, S. R., and Associates. 2007. Documentation of Makah Cultural Resources and Ceremonial and Subsistence Resources. Available from NMFS, 1201 NE Lloyd Blvd., Suite 1100, Portland, OR, 97232.

Calambokidis, J., R. Lumper, J. Laake, M. Gosho, and P. Gearin. 2004. Gray whale photographic identification in 1998-2003: collaborative research in the Pacific Northwest. Final Report prepared for National Marine Mammal Laboratory, Seattle, WA.

Calambokidis, J., A. Perez, and J. Laake. 2019. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2017. Final Report to NOAA, Seattle, WA. pp. 1-72.

Carretta, J. and 15 co-authors. 2013. U.S. Pacific Marine Mammal Stock Assessments: 2012. NOAA-TM-NMFS-SWFSC-504.

Carretta, J. and 15 co-authors. 2016. U.S. Pacific Marine Mammal Stock Assessments: 2015. NOAA-TM-NMFS-SWFSC-561.

Carretta, J., and 15 co-authors. 2017. U.S. Pacific Marine Mammal Stock Assessments: 2016. NOAA-TM-NMFS-SWFSC-577.

Carretta, J.V., E. M. Oleson, K. A. Forney, M. M. Muto, D. W. Weller, A. R. Lang, J. Baker, B. Hanson, A. J. Orr, J. Barlow, J. E. Moore, R. L. Brownell Jr. 2021. U.S. Pacific Marine Mammal Stock Assessments: 2020. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-646. Available at https://repository.library.noaa.gov/view/noaa/31436.

Carretta, J.V. , E. M. Oleson, K. A. Forney, M. M. Muto, D. W. Weller, A. R. Lang, J. Baker, B. Hanson, A. J. Orr, J. Barlow, J. E. Moore, R. L. Brownell Jr. 2022. U.S. Pacific Marine Mammal Stock Assessments: 2021. U.S. Department of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-663. Available at https://repository.library.noaa.gov/view/noaa/44406.

Carretta, J.V., E.M. Oleson, K.A. Forney, D.W. Weller, A.R. Lang, J. Baker, A.J. Orr, B. Hanson, J. Barlow, J.E. Moore, M. Wallen, and R.L. Brownell Jr. 2023. U.S. Pacific marine mammal stock assessments: 2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-684. https://doi.org/10.25923/5ysf-gt95.

Durban, J.W., D.W. Weller, and W.L. Perryman. 2017. Gray whale abundance estimates from shore-based counts off California in 2014/15 and 2015/16. Paper SC/A17/GW/06 presented to the rangewide workshop on gray whales, April 2017. 69 pp.

Eguchi T., A.R. Lang, and D.W. Weller. 2022a. Abundance and Migratory Phenology of Eastern North Pacific Gray Whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. Available at https://swfsc-publications.fisheries.noaa.gov/publications/CR/2022/2022Eguchi2.pdf.

Eguchi, T., A.R. Lang, and D.W. Weller. 2023a. Abundance of eastern North Pacific gray whales 2022/2023. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-680. https://doi.org/10.25923/n10e-bm23.

Eguchi, T., A.R. Lang, and D.W. Weller. 2023b. Eastern North Pacific gray whale calf production 1994-2023. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-685. https://doi.org/10.25923/e9at-x936.

Fominykh, I.B. and R.F. Smith III. 2023. Monitoring in 2023 by the Russian Federation and the United States of the Aboriginal Subsistence Quota for Gray Whales Set by the International Whaling Commission. Agreement signed January 19, 2023.

Harris, J., J. Calambokidis, A. Perez, J. Laake, and P.J. Mahoney. 2022. Recent trends in the abundance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle, WA 98115.

International Whaling Commission (IWC). 1979b. Report of the Nutrition Panel. Pages 23-33 in Aboriginal/Subsistence Whaling (with special reference to the Alaska and Greenland fisheries), Report of the International Whaling Commission, Special Issue 4, 1982. University Press, Cambridge, United Kingdom, 86 pp.

International Whaling Commission (IWC). 1982. Aboriginal/Subsistence Whaling (with special reference to the Alaska and Greenland fisheries). Report of the International Whaling Commission, Special Issue 4. University Press, Cambridge, United Kingdom, 86 pp.

International Whaling Commission (IWC). 1996. Request of the United States for an Annual Catch of Five Gray Whales by the Makah Indian Tribe for Aboriginal and Subsistence Use: response by United States to issues raised during the meeting of the [IWC] Aboriginal Subsistence Whaling Subcommittee. IWC/48/28 (unpublished report).

International Whaling Commission (IWC). 1997. Chairman's Report of the Forty-Eighth Annual Meeting, Aberdeen, United Kingdom, June 24-28, 1996. Pages 15-55 in Report of the International Whaling Commission 47. Cambridge, United Kingdom, 1032 pp.

International Whaling Commission (IWC). 2004. Report of the Workshop on Whale Killing Methods and Associated Welfare Issues, Berlin, Germany, June 7-9, 2003, pages 85-101 (Annex E of the Chair's Report of the 55th Annual Meeting) In Annual Report of the International Whaling Commission 2003. Cambridge, United Kingdom, 191 pp.

International Whaling Commission (IWC). 2007. Report of the Workshop on Whale Killing Methods and Associated Welfare Issues, St. Kitts and Nevis, June 11-13, 2006. Annex D of the Chair's Report of the 58th Annual Meeting.

International Whaling Commission (IWC). 2011. Report of the Scientific Committee. J. Cetacean Res. Manage. 12 (Suppl.), 2011.

International Whaling Commission (IWC). 2012a. Chair's Report of the 64th Annual Meeting of the International Whaling Commission, 2-6 July 2012.

International Whaling Commission (IWC). 2014. Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans (IWC/65/WKM&AWIRep0106).

International Whaling Commission (IWC). 2018a. Report of the Whale Killing Methods and Welfare Issues Working Group. Thursday 6 September 2018, Florianopolis, Brazil. IWC/67/REP/04.

International Whaling Commission (IWC). 2018b. International Convention for the regulation of Whaling, 1946. Schedule. As amended by the Commission at the 67th Annual Meeting, Florianopolis, Brazil, September 2018.

International Whaling Commission (IWC). 2018c. Report of the Scientific Committee. Annex E. Report of the Standing Working Group on Aboriginal Subsistence Whaling Management Procedures. IWC/67/Rep01(2018), Annex E.

Makah Tribe. 2005. Makah Tribe's Request for a Waiver of the Marine Mammal Protection Act (MMPA) Take Moratorium. Letter from Makah Tribal Council to William T. Hogarth, Ph.D. dated February 11, 2005.

Moore, J.E., D.W. Weller, and A.R. Lang. 2023. Estimates of the probability of striking a western North Pacific gray whale during the proposed Makah hunt: 2023 update. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-682. https://doi.org/10.25923/hxhv-sb94.

National Academy of Sciences. 2008. Ecological impacts of climate change. National Academy of Sciences Committee on Ecological Impacts of Climate Change. Available at http://www.nap.edu/catalog/12491/ecological-impacts-of-climate-change

National Marine Fisheries Service (NMFS). 2005. Revisions to Guidelines for Assessing Marine Mammal Stocks. 24 pp. Available at http://www.nmfs.noaa.gov/pr/pdfs/sars/gamms2005.pdf

National Marine Fisheries Service (NMFS). 2015. Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. February 2015.

National Marine Fisheries Service (NMFS). 2018. Biological Report on the Eastern North Pacific (ENP) Stock of Gray Whales. Prepared by the West Coast Region of the National Marine Fisheries Service in support of the proposed waiver and regulations authorizing a limited hunt of ENP gray whales by the Makah Indian Tribe.

National Marine Fisheries Service (NMFS). 2023. Endangered Species Act Section 7(a)(2) Concurrence Letter for the National Marine Fisheries Service's Proposed Issuance of a Waiver under the Marine Mammal Protection Act to the Makah Tribe and Related Actions. November 8, 2023.

Punt, A. E., and J. E. Moore. 2013. Seasonal gray whales in the Pacific Northwest: An assessment of optimum sustainable population level for the Pacific Coast feeding Group. NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-518. July 2013.

Punt, A. E. and P. R. Wade. 2012. Population status of the eastern North Pacific stock of gray whales in 2009. Journal of Cetacean Research and Management 12(1):15-28.

Renker, A. M. 1996. Whale hunting and the Makah Tribe: A Needs Statement. Unpublished report to the International Whaling Commission 1996, IWC/48/AS1.

Renker, A. M. 2018. Whale Hunting and the Makah Tribe: A Needs Statement. Unpublished report to the International Whaling Commission 2018, IWC67/ASW/03.

Small, R.J. and D.P. DeMaster. 1995. Alaska Marine Mammal Stock Assessments 1995. NOAA TM NMFS-AFSC-57.

Stewart, J.D. and D.W. Weller. 2021a. Abundance of Eastern North Pacific Gray Whales 2019/2020. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-SWFSC-639. 5 pp.

United States. 1996. Request of the United States for an Annual Catch of Five Gray Whales by the Makah Indian Tribe for Aboriginal and Subsistence Use: response by United States to issues raised during the meeting of the [IWC] Aboriginal Subsistence Whaling Subcommittee. IWC/48/28 (unpublished report).

Weller, D. W., and 7 co-authors. 2013. Report of the National Marine Fisheries Service gray whale stock identification workshop. March 2013. NOAA Technical memorandum NOAA-TM-NMFS-SWFSC-507.

Weller, D. W., R. Anderson, B. Easley-Appleyard, G. Ferrara, A. R. Lang, J. Moore, P. E. Rosel, B. Taylor, and N. C. Young. 2023. Distinct population segment analysis of western North Pacific gray whales (Eschrichtius robustus) under the Endangered Species Act. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-679. https://doi.org/10.25923/7ggf-9817

Ylitalo, G, Bolton, J., Boyd, D., and K. Hayes. 2018. Analyses of persistent organic pollutants in gray whales from the West Coast of North America. Northwest Fisheries Science Center Technical Report. August 2018.

Appendix D

Responses to Comments on the Draft Environmental Impact Statements on the Makah Tribe Request to Hunt Gray Whales

Responses to Comments on the Draft Environmental Impact Statements

INTRODUCTION:

On March 13, 2015, National Marine Fisheries Service (NMFS) released a Draft Environmental Impact Statement (DEIS), pursuant to the National Environmental Policy Act (NEPA), concerning the Makah Indian Tribe's February 2005 request to resume limited hunting of eastern North Pacific (ENP) gray whales for ceremonial and subsistence purposes. The DEIS was available for public review for 90 days (80 FR 13373, March 13 2015) and, in response to several stakeholder requests, later extended by an additional 50 days (80 FR 30676, May 29, 2015). NMFS held two public meetings on the DEIS on April 27 (Seattle, WA) and April 29 (Port Angeles, WA) (80 FR 14912, March 20, 2015). More than 57,000 comments on the 2015 DEIS, by mail, fax, email, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Over 99% of comments were submitted as form letters. Individual commenters on the DEIS included state and federal entities, tribal governments, and both nonprofit organizations and interested individuals from the United States and around the world.

NMFS West Coast Region provided draft responses to comments on the 2015 DEIS in November 2019 as part of the record for the hearing before the Administrative Law Judge which were incorporated into the FEIS. The first document (see Appendix E) provide responses to all of the comments raised (excluding duplicate form-letter comments as practicable). A separate document included draft responses to 17 topics frequently raised by commenters.

NMFS published a Supplemental DEIS (SDEIS) on July 1, 2022 (87 FR 39417). The SDEIS was available for public review for 45 days. During the comment period, we received a request to extend the public comment period and agreed to extend the public comment period by 60 days, to close on October 14, 2022 (87 FR 50319, August 16, 2022). On October 6, 2022, we received a second request to extend the public comment period. While that request was received too late to allow for an extension notice, NMFS reopened the comment period from October 28 through November 3, 2022 (87 FR 64454, October 25, 2022). We received 47 comments via email, mail, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Similar to DEIS, commenters on the SDEIS included federal entities, tribal governments, and both nonprofit organizations and interested individuals from the United States and around the world.

We provide responses to all of the comments raised on the SDEIS in the table below. The content in the comment letters is parsed into multiple rows in the table (see Document ID) into multle rows to facilitate the readers understanding of our responses. All of the comments contained in this table are available for viewing in their original form at the regulations.gov docket noted above. We have also developed a separate document that includes our responses to frequent and substantive comments received on the DEIS and SDEIS (Appendix D).

Document ID	Name	Date	Comment	Response
457	Young, Scott	7/7/22	The torture & murder of whales is wrong regardless of historical, traditional, cultural, religious whaling operations. With 8 BILLION people on earth maybe it's time we start giving other fellow sentient living-beings a little respect & consideration to LIVE without threat of torture & murder from us.	Comment noted.
458	Anonymous	7/7/22	After reviewin the 2015 DEIS and 2022 SDEIS, I would like to express my support for Alternative 2, the alternative proposed by the Makaw. I support the Makaw in their efforts to take a conservation-focused approach to their treaty-based authority to conduct whaling in their territory. To take any other action would be a flagrant violation of the terms of the treaty, which is enshrined as the law of the land under the Constitution of the United States. I believe the MMPA and other more recent laws do not extinguish or modify the terms of the Treaty of Neah Bay. Please do the right thing and adopt Alternative 2 as quickly as possible. The ongoing delay in addressing this Makaw request from more than 17 years ago is an embarrassment.	Comment noted.
459	Parks, Travis	7/18/22	As a non tribal person I stand in solidarity with the Makah people's need to resume traditional hunting practices. It is especially important to support other hunters at a time when traditional hunting practices are under attack by non-scientific animal affinity groups who seek to deprive everyone who doesn't subscribe to their world view of their unenumerated hunting rights.	Comment noted.
460	Cole, Shirley	7/18/22	I support the implementation of Alternative 2, the tribes proposed action. From my understanding of the population of ENP Gray Whales, the number of whales they can take under this alternative is a non-factor in both the long term and short term success of the population. The rights under the treaties, and in turn the culture of the tribe, should not be thrown out over emotional claims by people who are far removed from the tribe and its culture. Tribes did not cause the near extinction of whales, the industrial use of them by modernizing nations did, and the tribes are the	Comment noted.

Document ID	Name	Date	Comment	Response
			ones who have taken the burden of suffering due to the actions of other people.	
461	Butcher, Nicholas	7/20/22	I Nicholas Butcher, fully support the Makah tribes traditional and treaty rights to hunt whales. I believe they will do so in a way that will respect the animals and the resource as a whole. I believe it is their natural right from birth to harvest these animals to to sustain their lives as well as traditional life ways and beliefs. It is a great tragedy that they had to give up these practices long ago due to over hunting (not by them) and government regulation. I whole heartily reject, and I am greatly offended, that the killing of a whale or any animal for that matter makes these tribal people or anyone that chooses to do so "uncivilized" and shouldn't exist in this era. That type of bigotry and hatred has no place in our society. And frankly I would find it even more reprehensible if the government chose to take part in this discrimination. Uphold the natural and cultural rights of the Makah tribal people.	Comment noted.
462	Kubecka, Jonah	7/21/22	Ill have it be known I 100% support the Makah tribes right to harvest Grey whales in the Pacific Ocean. The tribe has a treaty right, and the Grey Whale populations documented appear to be sustainable enough for harvest. As it appears in the draft, such a minimum harvest over the course of years should have little to no impact on the whale population as a whole. Please stop asking the public on issues that should not be up to the public. Do not listen to those who have nothing at stake here. This is between the Federal Government and the Makah tribe, not animal rights activists or agendists.	Comment noted.
463	EPA	7/28/22	The U.S. Environmental Protection Agency has reviewed National Oceanic and Atmospheric Administration's National Marine Fisheries Service's July 2022 Supplemental Draft Environmental Impact Statement for the Makah Indian Tribe of the Makah Indian Reservation's (Makah Tribe's) Request to Hunt Eastern North Pacific Gray Whales (CEQ Number	We note the background/summary information. The 10-year waiver period is addressed in Sections 2.3.6 & 2.3.7

Document ID	Name	Date	Comment	Response
			20220086, EPA Project Number 22-0030-NMFS). EPA has conducted its review pursuant to the National Environmental Policy Act and our review authority under Section 309 of the Clean Air Act. The CAA Section 309 role is unique to EPA and requires EPA to review and comment publicly on any proposed federal action subject to NEPA's environmental impact statement requirement. The SDEIS evaluates the potential environmental impacts associated with a request by the Makah Tribe to resume limited hunting of eastern North Pacific gray whales for ceremonial and subsistence purposes. The project area includes the Makah Tribe's usual and accustomed fishing grounds west of the Bonilla-Tatoosh Line. The SDEIS evaluates a composite alternative (Alternative 7) which combines various elements from alternatives previously analyzed in the 2015 DEIS, limits the likelihood that tribal hunters would strike or harm a western North Pacific gray whale, and ensures hunting does not reduce the Pacific Coast Feeding Group below stable abundance. EPA did not identify additional significant environmental concerns to be addressed in the Final SEIS and recommends the Final SEIS include information suggested in our July 2015 recommendations for the DEIS explaining why 10-years would be an appropriate duration limit for the waiver. Please continue to include all best available and relevant information in the Final SEIS and Record of Decision. Thank you for the opportunity to review the SDEIS for this project. If you have questions about this review, please contact Emily Bitalac of my staff at (206) 553-2581 and bitalac.emily@epa.gov, or me, at (206) 553-1774 or at chu.rebecca@epa.gov.	

Document ID	Name	Date	Comment	Response
464	AWI	8/1/22	On behalf the undersigned organizations, the Animal Welfare Institute respectfully requests a 45-day extension of the public comment period for the Supplemental DraftEnvironmental Impact Statement on the Makah Tribe's Request to Hunt Gray Whales (SDEIS). 87 Fed. Reg. 39,804 (July 5, 2022). If granted, the new deadline for comments would be September 29, 2022. This extension is needed to ensure that all interested stakeholders, regardless of their position on whaling or whether the Makah Tribe should be allowed to resume a hunt, can adequately participate in the ongoing decision-making process by providing informed and substantive c comment to the National Marine Fisheries Service (NMFS). Specifically, NMFS should grant this request for the following reasons: 1. The SDEIS relies extensively on an analysis by Harris et al. in its analysis of the impacts of the hunt on Eastern North Pacific, Western North Pacific, and Pacific Coast Feeding Group gray whales. NMFS's assessment, informed by the Harris et al.(1) analysis, implicates all six action alternatives, including the new preferred alternative. Yet, the Harris et al. analysis, to be published as a NOAA Technical Memorandum, is currently "in prep" and therefore not available to those interested stakeholders reviewing the SDEIS. An Internet search failed to locate a copy of the Technical Memorandum. It is entirely inappropriate for NMFS to publish the SDEIS for public comment when a critical document underlying much of the environmental impact analysis in the document is not available. Indeed, not publishing such a critical document prior to publishing and seeking public comments on the SDEIS is a clear violation of the National Environmental Policy Act, as it prevents interested stakeholders from having access to information critical to the analysis. In order to afford the public an adequate opportunity to prepare and submit informed and substantive comments, NMFS should suspend the current comment period, publish the Harris et al. Technical Memorandum, and then resume the public comment process with a duration of at least 90 days. At a minimum,	See Section 1.5.3 for a summary of the public comment process, including extensions granted, on the DEIS and SDEIS.

Document ID	Name	Date	Comment	Response
			assuming NMFS publishes the Harris et al. Technical Memorandum by the end of July 2022, NMFS should provide the requested 45-day extension in the comment deadline to ensure that interested stakeholders have sufficient time to obtain and review the Technical Memorandum to incorporate the information in informed and substantive comments. 2. The SDEIS analyzes several new issues that have not previously been subject to environmental impact review, including the proposed odd/even year hunt structure, the ongoing Unusual Mortality Event (UME) affecting gray whales that began in 2019, and the impact of marine heatwaves on marine ecology. Indeed, as explained in the Federal Register notice announcing its intent to prepare a SDEIS, NMFS elected to conduct the analysis in order to incorporate information regarding the 2019 UME, take into consideration the Administrative Law Judge's recommended decision, and expressly identify the hunt proposal as a separate action alternative. 85 Fed. Reg. 11347 (Feb. 27, 2020). Considering the complexities of the proposed hunt structure, its potential impact on endangered Western North Pacific gray whales, Eastern North Pacific gray whales, and Pacific Coast Feeding Group gray whales (depending on the timing of the hunt) as well as the diverse factors likely contributing to the UME, including ocean warming and the ongoing paradigm shift in the ecology of Arctic marine ecosystems, extending the comment deadline would provide all stakeholders with an opportunity to more thoroughly assess the quality of the analysis contained in the SDEIS in light of the relevant scientific literature.3. New information, including the 2022 report of the International Whaling Commission's Scientific Committee (IWC SC), has only recently become available. This information is highly likely to be relevant to NMFS's analysis contained in the SDEIS. 3 The 2022 IWC SC report, which includes information about gray whales, is based on dozens of underlying studies submitted to the IWC SC for its review during its virtual meeting in May 2022. Only persons who were registered for the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			meeting had access to the studies/papers at that time. The IWC SC rules strictly forbid the sharing of such studies/papers with those who were not registered for the SC meeting. Many of NMFS's scientists participate in the IWC SC and are aware of these rules, as well as the fact that the 2022 IWC SC report would be informative with respect to gray whales. It would have been reasonable for NMFS to wait until the publication of the IWC SC report and related annexes and papers before completing its analysis and opening this comment period. On the other hand, those individuals not registered for the IWC SC, including many of the signatories to this letter, were unable to access these studies/papers until July 19 at the earliest (see footnote 3). Therefore, extending the comment deadline by the requested 45 days to provide all interested stakeholders with additional time to access and review the 2022 IWC SC report and underlying relevant papers is warranted. 4. The history of this decision-making process extends back decades and, consequently, the public record for this case is immense. In addition to the two environmental assessments on Makah whaling dating back to the late 1990s and the initial Environmental Impact Statement (EIS) from 2008, NMFS published a 2015 EIS, which NMFS has now supplemented through its SDEIS. 4 Furthermore, the waiver process under the Marine Mammal Protection Act (MMPA), including proceedings before an Administrative Law Judge, amassed an enormous public record of documents, data, and other evidence.5 While some signatories to this letter are familiar with these documents, others, including those who have not previously engaged in this issue, are not. Authorizing an additional 45 days for comment on the SDEIS provides stakeholders,including others not named below, with time to evaluate some, if not all, of the sizeable record underlying this decision-making process.5. The requested extension would benefit NMFS and its decision-makers while not substantively impairing or harming the interests of any stakeholder. By granting this request, NMFS will afford stakeholders additional time to review the SDEIS, the immense	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			underlying record, and any new information, including the 2022 IWC SC report. The extension will result in more informed and substantive public comments, which can only benefit the government decision-makers. While all interested stakeholders would likely benefit from the requested extension, none would be harmed by the limited additional time for being sought for the preparation of informed and substantive comments. Such an extension would not prevent NMFS from issuing a final EIS in early 2023 as it intends to do. While we acknowledge the patience demonstrated by the Makah Tribe during this decision-making process, we note that even once the NEPA process has concluded, additional decision-making processes will be required (e.g., for an incidental take permit and to obtain an MMPA permit to authorize the hunting of gray whales). For the foregoing reasons, AWI and the undersigned organizations assert that the requested 45-day extension in the comment deadline for the SDEIS is warranted so as to insure that all stakeholders have an adequate opportunity to analyze all relevant information, assess the adequacy of the SDEIS, and prepare and submit informed and substantive comments. In particular, until and unless NMFS publishes the Harris et al. Technical Memorandum, it cannot expect stakeholders to provide informed and substantive comments.Thank you in advance for considering this request. Should you have any questions about this request and/or to inform AWI of the decision made by NMFS in response to this request, please contact me at georgia@awionline.org and/or DJ Schubert at dj@awionline.org .---------- 1. Harris, J., J. Calambokidis, A. Perez, J. Laake, and P. Mahoney. (in prep). Recent trends in the abundance of seasonal gray whales in the Pacific Northwest, 1996-2020. NOAA Technical Memorandum, Seattle, WA.2. The Council on Environmental Quality 1978 regulations implementing NEPA (which is the version of the regulations informing the SDEIS analysis as noted in the SDEIS), specify that “[n]o material may be	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			incorporated by reference unless it is reasonably available for inspection within the time allowed for comment." 40 C.F.R. §1502.21. See also Conservation L. Found. v. F. Highway Admin., 630 F. Supp. 2d 183, 215 (D.N.H. 2007), finding that "Defendants cannot rely on the fact that they discussed the issue in the TSA to excuse their failure to directly address it in the FEIS because the TSA was not subject to public comment. CLF and other interested parties did not learn either that Defendants' failure to account for the Delphi Panel's population forecasts may have resulted in an understatement of Defendants' traffic projections by as much as thirty percent, or that the added traffic would produce a failing Level of Service south of Exit 1 and unacceptable Levels of Service between Exit 1 and Exit 3, until after Defendants released the TSA pursuant to a Freedom of Information Act request, after the close of the comment period on the FEIS. SR 913. Thus, the FEIS did not disclose sufficient information on this issue to permit meaningful public comment on either the effectiveness of the Four Lane Alternative as a traffic congestion control measure or the indirect effects that highway expansion could have on secondary road traffic and air quality issues."3.The report and associated annexes was originally published on July 12, 2022, but shortly thereafter, the report became temporarily unavailable until it was restored on July 13. While AWI had access to the report and associated annexes as of July 13 via a hyperlink in an email from the IWC announcing the availability of the report ,the public did not. AWI contacted the IWC Executive Secretary and Head of Science on July 19 to inquire as to when the report, its annexes, and associated papers would be available to the general public, including any stakeholder interested in the Makah whaling issue. The report itself did not become publicly available (via the IWC notification webpage, https://archive.iwc.int/pages/search.php?search=%21collection68&k=) until July 19, preventing anyone not registered for the SC meeting from accessing the report for the first two weeks of the current comment period.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The underlying papers that informed the conclusions and recommendations in the SC 2022 report were only made available on July 22, 2022 (see IWC notification IWC.ALL.424) at which time the IWC published a slightly revised version of the SC 2022 report.4. Many of those documents and other background documents are publicly available online at https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/makah-tribal-whale-hunt#:~:text=The%20Makah%20Indian%20Tribe%20has,gray%20whales%20(Eschrichtius%20robustus).On behalf of:California Gray Whale Coalition (United States); Centro Mexicano de Derecho Ambiental (México); Conservación de Mamíferos Marinos de Mexico México); Fundacion Antonio Haghenbeck y de la Lama IAP (México); Grupo GEMA del Mayab AC. (México); Laguna Baja Asociación Rural de Interés Colectivo (whale watching collective), San Ignacio Lagoon. Baja California Sur (México); Law of the Wild (United States); Marea Azul, AC. (México); Mario's Tour (whale watching operator), Guerrero Negro, Baja California Sur (México); MOCE YAX CUXTAL AC. (México); Museo de la Ballena Guerero Negro, Baja California Sur (México); Peninsula Citizens for the Protection of Whales (United States); Pacific Rim Association of Tour Operators, British Columbia (Canada); Producciones Serengueti (Mexico); Protectora Nacional de Animales AC. (Mexico); Reserva para la Protección de la Fauna, Flora Silvestre y de Medio Ambiente (México); Save the Whales Again! (United States); The Whaleman Foundation (United States)	
465	Coerver, Scott	7/22/22	I support the treaty secured rights of the Makah tribe to hunt gray whales. This population of gray whales is fully recovered and still increasing according to NOAA population data. There is no scientific reason to deny the Makah tribe's request. A limited harvest of gray whale will not have a population level impact Indigenou people hould not be denied their traditions or treaty rights without a justifiable cause. All data shows that	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			this population can support a sustainable harvest. Please allow the Makah to use this resource and practice the cultural traditions that they have had for thousands of years.	
466	Kroychik, Vitaliy	7/21/22	I am writing in support of the Makah tribe receiving approval to hunt whales as part of their traditional hunting practices. While there was a treaty in place granting those rights, the tribe voluntarily halted their hunts nearly 100 years ago due to conservation concern. Now that the population ha recovered to the point where traditional hunting practice can continue, it is not only correct to grant them the opportunity to continue their traditional practices but also morally right to allow those practices to start and continue with population monitoring. I would also like to note that the US government should provide protection for this activity from interference and abuse from animal rights groups which are often violent and destructive in their opposition to hunting in general. This would be no different than sitting outside and intimidating church service goers, or interfering with a fisherman by jet skiing around their boat. I would support providing the coast guard or the local marine authorities to arrest and prosecute those who interfere a hate crime.	Comment noted.
467	O'Connell, Thaddeus	8/8/22	I am stətíɬəm nəxʷsƛ̓áy̓əm̓ - a citizen of the Jamestown S'Klallam tribe. I support the Makah Tribe in their wonderful endeavor to hunt whales the way their ancestors have done for an untold many thousand of years, ie since time immemorial. It is explicitly allowed in their treaty- pursuant to the supremacy clause of the US constitution, this comment period seems like a formality. In my opinion, the Makah tribe does not need permission to hunt a whale, but they should nonetheless be granted it anyway. Whale meat has a much smaller carbon footprint than anything I could think of that you could ever buy in this globalized commodity supply chain. I raise my arms to the makah tribe for this noble quest.	Comment noted.
468	Anonymous	8/9/22	I support the Makah Tribe's ancestral right hunt Gray Whales.	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
469	Harner, Jacob	8/9/22	It is a right of the Makah, and they have been doing it forever. It is hypocritical for a western power to try to limit traditional hunting under the guise of environmentalism.	Comment noted.
470	Miedema, Ethan	8/9/22	The Makah have had their right to hunt whales protected by treaty, the highest law of the land, since their treaty with Isaac Stevens specifically mentioned whaling in 1855. It would be disgusting to even suggest undermining that crucial piece of their culture and symbol of sovereignty.	Comment noted.
471	H, W	8/9/22	The Makah people have been known to be inhabitants of the Pacific Northwest for more that 3,800 years and have been hunting and fishing the regional waters for their entire known existence as a means to sustain their lives, way of life and beliefs. We, as "modern day" people on the earth, have raped the seas of its plentiful bounties and are now trying to blame the native people of these lands for the dwindling numbers of species that are now considered at or near endangered. The hunt, of Makah people will have almost zero impact on the overall population of the North Pacific Gray Whale and therefor should be allowed to continue their natural, spiritual and historical way of life.	Comment noted.
472	Anonymous	8/9/22	It should be their right to hunt whale.	Comment noted.
473	James, Rajrf	8/9/22	I support the Makah tribes right to whale hunt.	Comment noted.
474	Dogan, Leonard	8/11/22	I believe it is the right of the Makah Nation to practice the forms of hunting that are sacred to them such as whale hunting. After being subject to genocide and loss of land, this is a minor concession that expresses the bare minimum recognition of their humanity.	Comment noted.
476	Anonymous	8/15/22	The practice of slaughtering whales for spriritual / ritualistic purposes must not be allowed. If the Makah expect to be respected as modern citizens of the world, they must not continue their barbaric ways. NOAA: Just say NO! Stop this, once and forever.	Comment noted.
477	Hansen, Cindy	8/16/22	Thank you for the opportunity to comment on the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. I appreciate the effort that went into creating a composite	Introductory comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			alternative to put forth as the preferred alternative. I am very much in support of honoring tribal treaty rights, and I am sympathetic to the cultural losses all tribes have sustained. However, I do have some concerns about the hunt as currently proposed.	
			I am concerned about a hunt being approved when the species is the midst of an Unusual Mortality Event that has already claimed an estimated 25% of the population and is still ongoing. It includes not only high mortalities among all age and sex classes but also drastically decreased birth rates. We do not know how long this event will continue, what the final population numbers will be when it's over, and what the overall impacts will be to the Pacific Coast Feeding Group and Western Gray Whale sub-populations. If the UME is related to the impacts of climate change, it is likely only a matter of time until a similar event happens again, perhaps before the population has completely recovered. I ask you to take all of this into account in your final decision, and if a hunt is ultimately approved, that the ENP Abundance Threshold is set at c) N=18,000, as described in the DEIS.	See Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UMESee also Section 3.4, Affected Environment-Gray Whales, and Section 4.4, Environmental Consequences-Gray Whales, of the FEISWith respect to the low abundance threshold, the comment is noted.
			I request that a section be added to the DEIS incorporating information about the "Sounders" or North Puget Sound gray whales, who do not appear to have been included in the document. The Sounders are a unique group of gray whales that, according to Cascadia Research Collective, originally discovered feeding areas in North Puget Sound during a past Unusual Mortality Event and other times of depleted food resources. Some of them have been returning to Puget Sound since 1990, and with another UME underway, new individuals have come in and joined the Sounders. Not only are the Sounders feeding here together but they are also interacting with one another and may even have established long term bonds. These whales are named, known as individuals, and beloved by thousands of people in Puget Sound and beyond. In normal non-UME years, the Sounders would be arriving in Puget Sound beginning in February or March and the last whales would typically leave by the end of	See Appendix C Responses to Frequent and Substantive Comments #21-Managing Sounders as a separate population

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			May During the current UME they are spending more time here on average, and in a few cases have even remained during the winter instead of migrating. As they depart Puget Sound to either continue their migration to the Arctic feeding grounds or join the PCFG, their travels may place them in the hunt area during any of the proposed timings. I ask you to please take this population under consideration in your final decision and make sure there are safeguards in place, perhaps through coordination with researchers and sighting networks, to protect them from a hunt.	
			Gray whales are known and loved by people all along their migration route, from Baja to Alaska, and a hunt, no matter how small the take, is going to cause great emotional distress to many, particularly those who have come to know some of these animals as individuals with unique personalities I ask you to please be considerate of this and take it into account much as possible. I would like to state again that I am supportive of honoring tribal treaty rights, and I realize that what I am asking may create challenges in accomplishing this. If the Makah are amenable to this, I would be fully supportive of negotiations to compensate them for whales not taken due to some of the safeguards I am suggesting Thank you for your time and consideration.	Comments regarding the connection people have to gray whales is noted.See Appendix C Responses to Frequent and Substantive Comments #9-Non-lethal action alternatives
478	Friends of Animals	8/16/22	Friends of Animals (FoA)1 submits this comment on Supplemental Draft Environmental Impact Statement Regarding the Makah Tribe's Request To Hunt Eastern North Pacific Gray Whales, 87 Fed. Reg. 39804. After careful review of the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (SDEIS), as well as other pertinent studies and reports, Friends of Animals (FoA) concludes that the information and conclusions published in the SDEIS are inadequate to justify granting the request. Friends of Animals recommends that the request be denied. The SDEIS says that the legal justification for Makah hunting of eastern	See Appendix C Responses to Frequent and Substantive Comments #8-Treaty of Neah Bay. See Appendix C Responses to Frequent and Substantive Comments #9-Non-lethal action alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			North Pacific gray whales (Eschrichtius robustus) lies in the 1855 Treaty of Neah Bay which "expressly secures the Tribe's right to hunt whales." Friends of Animals has reviewed that treaty and discovered the referenced provision in Article 4, which says "The right of taking fish and of whaling or sealing at usual and accustomed grounds is further secured to said Indians in common with all citizens of the United States." Times have changed, and all citizens of the United States today do not have the right to hunt whales. The treaty's text binds the Makah rights to those of all U.S. citizens. This binding became more complete with the 1924 passage of the Indian Citizenship Act, which extended US citizenship to Native Americans. This precludes the U.S. Government from granting any waiver to the Marine Mammal Protection Act that is not also applicable to all U.S. citizens. Friends of Animals further understands that the human welfare provisions of Article 11 remain valid, and the U.S. Government is indeed obligated to provide support to the Makah, preferably with an updated 2022 appreciation of the intent of this article. Modern living has caused certain traditional practices to be abandoned – for example, Article 12 of the Treaty includes agreement that all slaves be freed. Whaling is another traditional practice that must be abandoned. It is proper, however for the U.S. Government to fairly compensate the Makah for having to forfeit traditional whaling. ---------- 1. FoA is an international animal rights organization incorporated in the state of New York since 1957 with roughly 200,000 members worldwide. FoA and its members seek to free animals from cruelty and exploitation around the world and to promote a respectful view of non-human animals, both free-living and domestic. Our goal is to free animals from cruelty and institutionalized exploitation around the world.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			There are many traditional practices that society has had to abandon for various compelling reasons. Friends of Animals is headquartered in Connecticut, which once counted whaling as an important part of its economy. But concerns about endangerment and biological diversity, as well as the welfare of the individual whales themselves, have forced a closure of the whaling industry, and the conversion of some remaining whaling infrastructure to a museum. Other traditional practices, from segregation to child labor to corporal punishment have been discontinued in light of evolving social understanding and needs. The simple fact that an activity is "traditional" does not make it immune from being abandoned to meet modern ethical and practical norms.	See Appendix C Responses to Frequent and Substantive Comments #3-Makah Tribe's desire to revive its whaling traditionSee Appendix C Responses to Frequent and Substantive Comments #1-Potential for a hunt to cause pain or suffering to whales
			Turning to the merits of the SDEIS itself, the Statement proposes a "seventh alternative" to address the Makah request. But FoA concludes that the seventh alternative is no better than any of the other hunting options. The only attractive alternative is to prohibit killing whales. Friends of Animals seeks denial of the request because the arguments posited in the original Statement, as well as in the present Supplemental Statement, do not provide persuasive reasoning for waiving the provisions of the Marine Mammal Protection Act. Justification has not been made. Further, the present Supplemental Draft, like the original, is burdened by far too many qualifiers such as, "would depend on", "would probably limit", "should", "most likely", and "could be." This gives the sense that the authors are not fully confident in a document identified as a "Statement." Such qualifiers are scattered throughout the document, and on occasion become alarming. For example, in item 5.1.1 (page 94) there is a passage that says, "Therefore we continue to conclude that because whales are long-lived animals and take 6 to 12 years to mature it may take a long time to detect if Alternative 7 is affecting any whales as expected under	Comments on Alternative 7 noted. There is often a degree of uncertainty associated with scientific analyses and assessment of future effects of an action. Terms such as those cited in the comment are used to reflect the level of certainty with the statements made. This does not meant that we are not confident with those statements but rather that we acknowledge that, in some cases, there is some level of uncertainty..

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			current harvest models." "It may take" introduces an element of uncertainty within the anticipated consequences of the whale hunt. The possibility that the hunt will irreparably harm the entire whale population and place them on a path to extinction before the impacts of hunting have been detected further demonstrates that the request to hunt whales should be declined.	
			In addition, Friends of Animals objects to the use of stainless steel harpoons and .50 caliber rifles in the killing of gray whales. Steel harpoons are infamous for their cruelty. The .50BMG bullet is a weapon of war developed more than a century ago. It was designed to shoot enemy soldiers, not 40 ton whales. Both weapons depend greatly on accuracy. But accuracy is compromised when attempting to target a moving whale from a small boat that is constantly rocking with the sea. These weapons are feeble, inaccurate and constitute a barbaric torture that too often results in the protracted agony of a dying whale. The Hague and Geneva conventions prohibits the use of such weapons known to cause gratuitous suffering. If society can protect aggressive enemy soldiers from cruel weapons, why should we tolerate the use of similar weapons against innocent marine mammals? As recently as September, 2018, the International Whaling Commission has expressed its concerns with non-exploding harpoons, and this may be referenced at IWC/67/REP/04.	See Appendix C Responses to Frequent and Substantive Comments #1-Potential for hunting to cause pain or suffering to whales
			Friends of Animals draws attention to a special CNN report "Gray whales are dying along the Pacific coast" by Daniel Wolfe, published on 16 March 2022.2 This report provides an alarming review of the multiple hazards faced by gray whales in the Pacific: • There have been more than 500 strandings in recent years, and these are believed to be "a fraction of the many thousands that likely died and sank to the ocean floor." • There has been a 24% decline in the number of eastern North Pacific	See Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME See also Section 3.4, Affected Environment-Gray Whales, and Section 4.4, Environmental Consequences-Gray Whales, of the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whales since 2016 • The number of calves observed has declined significantly. • There are observations of emaciation and speculation that climate change may have adverse impact on the whales' nutrition. And there are multiple other factors that indicate the gray whales of the eastern North Pacific are facing a crisis. Imposing additional mortality at this time would be a gesture of contempt toward the whales and toward the majority of American citizens. Much of this data is also available in the SDEIS. After reviewing the data, the SDEIS concludes (p. 96) "therefore, additional mortality resulting from the hunt would not have a discernable impact on the stock's abundance." Dismissing hunt mortality in this manner is unscientific and tendentious. Each fatality that can be counted is indeed "discernable" – that's why scientists like to keep accurate numbers. It is important to keep in mind that gray whales are subject to a variety of fatalities, from entanglement and ship collisions to strandings, climate change and toxic spills. They all must be counted to achieve appreciation of factors impacting abundance. Hunting is different only in the fact that it is intentional and easily preventable. --- 2 Available from https://www.cnn.com/interactive/2022/03/climate/gray-whale-pacific-arctic-climate-change/.	
			Friends of Animals is disappointed with the mind-set behind section 4.12 "Aesthetics" of the SDEIS. Where the no-hunting alternative is seen to "have adverse aesthetic effects on interested observers who desire to view a hunt." (p. 88) Any NOAA employee who holds there is legitimate aesthetic appreciation to viewing the intentional killing of whales with	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			primitive weapons is absolutely out-of-touch with contemporary American values. This type of thinking is vulgar.	
			Moreover, the SDEIS fails to consider the growing body of evidence demonstrating the complex social structures and cultures in whale populations, as well as variations among individuals. 3 This information is critical to understanding the impacts of a whale hunt. Section 4.4.1 of the SDEIS employs five criteria to determine the potential effects of the proposal on the gray whales. The first four criteria address quantifiable matters such as abundance and viability of populations. The fifth criteria involves "welfare of individual whales." The fifth criteria is not addressed because "the method of approaching, striking and killing whales has not changed, nor have the related estimates of time to death and hunting efficiency." This is not the hard look required by NEPA. Not only does it sidestep an issue that is of very significant importance, particularly to Americans who have interest in whale conservation and welfare, it also ignores the intrinsic value of each whale and their importance to the conservation of the species. The SDEIS ignores the individual variation and sociality of whales, which are important considerations for conserving marine mammal populations.4 Given the complex social interactions and cultures of marine mammals, "removals can have a greater impact on social and population dynamics than predicted by models in which individuals are assumed identical and interchangeable."5 Human hunts can destroy social bonds and fragment important social groups. This can have lasting impacts on individuals and entire populations, especially given the myriad of other threats that gray whales are currently facing including ship strikes, entanglement and by-catch, underwater noise, pollution, and habitat loss. --- 3 See Brakes, P., Rendell, L. (2022). Conservation Relevance of	Subsection 4.4.1, Gray Whales-Introduction, of the FEIS evaluates the potential for the alternatives to affect gray whales on a range of scales from individual animals to the stock. The 5th criteria is analyzed in the 2015 DEIS, and the analysis in DEIS applies, as noted in 4.4.1, to the alternatives in the SDEIS. We have considered the references provided, and it does not provide additional information on gray whales which would inform the decision.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Individuals and Societies. In: Notarbartolo di Sciara, G., Würsig, B. (eds) Marine Mammals: the Evolving Human Factor. Ethology and Behavioral Ecology of Marine Mammals. Springer, Cham. https://doi.org/10.1007/978-3-030-98100-6_3; Garland, E. C., & Carroll, E. L. (2022). Culture and Social Learning in Baleen Whales. InEthology and Behavioral Ecology of Mysticetes(pp. 177-191). Springer, Cham. 4 Brakes, supra note 3. 5 Id. at 104.	
			Page 89 of the SDEIS makes reference to "protests and ensuing law enforcement responses" linked to any whale hunting. Why would NOAA endorse whale killings that it anticipates would provoke such protests?	The FEIS is an analysis, not endorsement, of' alternatives to inform decision-making.
			Friends of Animals is further disappointed by the omission of reference to certain reports of poaching and cruelty. For example, in neither the SDEIS nor in the DEIS do we find reference to the newspaper report "2 Makahs get jail time for killing whale" (by Lynda V. Mapes, Environmental Reporter for Seattle Times, June 30, 2008). This article reports a poaching incident involving five Makah tribe members. That report says, in part: "In September, the five men killed a gray whale in the Strait of Juan de Fuca, shooting it at least 16 times and sinking at least four harpoons into its flesh. The animal bled for some 12 hours before dying and sinking to the bottom." The duration of agony described in this report appears to be at odds as to the rapid deaths promised by the "experts." Friends of Animals is skeptical about there being even a modicum of concern about the suffering of gray whales should this proposal be accepted. FoA has seen such evasiveness before.	This incident is included in Subsection 1.4.2 of the DEIS and is included in the FEIS. See Appendix C Responses to Frequent and Substantive Comments #1-Potential for a hunt to cause pain or suffering to whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Friends of Animals has had numerous involvements on issues concerning the conservation and management of marine mammals. One of the most enlightening was the campaign to stop the U.S. commercial hunt of Northern fur seals (Callorhinus ursinus). Prior to 1979, FoA had relied upon U.S. Government reports, mostly from the Department of Commerce, that assured citizens that the seals were being managed in a conservation-sensitive and sustainable manner, and the government-administered hunts were conducted humanely. In 1979, FoA sent a team to the Pribilof Islands of Alaska to document the conservation-sensitive, sustainable and humane seal "harvest." FoA witnessed and documented a bloodbath. U.S. Government contractors herded "pods" of several dozen adolescent male seals inland, using metal noise makers, shouting and aggressive gestures. The pace was intense for the seals and they soon demonstrated evidence of exhaustion. Thus weakened, the government contractors surrounded the seals and then bludgeoned them with long wooden poles. The fortunate ones received a sharp blow to the skull which rendered them unconscious. But many were not so fortunate. Blows fell on their spines, shoulders, flippers and faces. Most required repeated blows to knock them out. Unconscious and semi-conscious adolescent seals were then rolled on to their backs and stabbed in the chest. This was soon followed by teams of workers who cut a series of incisions into the seals' bodies, facilitating the tearing of the pelt from the carcass. There was no effort to assure the seals were truly dead when their pelts were ripped from them. Multiple thousands of seals were killed in this horrifying manner. Friends of Animals then campaigned vigorously to have the commercial killing of Northern fur seals stopped. These efforts were rewarded five years later when, in 1984, the U.S. Government discontinued the killing. Four years later, in 1988, the U.S. declared the Northern fur seal "Depleted" within the context of the Marine Mammal Protection Act. That designation remains valid today. The Northern fur seal is also listed as "vulnerable"	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			under the Endangered Species Act. Friends of Animals is unaware of any agency or persons having been held accountable for imposing outrageous cruelties upon the seals. Nor has there been acknowledgement that the mismanagement of the population led to its depletion status. In retrospect, it is clear that U.S. Government apologists for the seal hunt were less than candid when they insisted that the management policies were conservation-sensitive, sustainable and humane.FoA hopes the hard lessons of 1979 no longer apply. But, upon study of the provisions of the 1855 Treaty, and reading the SDEIS, with all of its qualified language, emphasis on data (much of which seems inconsequential) and dearth of information concerning what cruelties would be borne by the whales.	
			It is the opinion of Friends of Animals that the SDEIS is scientifically weak and does not constitute a persuasive basis for granting the Makah request to hunt whales. Friends of Animals is also of the opinion that the 1855 Treaty of Neah Bay binds the rights of the Makah with those of all U.S. citizens on matters involving whale hunting, with no provision for granting any separate waivers. Consequently, the Makah request should be denied.	We disagree tha the SDEIS is scientifically weak. See Appendix C Responses to requent and Substatinve Comments #8-Treaty of Neah Bay.
479	Lewis, Sammarye	8/23/22	I write to the imminently oppose Makah request to slaughter whales. This is 2022, not 1822, and there is no valid reason to hunt these sentient beings. Just because a group might have the right to brutally kill whales, does not make it the right thing to do. It is morally and ethically wrong to kill these whales. The subsistence excuse is no longer valid in 2022. When you have a McDonald's on the corner, and supermarkets to provide food it belies the subsistence excuse. To claim culture and tradition for brutal killing, using speed boats and high caliber automatic weapons, is a farce. There is no culture nor tradition using modern weaponry. Cannibalism was once culture and tradition, until awareness and morality put a stop to it. Food source? If money is available to buy expensive boats and weapons,	See Appendix C Responses to Frequent and Substantive Comment #1 -Potential for a hunt to cause pain or suffering to whales and #3-Makah Tribe's desire to revive its whaling tradition.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			then money is available to buy food. It brings this request to brutally and cruelly slaughter whales down to what it really is: thrill killing.	
480	Burdet, Kevin	10/6/22	The Makah Tribe is more tuned to its environmental impact as a people with its unique culture than the United States and NEPA. The EIS was developed for US agencies because our federal government, and most of our institutions, are focused on commerce, which often clashes with maintaining the natural environment, as well as culture, and unfortunately, human well-being. Allowing the Makah Tribe to hunt whales as they have traditionally, would bring reconciliation after gray whales, an integral part of their identity, have thankfully returned to natural carrying capacity once laws stopped non-indigenous societies from whaling them to extinction. As a sovereign entity with Treaty Rights, the Makah Tribe should not have had to wait so long to return to their traditional practices that they eagerly wish to reclaim. I am an environmentalist, and when I hope for the future of the natural world around us, there is no better approach than the one that existed and preserved it for thousands of years: the indigenous-led approach. Although I am not an expert, I do believe that the significance of allowing the Makah Tribe to return to their traditional practices will be far more significant than any impact on the environment. Please consider that there is great benefit beyond other alternatives that do not allow for the Makah Tribe to hunt gray whales. Thank you.	Comment noted.
481	AWI	10/7/22	On behalf the undersigned organizations, the Animal Welfare Institute (AWI) respectfully requests a second, limited extension (as detailed below) in the deadline for public comments on the Draft Supplemental Draft Environmental Impact Statement on the Makah Tribe's Request to Hunt Gray Whales (DSEIS). 87 Fed. Reg. 39,804 (July 5, 2022). If granted, the new deadline for comments would be October 31, 2022.AWI notes, with appreciation, the decision by the National Oceanic and Atmospheric Administration/National Marine Fisheries Service to extend the original	See Subsection 1.5.3 for a summary of the public comment process, including extensions granted, on the DEIS and SDEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			deadline by 60 days until October 14, 2022. 87 Fed. Reg. 50,319 (Aug. 16, 2022). Despite this extension, as a result of new information obtained by AWI, and concerns about the accuracy of information contained in a recently published report (Harris et al. 2022), it is imperative for the benefit of all interested stakeholders that NOAA/NMFS provide an additional, abbreviated extension to the comment period. This extension, if approved by NOAA/NMFS, would provide additional time to ensure that all substantive information relevant to the analysis contained in the DSEIS and the decision to be made, is available to the public and that there is sufficient time for stakeholders to review and analyze the documents and tomincorporate their findings into informed comment letters.1. Additional time is warranted to permit careful review of Harris et al. (2002) before the end of the comment period In its previous request for an extension (dated July 22, 2022) (attached), AWI raised concerns the unavailability of a report, Harris et al. that is repeatedly cited in the DSEIS but which, at the time the DSEIS was published was "in prep." On September 27, NOAA/NMFS finally made available an electronic version of this report,1 and on September 29, emailed some stakeholders notifying them of the report's availability. Regrettably, in doing so, NMFS has allowed the public approximately only two weeks to review and analyze the content of this report before current comment deadline. Such a limited timeframe is insufficient to ensure that interested stakeholders can properly review and assess the information for incorporation into substantive comments.2. New reports on gray whale population abundance estimates and estimated gray whale calf production are currently unavailable and warrant public review during this comment period because they are directly applicable to the analysis contained in the DSEIS. It has also come to the AWI's attention that two additional reports, directly applicable to the analysis contained in the DSEIS, are pending publication. These reports include a new gray whale population abundance estimate based on 2022 southbound migration	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			counts from Granite Canyon in California as well as a new report on estimated gray whale calf productions based on survey data collected from Piedras Blancas, also in California. Both of these surveys were referenced in the 2022 report of the Scientific Committee of the International Whaling Commission. 2 AWI was initially informed on 10 August 2022 that these reports would be published "at any moment"3 and subsequently was told by a NMFS scientist on 24 September that the reports should "be out in a week or two."4 Noting that the DSEIS was published, in part, to provide analysis of: a) the ongoing gray whale Unusual Mortality Event; b) the approximately 24 percent decline in the number of gray whales between 2016 and 2020; and c) the inclusion of minimum abundance thresholds in the DSEIS, having access to these two new NMFS reports prior to the end of the comment period is crucial so that this information can be incorporated into informed and substantive comments. This information is not peripheral to the analysis but, rather, is directly relevant to the assessment of environmental impacts and the decision to be made at the conclusion of this decision-making process. As the National Environmental Policy Act requires agencies to base their analyses on high quality scientific information and to fully disclose such information, it is critical that these two reports be published before the current comment period on the DSEIS closes.3. Details of Extension RequestFor the foregoing reasons, AWI requests a minimal 17-day extension in the comment deadline until October 31, 2022. As part of this request, AWI asks NOAA/NMFS to ensure that it expedite completion of both the new gray whale population abundance estimate and calf recruitment reports so that they are published by no later than October 20, 2022. Should these reports not be published by October 20, 2022, AWI respectfully requests that NMFS again revise the comment period to allow for a minimum of 17 days for public review following their publication date. Should the publication dates for each report differ, we request that NMFS base the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			deadline extension on the latest publication date. Extending the comment deadline and ensuring that all relevant information is available for review and analysis will benefit all stakeholders interested in the DSEIS regardless of their perspective on whaling by the Makah tribe.Thank you in advance for considering this request. Should you have any questions about this request and/or to inform AWI of the decision made by NMFS in response to this request, please contact DJ Schubert at dj@awionline.org. 1 Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022. Recent trends in the abundance of seasonal graywhales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115. Available at: https://media.fisheries.noaa.gov/2022-09/harris-et-al-2022.pdfAFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115. Available at: https://media.fisheries.noaa.gov/2022-09/harris-et-al-2022.pdf2. Available at https://archive.iwc.int/pages/search.php?search=%21collection73&k= (see page 63).3 Email communication with Alisa Schulman-Janiger of the American Cetacean Society regarding her discussions with a NOAA official regarding the publication of the two reports. 4 This NMFS scientist has asked not to be named in this letter.On behalf of: California Gray Whale Coalition (United States); Conservación de Mamíferos Marinos de Mexico (México); Fundacion Antonio Haghenbeck y de la Lama IAP (México)Green Vegans – The New Human Ecology (United States); Grupo GEMA del Mayab AC. (México); Law of the Wild (United States); Marea Azul, AC. (México); Peninsula Citizens for the Protection of Whales (United States)Pacific Rim Association of Tour Operators, British Columbia (Canada); Producciones Serengueti (Mexico); Protectora Nacional de Animales AC. (Mexico); Save the Whales Again! (United	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			States); The Whaleman Foundation (United States)"Attachment: July 22 Request for extension	
482	Makah Indian Tribe	10/13/22	The Makah lndian Tribe (Makah or Tribe) submits the following comments on the Supplemental Draft Environmental Impact Statement (SDEIS) prepared by the National Marine Fisheries Service (NMFS) as part of the agency's ongoing review of the Tribe's 2005 request for a waiver of the Marine Mammal Protection Act (MMP A) to conduct ceremonial and subsistence hunts of Eastern North Pacific (ENP) gray whales pursuant to Makah's express treaty whaling right under the 1855 Treaty of Neah Bay. The Tribe appreciates that the SDEIS was released for comment within the timeframe outlined by NMFS in December 202 1 and, notwithstanding the 60-day extension of the public comment period, looks forward to the ultimate decision on the waiver by the NMFS Assistant Administrator in early 2023. A decision in February 2023 would be 18 years after the Tribe submitted its request, during which time a generation of Makahs has effectively been denied the ability to exercise the right secured by the Treaty and deprived of the many benefits for the Makah people that the Treaty was intended to protect. The Tribe’s comments are organized into two parts. First, we provide general comments that, in some situations, are accompanied by specific recommendations on new or modified text that would more accurately reflect the underlying data or clarify NMFS’ explanations and analysis. In the second part we provide technical and line edit corrections where we identified errors in the SDEIS. Finally, we attach the November 13, 2021, Comments of the Makah Tribe on the Administrative Law Judge’s (ALJ) Recommended Decision (ALJ Decision Comments) for reference because	We note the background and introductory information.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			we incorporate parts of those comments in the Tribe's comments on the SDEIS.	
			General CommentsPages 6-12 (2.1 Alternative 7 (Composite Alternative – Preferred). The summary of key provisions of the Preferred Alternative indicates that this alternative was developed, in part, based on elements of the recommended decision of ALJ George J. Jordan. However, the SDEIS does not specifically identify how this alternative is different from NMFS' proposed waiver that was the subject of the November 2019 ALJ hearing. We recommend that NMFS include in Chapter 2.1 a summary of substantive changes to the proposed waiver reflected in the Preferred Alternative. This would improve the transparency of the SDEIS for the public and agency decisionmakers and achieve one of the purposes for preparing the document, namely "to address the ALJ's recommended decision and corresponding public comments." SDEIS at iii (Executive Summary).	The Preferred Alternative is described in Subsection 2.3.7 of the FEIS and includes measures from ALJ Jordan's recommended decision, such as a low abundance threshold for ENP gray whales and a requirement that the Makah Tribe obtain incidental take authorization for WNP gray whales during any winter hunt. These are the most significant changes from the regulations NMFS proposed in 2019, and they are described in the FEIS.
			Page 9 (2.1.2 Timing of Hunt (Seasonal Restrictions)). Makah emphasizes NMFS' suggestion that the agency "could remove ... language" from the proposed waiver assigning winter-spring hunts to even-numbered years and summer-fall hunts to odd-numbered years. The Tribe welcomes this suggestion as a means to increase flexibility in implementing a final waiver decision and avoid further delays in the Tribe's exercise of its treaty whaling right. Further, Makah agrees with NMFS' observation that the assignment of alternating hunt seasons to even or odd years is not based on conservation, and further notes that it is not a requirement of the MMPA.	We note the Makah's support of the winter-spring and summer-fall hunt language.
			Page 11 (2.1.8 Age, Sex, and Reproductive Status). The SDEIS incorrectly states that the Tribe's waiver request proposed a prohibition on approaching a calf or a whale accompanied by a calf. See February 11, 2005, Application for a Waiver at 2, 17, 34 (addressing prohibition on striking a calf or whale accompanied by a calf).1The Tribe disagrees with the Preferred Alternative's inclusion of a prohibition on approaching	We have corrected the language in the FEIS on approaching a calf or whale accompanied by a calf. We note the Tribe's disagreement with the prohibition on approaching calves and adults accompanied by a calf.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			calves and adults accompanied by a calf, and we described the reasons for this objection at length in comments on the ALJ's recommended decision. See ALJ Decision Comments (attached) at 7-11. Those comments are incorporated here by reference.----------1 https://media.fisheries.noaa.gov/dam-migration/2005-makah-application.pdf.	
			Page 22 (2nd paragraph - NMFS Stock Assessment Report for ENP Gray Whales). This section describes multiple evaluations of the Makah hunt by the International Whaling Commission (IWC) as reported in NMFS' stock assessment report (SAR) for ENP gray whales. It notes that the IWC reviewed the Makah hunt management plan and "concluded that levels of harvest and other human-caused mortality are sustainable given the population abundance." The Tribe agrees that the proposed hunt plan, as evaluated by the IWC Scientific Committee, is "sustainable," especially given its scope and impacts in relation to the ENP population as a whole. We also support NMFS' reliance on the IWC's scientific review of the hunt, which forms a strong basis for approving the waiver because the IWC's conservation objectives are equivalent to the MMPA's core conservation objective of maintaining (or achieving) a stock's optimum sustainable population (OSP). See ALJ Decision Comments at 3 (citing ALJ's Recommended Decision at 93 n.25); see also SDEIS at 73 (final paragraph) (citing IWC Scientific Committee's conclusion that ENP and PCFG populations would remain "at or above the level resulting in the highest net recruitment").2 However, where the SDEIS refers to the IWC Scientific Committee's evaluation of and conclusions regarding the Makah hunt, we recommend that, in addition to informal descriptors such as "sustainable," NMFS include the Scientific Committee's formal determination that the hunt	We have included the following statement in Subsection 3.17.3.2.2, Aboriginal Subsistence Whaling, of the FEIS. "The SC concluded that the Management Plan met the IWC's conservation objectives for ENP, WNP, and PCFG gray whales."

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			meets the IWC's conservation objectives for ENP, WNP and PCFG gray whales. See SDEIS at, e.g., 5, 12, 40. --- 2 "[T]he [population] level resulting in the highest net recruitment," SDEIS at 73, is equivalent to the "population level that results in maximum net productivity[,]" which is defined as the lower bound of OSP, 50 C.F.R. § 216.3 (definition of OSP); see also 16 U.S.C. § 1362(9) (same). 3 Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022.	
			Page 28 (PCFG Seasonal Distribution, Migration, and Movements) and elsewhere. Throughout the SDEIS, NMFS relies on Harris et al. (in prep) for updated information on the abundance and mixing rates of the Pacific Coast Feeding Group (PCFG). This paper was made available to the parties of the ALJ hearing by email and posting to NMFS' website for the Makah hunt on September 28, 2022.3The Tribe expects that NMFS will carefully review the final Harris et al. paper and confirm that all data, analysis, and conclusions cited in the SDEIS are consistent with the final processed report. --- 3 .Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022. Recent trends in thendance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.	We reviewed Harris et al. (2022). The data, analysis, and conclusions in the SDEIS and FEIS are consistent with the final processed report.
			Page 40 (final paragraph - 3.3 National and International Regulatory Environment). We recommend that, in addition to describing the IWC Scientific Committee's review of the Makah hunt plan in 2018 and the Aboriginal Subsistence Whaling (ASW) Sub-Committee's review and endorsement of the Scientific Committee's report and recommendations, the SDEIS add that the IWC "endorsed the results, conclusions and recommendations of the ASW Sub-committee and the [Scientific	We have included the following statement in Subsection 3.17.3.2.2, Aboriginal Subsistence Whaling, of the FEIS. "The SC concluded that the Management Plan met the IWC's conservation objectives for ENP, WNP, and PCFG gray whales."

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Committee].” Chair’s Report of the 67th Meeting (IWC 2018) at 12-13 (Section 8.2, Aboriginal Subsistence Whaling Management Procedure (AWMP)).4 --- 4 https://archive.iwc.int/pages/view.php?ref=7592&k=	
			Page 47 (2nd paragraph - Potential Number of ENP Whales Killed and Harvested), page 49 (Table 4-3), and several other locations.5 The summary text provides the average and maximum harvest numbers, then states that “this equates to 0.0002% of the ENP gray whale population.” The clarity of this sentence could be improved in multiple ways. First, it is unclear whether “this” refers to the average or maximum annual number of harvestable whales in the preceding sentence.Second, we strongly recommend that percentages – especially the very small ones calculated for the probability of taking whales – be reported to two significant digits. Here, for example, an average of 4 whales per year out of a population of 20,580 is equal to 0.019% (not 0.0002% as the SDEIS reports) after rounding to two significant digits.6 Describing the percentage as 0.0002% (or even 0.02%) likely obscures the effect of rounding to a single digit. A particularly notable instance of rounding that obscures the underlying data occurs at pages 72-73 where the text (page 72, final paragraph) reports different rounded percentages for two calculations, while the corresponding table (page 73, Table 4-12) shows very similar percentages when two significant digits are used. It would also improve clarity to include an explanation in the text of the figures used for the calculation, e.g., a parenthetical could be added to Page 47 (2nd paragraph) along the lines of “(4 whales out of a population of 20,580 equals 0.019%)”.As with the summary text that reports a single digit, some of the tables also report important information to a single digit, they but do so inconsistently. We recommend that all calculation results – especially those regarding numbers of strikes – be reported to two significant digits. For example,	We have clarified the summary text in the FEIS.We have updated the FEIS to report to two significant digits, where appropriate. We note Makah's agreement with the conclusions described in the comment.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Table 4-3 (page 49), reports the annual number of WNP strikes as "0.04," rather than 0.035. The latter, more precise figure should be used, consistent with the use of two significant digits across the WNP row (and all other rows in the table).7 Indeed, the corresponding cell in Table 4-8 (page 57) does include two significant digits for the estimated annual number of strikes on WNP whales under Alternative 5 ("0.025").Makah agrees with the conclusion of the paragraph on page 47 indicated above that the level of ENP mortality under the alternative in question "would have no discernable effect on the ENP stock's abundance or rate of growth, and no effect on the stock's abundance relative to OSP." The Tribe similarly agrees with the same conclusion reached by NMFS for the five remaining action alternatives, including the Preferred Alternative. See SDEIS at 48, 50, 53, 55, 58, 63, 66.The Tribe also agrees with similar conclusions regarding the impact of the Preferred Alternative on WNP and PCFG whales. See page 74 (1st paragraph: "Alternative 7 and its sub-alternatives are not expected to have a detectable impact on the abundance or viability of WNP whales"); (2nd paragraph: "it is unlikely that the death of one to two whales per year would result in a detectable decrease in the abundance of the PCFG").	
			---------- 5.The following citations implicate one or more of the concerns expressed in this comment: page 49 (final paragraph); page 53 (2nd paragraph), page 55 (2nd paragraph); page 58 (2nd paragraph); page 59 (2nd paragraph); page 6 (Table 4-10); page 63 (1st paragraph – two items); page 66 (Table 4-11 – four items); page 72 (final paragraph – three items); page 96 (final paragraph). 6. Makah acknowledges the new ENP gray whale abundance estimate reported in Eguchi et al. (2022) and, as with Harris et al. (2022), expects that NMFS will reflect this new data throughout the SDEIS. For example,	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			4 whales per year out of a population of 16,650 (based on the updated abundance estimate) is equal to 0.024% (0.00024). 7. The following tables include data reported to only one significant digit where two should be presented: Page 60 (Table 4-10); page 66 (Table 4-11 – four items).	
			Page 48 (1st paragraph) and page 49 (Table 4-3 (PCFG % estimate and footnote e)); see also pages 52 (Table 4-5), 57 (Table 4-8), 60 (Table 4-10), 66 (Table 4-11), 77 (Table 4-13), and text throughout the SDEIS. For some time, the Tribe has been concerned with the calculation of mixing rates for PCFG whales, i.e., the proportion of gray whales encountered during the winter-spring season that are PCFG whales. Those concerns extend to NMFS' use of mixing rates in the SDEIS. The first concern relates to processing of the Cascadia Research Collective (CRC) catalog for PCFG whales in recent years (2016-2020) when not all of the whales photographed in the winter-spring were compared to the CRC catalog. Instead of comprehensive matching, effort was prioritized to identify matches with easily recognized PCFG whales. As a result, the reported mixing rate is biased high, thereby increasing the proportion of PCFG whales for purposes of the calculations in the tables identified above and use for other purposes. Makah appreciates that this concern was recognized by Harris et al. (2022) ("However the data between 2016 and 2020 was selectively processed for PCFG individuals which results in a known bias in the simple aggregate mixing rates during the winter/spring in these later years."). Harris et al. report mixing rate estimates from Calambokidis et al. (2019) and the more recent, selectively processed dataset for comparison. Makah recommends that NMFS report only the unbiased estimates from Calambokidis et al. (2019) in the final SDEIS and use these estimates of mixing rates as the basis for its calculations.The Tribe's second concern relates to the apparent calculation of the mixing rate based on only whales	While the SDEIS used the recent mixing proportions, the FEIS notes that "Although Harris et al. (2022) used the same methods as Calambokidis et al. (2019) to update these mixing proportions with data from 2017 to 2022, these data were selectively processed in a manner which resulted in a known bias. Therefore, Harris et al. (2022) recommend relying on the previous mixing proportions until future reporting is complete." Thus, the FEIS relied on the mixing proportions in Calambokidis et al. (2019) (see Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements).Calambokidis et al. (2019), like Harris et al. (2022), rely on survey data from March through May to calculate the mixing proportion of PCFG whales in the hunt area during the spring migration season. This method for calculating the mixing ratio used to estimate the likely number of PCFG whales struck, subjected to unsuccessful harpoon attempts, and approached during the winter/spring hunt season is described in Subsection 4.1.2.3, Potential Number of ENP and PCFG whales Killed, of the DEIS and FEIS. This is not a new method introduced by Harris et al. (2022).

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			seen in the spring (March-May), rather than including whales observed in winter (December-February). This change is not warranted because the Preferred Alternative would authorize hunting in some years in the winter, and data regarding whale observations in that season are therefore relevant and should be included in determining the mixing rate for the winter-spring season.	
			The Tribe's third concern relates to the use of whales in the CRC catalog seen only once in the PCFG area in the summer-fall season for comparison with whales seen in the winter-spring season to determine the mixing rate. There are multiple problems with this approach. First, it deviates from the definition of PCFG whales adopted by the IWC and NMFS, which requires a whale to be sighted in the PCFG seasonal range in more than one year. Introducing another (non-IWC, non-NMFS) definition for the PCFG (at least for purposes of calculating mixing rates) seems likely to lead to confusion and potential difficulty in implementation of the waiver. Second, and more significantly, there is no need to apply the more conservative approach for mixing rates in the SDEIS when the hunt has previously been demonstrated to meet the IWC's stringent conservation objectives using the IWC definition for the PCFG to determine mixing rates. The SDEIS explains that "this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range." SDEIS at 49 (Table 4-3, footnote e).8 However, the IWC Scientific Committee's evaluation of the Makah hunt in 2018 used a mixing ratio that was informed by the proportion of PCFG and non-PCFG whales based on the IWC's definition for the PCFG, and concluded that the hunt met the IWC's conservation objectives for the PCFG. NMFS relies on the IWC Scientific Committee's evaluation to support the agency's conclusion that the proposed hunt will ensure that the PCFG remains viable over time. See SDEIS at 75 (1st paragraph). The difference between the proposed approach in the SDEIS	The IWC's review of the hunt management plan included the assumption that any unidentified struck whale in the summer months would count as 1 PCFG whale and 0.5 PCFG females, indicating that the precautionary assumptions incorporated into the accounting of PCFG strikes in the summer hunt years under the Preferred Alternative was considered by the IWC. This also adopts the precautionary approach to accounting for PCFG whales that was included in the Tribe's 2005 request.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			and the approach utilized by the IWC's Scientific Committee is not trivial: approximately half of the gray whales observed in the PCFG range during the June-November feeding season do not meet the definition of a PCFG whale. Over time, the accumulation of non-PCFG whales in the CRC catalog would have a compounding effect on the Tribe's ability to exercise its treaty right without any demonstrable benefit for conservation. Makah appreciates that this concern was recognized by Harris et al. (2022), where the paper reports mixing rate estimates based on comparisons with whales seen at least once in the PCFG range after 1 June and whales observed in two or more years within the PCFG seasonal range. However, continued use of the former estimates is unwarranted for the reasons explained above. Makah recommends that NMFS report in the final SDEIS only the estimates based on comparison with whales meeting the PCFG definition used by NMFS and IWC, i.e., those whales observed in two or more years with the PCFG seasonal range. Likewise, NMFS should only use this estimate for calculations in the final SDEIS. --- 8. NMFS explains its rationale for the more conservative approach in determining the applicable mixing rate in footnote e to Table 4-3 (and other similar tables), as follows: "Percentage estimates are based on the springtime whale analysis by Harris et al. (in prep.) that compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this EIS for PCFG whales, which requires a whale to be have been seen in at least 2 years). This results in estimates that are likely higher and therefore more conservative than estimates that would be derived from a comparison with whales observed in at least 2 years. We conclude that this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			PCFG seasonal range." SDEIS at 49 (Table 4-3, footnote e) (emphasis added).	
			Page 48 (2nd paragraph - Likelihood of Striking a WNP Whale). In the ALJ hearing, NMFS presented evidence regarding the likelihood of striking a WNP gray whale in a given year of the hunt under the proposed waiver. For ease of understanding, NMFS also described that probability in terms of the number of years of hunting before a hunt would be likely to result in an individual WNP gray whale being struck by Makah hunters. This type of description is used in in the WNP SAR and in the analysis of the Preferred Alternative (although it cites an incorrect number of years).9 See SDEIS at 64 (2nd paragraph). We recommend that NMFS include a similar, easily understood description of the probability of striking a WNP gray whale under each applicable alternative. For Alternative 2, the additional sentence could read: In other words, we would expect one WNP gray whale to be struck by Makah hunters every 28 years, if the Tribe made the maximum number of strike attempts allowed and if ENP and WNP population sizes and migration patterns remained constant. We recommend that the SDEIS include a "one every X years" description for the likelihood of striking at WNP whale for alternatives 3, 5, and 6. No such description would be necessary for Alternative 4, which limits the hunt to the summer-fall season when WNP whales are not present in the hunt area. --- 9. The 2020 SAR for WNP gray whales, relying on an outdated probability estimate, states in the section on Subsistence/Native Harvest Information: "The proposed rule states 'there is about a 6 percent probability of hunters striking one WNP gray whale over the 10 years of the regulations (Moore and Weller, 2018). This probability is the most likely point estimate; the 95 percent confidence interval ranges from 3.0 percent to 9.3 percent. Stated	Recommendation noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			another way, the most likely point estimates indicate that one in 17 10-year hunt periods (i.e., one year out of 170) would result in an individual WNP gray whale being struck by Makah hunters, if the Tribe made the maximum number of strike attempts allowed in even-year hunts and if ENP and WNP population sizes and migration patterns remained constant (Moore and Weller, 2018)'." (https://media.fisheries.noaa.gov/2021-08/2020-Pacific-SARS-Western_Graywhale.pdf)	
			Page 64 (2nd paragraph - Likelihood of Striking a WNP Whale). Based on analysis that "up to 0.015 of those [three] strikes [in a winter-spring hunt] would be on a WNP whale," NMFS "would expect one WNP whale to be struck every 67 years." However, this translation of the probability to a "one every X years" terms is incorrect. The probability applies to the likelihood of striking a WNP whale during 67 years in which a winter-spring hunt takes place (assuming the same hunt limits and stable whale populations). However, the winter-spring hunt would only occur in alternating years, so the true probability under the Preferred Alternative is one WNP gray whale every 134 years, i.e., half the frequency stated. This is consistent with the estimates presented in Table 4-11 (page 66). The estimated number of strikes of a WNP whale over 10 years would be 0.075. Thus, a WNP strike would be expected once over the course of 13.3 10-year periods, i.e., approximately once every 133 years.	We have updated the FEIS with analysis from Moore et al. (2023) which considers the alternating hunt seasons.
			Pages 64-65 (4.1.6.4 Potential Number of Unsuccessful Harpoon Attempts and Approaches). We recommend that the text explain the calculation of the number of unsuccessful harpoon attempts, particularly on WNP whales that appears in Table 4-11 (page 66). Although it is relatively easy to determine that the estimated annual number of unsuccessful harpoon attempts was calculated by multiplying the maximum of 18 attempts in a winter-spring hunt season by the WNP probability of 0.5% (which equals 0.09 as reported in the table), calculations for 6- and 10-year periods are less clear because multi-year periods will include both winter-spring and	Table 4-11 in the SDEIS (Table 4-13 in the FEIS) shows how unsuccessul harpoon attempts are calculated annually, over 6-year periods, and over 10-year periods. For each category of whales (ENP, PCFG, OR-SVI, MUA, and WNP), the winter/spring and summer/fall calcultations are separated for both the number of strikes and the number of harpoon attempts, as there are different limitations for those parameters in those seasons. Therefore, the

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			summer-fall hunt seasons. An explanation, including the limitation on training harpoon throws in the summer-fall hunt season would be beneficial to the public and decisionmakers.	calculations only include 5 years of hunts for each season. We explain that there would only be 5 winter/s[ring hunt years and 5 summer/fall hunt years Subsection 4.1.7.1, Potential Timing of a Hunt and Number of Hunting Days. Because training harpoon throws may only be taken during the hunt season in summer/fall hunt years (Subsection 2.3.7, Alternative 7) the estimated number of unsuccessulf harpoon attempts on WNP gray whales in summer/fall hunt years is zero, as shown in Table 4-11 in the SDEIS and Table 4-13 in the FEIS.
			Page 67 (4.1.6.6 Low Abundance Thresholds), page 10 (2.1.5 ENP Population Abundance Threshold Sub-alternatives) and elsewhere. Makah understands the inclusion of the three "potential thresholds, below which hunting would cease" for purposes of evaluating a range of alternatives and impacts in the SDEIS. As explained in the Tribe's comments on the ALJ's recommended decision, however, an ENP threshold is not necessary to protect the ENP stock. Makah continues to support the Preferred Alternative without such a threshold and incorporates its comments on the recommended decision by reference. See ALJ Decision Comments at 6-7. In those comments, Makah emphasized that an average removal of 2.5 ENP whales per year "represent[s] approximately one-one hundredth of a percent (0.0125%) of the ENP population and less than one percent of NMFS's 2018 PBR calculation of 801 whales, the number that could be removed by human causes without affecting the stock's ability to maintain OSP." Id. at 7. Thus, the core objective of the MMPA – to ensure that a stock maintains or achieves its OSP – would be satisfied without implementation of an abundance threshold simply because the scale of the Makah hunt does not come close to increasing human-caused mortalities	We note the Makah's comments and recommendation.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			above the ENP stock's potential biological removal (PBR). The soundness of NMFS' approach in the Preferred Alternative, i.e., without an ENP abundance threshold, is further supported by analysis in the SDEIS regarding the limited scope and impact of the proposed hunt compared to the abundant ENP population as a whole. See, e.g., SDEIS at 47 (2nd paragraph) ("This level of mortality [under Alternative 2], although higher than under the No-action Alternative, would have no discernable effect on the ENP stock's abundance or rate of growth, and no effect on the stock's abundance relative to OSP."); 69 (4th paragraph) ("The number of whales allowed to be removed [under Alternative 7] represents far less than 1% of the ENP gray whale population. Furthermore, the number of whales potentially removed is substantially smaller than the observed levels of interannual variability in whale abundance within the project area."). As the Tribe stated in its comments on the ALJ's recommended decision, if NMFS determines that an overall ENP abundance threshold is warranted, we recommend a threshold based on the OSP analysis conducted by Punt & Wade (2012), which represents the best scientific evidence available of the ENP population's maximum net productivity level (MNPL), which is the lower bound of OSP. This would correspond to the threshold of 16,000 whales in Sub-alternative 7(b). See ALJ Decision Comments at 6-7.	
			Pages 72-73 (4th paragraph and Table 4-12). Section 4.4.1 analyzes the change in abundance and viability of the ENP stock. As part of the analysis, the SDEIS compares the maximum potential impacts in terms of strikes (i.e., whales killed), unsuccessful harpoon attempts, and approaches over the full 10 years of the proposed waiver to the three abundance estimates of sub-alternatives 7(a) through 7(c). The footnotes to Table 4-12 indicate that the percentages for unsuccessful harpoon attempts and approaches are "precautionary estimates" because they assume the Tribe	We have clarified the footnotes in Table 4-15 in the final FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			would utilize all available attempts or approaches over the 10-year waiver and that each incident would involve a different whale. See SDEIS at 73 (Table 4-12, footnotes b & c). The same "precautionary estimate" qualifier should be included in footnote a for the percentage of the population subject to a strike. In addition, the text and/or the Table 4-12 footnotes should also explain that the overall approach to this estimate is conservative (and hence precautionary) because it assumes all impacts would occur at a single point in time to a static population, rather than, as required by the Preferred Alternative, spread out over a 10-year period. Thus, the actual impacts would be less concentrated than presented in the analysis. Notwithstanding the Tribe's concern about the absence of an appropriate qualification of the analysis, the Tribe agrees with NMFS' ultimate conclusion, namely that "Alternative 7 and each of its sub-alternatives are unlikely to have a measurable effect on the abundance and viability of the ENP gray whale stock as a whole." SDEIS at 73 (3rd paragraph).	
			Page 74 (1st paragraph – 4.4.2 Change in Abundance and Viability of the WNP Gray Whale Stock) and page 75 (1st paragraph). Please see our comment above about page 22 (2nd paragraph) of the SDEIS, regarding terminology used to describe the IWC Scientific Committee's evaluation of the Makah hunt on ENP, WNP, and PCFG gray whales. Here, the SDEIS describes the conclusion of the IWC's review in terms of the WNP and PCFG populations "remain[ing] viable under the hunt management plan." As with the use of "sustainable" on page 22 to describe the conclusion of the IWC regarding the ENP population, we agree that the hunt plan ensures that the WNP and PCFG populations will remain viable over time, especially given the scope and impacts in relation to the populations as a whole. We also support NMFS' reliance on the IWC's scientific review of the hunt, which forms a strong basis for approving the waiver because the IWC's conservation objectives are equivalent to the	We have updated the FEIS, as appropriate, to include the Scientific Committee's formal declaration.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			MMPA's core conservation objective of maintaining (or achieving) a stock's OSP. See ALJ Decision Comments at 3 (citing ALJ's Recommended Decision at 93 n.25); see also SDEIS at 73 (final paragraph) (citing IWC Scientific Committee's conclusion that the PCFG population would remain "at or above the level resulting in the highest net recruitment").10 However, where the SDEIS refers to the IWC Scientific Committee's evaluation of and conclusions regarding the Makah hunt, we recommend that, in addition to informal descriptors such as "viable," NMFS include the Scientific Committee's formal determination that the hunt meets the IWC's conservation objectives for ENP, WNP and PCFG gray whales. See, e.g., SDEIS at 5, 12, 40. --- 10. "[T]he [population] level resulting in the highest net recruitment," SEIS at 73, is equivalent to the "population level that results in maximum net productivity," which is defined as the lower bound of OSP, 50 C.F.R. § 216.3 (definition of optimum sustainable population); see also 16 U.S.C. § 1362(9).	
			Page 96 (final paragraph – 5.1.2.2 Natural Mortality). In analyzing natural mortality levels and the unusual mortality event (UME) in Section 5.1.2.2, the SDEIS states that "[t]he overall mortality resulting from the hunt under Alternative 7. . . represents a small fraction of the population (0.0001% of the ENP stock)." Please see our comment above about page 47 (2nd paragraph) and page 49 (Table 4-3) of the SDEIS, recommending use of two significant digits and a parenthetical explaining the figures used to calculate the result presented. Here, the reader might perceive "overall mortality" to mean the 10-year maximum total mortality of 25 whales as was discussed at pages 72-73, but the result appears to be calculated from	We have updated the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the average removal of 2.5 whales per year and the most recent abundance of 20,580 (2.5/20,580 = 0.00012 = 0.012%).	
			Technical Comments and Edits Page vi (Glossary description of "Stock"). The glossary states that "stock" is "defined by regulations implementing the [MMPA]." SDEIS at vi (Glossary). However, we are unaware of any definition of the term "stock" in the MMPA's implementing regulations. Instead, the definition of "stock" is provided in the MMPA itself, which should be quoted and cited. 16 U.S.C. § 1362(11).	The glossary has been updated.
			Page vi (Glossary). A definition for "Unsuccessful harpoon attempt" and "Training harpoon throw" should be included in the glossary.	Additions made to glossary.
			Page 7 (Table 2-1). The cell describing hunt timing for the Preferred Alternative should reference the alternating approach to winter-spring and summer-fall hunts. See SDEIS at 9 (§2.1.2), 60 (§ 4.1.6(a)), etc.	The alternating season is captured in this cell which specifies "Only one hunt season may be authorized in a calendar year, however the first month (December) of a winter/spring hunt would fall in the same calendar year as a summer/fall hunt. See FEIS Table 4-1.
			Page 21 (Table 3-1). The upper bound of the 2015/2016 abundance estimate's statistical interval should be 29.830 (not 20,990).	We have updated Table 3-5 in the FEIS.
			Page 28. The cited numbers regarding unique whales in the PCFG seasonal range (annual average of "168 unique whales"; cumulative total of "888 unique whales") are not consistent with Table 3-4 (page 35), perhaps because the table includes observations from 2020. Compare SDEIS page 32 (2nd paragraph) ("904 unique ENP gray whales were seen in the PCFG range" through 2020).	As the commenter notes, the average and total in the table are inclusive of 2020, while the text describes the trends through 2019. The text focuses "newly seen and seen again" numbers. Animals seen for the first time in 2020 won't be identified until the 2021 numbers are available.
			Page 33 (2nd paragraph). The reference to Figure 3-4 (cumulative number of unique whales) should be Figure 3-3 (page 29).	Figure numbers in the FEIS have been updated.
			Page 38 (Table 3-7). There are a number of corrections (or qualifications) needed in this table. While the 2020 SAR indicates the "current population trend" for the ENP and PCFG is increasing, as the table states in the	We have updated Table 3-11 in the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			"Recent Trend" row, this is inconsistent with the data presented in Figure 3-2 (page 26) and Table 3-3 (page 31), which show a recent decrease in abundance as of 2020. If NMFS decides to continue relying on the 2020 SAR for Table 3-7, a footnote for these cells should be provided to the more recent abundance estimates elsewhere in the SDEIS. The informational potential biological removal (PBR) for the PCFG should be consistent with the calculation in Harris et al. (in prep) reported at page 29: 3.1 whales per year. The final row in the table which sums up the human-caused mortality and serious injury for the ENP and PCFG needs to be updated to reflect the information in the 2020 SAR. See pages 54 (Table 4-6 (human-caused mortality (HCM) of 1.7 for the PCFG)); 25 (Table 3-2 (HCM of 130.1 for the ENP)).	
			Page 39 (3rd paragraph). The stranding total as of June 3, 2022, is 578, not 678 as reported in the text. See Table 3-8.	The stranding data has been updated throughout the FEIS.
			Page 40 (final paragraph). The rangewide review of gray whales by the IWC Scientific Committee is referenced, but this occurred over a five-year period (2014-2018), rather than in 2012 as stated in the SDEIS.	We have updated Subsection 3.17.3.2.2, Aboriginal Subsistence Whaling, in the FEIS.
			Page 47 (2nd paragraph); Page 96 (final paragraph). We noticed that in some situations where a percentage of the ENP population was reported (especially in text), the raw number incorrectly included a "%" symbol without adjusting the decimal point to reflect the percentage form. On page 47, for example, 0.0002% is reported, but 4 divided by 20,580 equals 0.0002 if rounded, which is equivalent in percentage terms to 0.02%. As we noted above, a minimum of two significant digits should be reported for all results. See also pages 49, 53, 55, and 63.	We have updated the FEIS with the new abundance estimates and reviewed our results to ensure they are correct throughout.
			Page 60 (final paragraph). The first sentence should be redrafted. Our understanding is that the Preferred Alternative and the SDEIS evaluate the hunt with and without ENP abundance thresholds, but that the PCFG threshold from the proposed waiver is maintained in the Preferred Alternative.	We have updated FEIS Subsection 4.1.7,Alternative 7, Composite Alternative—Preferred, in the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Page 82 (3rd paragraph). “trate” should be “treaty”.	This spelling error has been corrected.
			Page 87 (4th paragraph). The first sentence, ending with “compared,” is incomplete.	We have updated Subsection 4.11.3.7, Alternative 7, Composite alternative – Preferred, in the FEIS.
			Attachment: Comments of the Makah Indian Tribe on the ALJ's Recommended Decision Issued on September 23, 2021 in In re: Proposed Waiver and Regulations Governing the Taking of Eastern North Pacific Grey Whales by the Makah Tribe, Docket No. 19-NMFS-0001 November 13, 2021	Attachment noted.
483	Baur, Don	10/14/22	I am submitting these comments on the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (SDEIS), noticed in the Federal Register on July 5, 2022.1 I am submitting these comments on my own behalf, as an attorney with background and experience on the Marine Mammal Protection Act (MMPA). These comments follow up on my previous letters of March 12, 2020, March 16, 2020, and November 15, 2021, which are incorporated by reference. As was the case for my previous letters, in submitting these comments, I do not take a position for or against the Makah hunt. The purpose of these comments is to address the legal issues associated with the Makah waiver request and the way it has been processed by the National Oceanic and Atmospheric Administration /National Marine Fisheries Service (NMFS). As discussed in all my comment letters, NMFS has thus far followed an approach for consideration of the waiver that is at odds with MMPA’s purposes and policies, statutory requirements, and case law precedent. For the reasons discussed in this letter, the SDEIS further highlights the deficiencies in the waiver process to date. To comply with the MMPA, the National Environmental Policy Act (NEPA), and the Coastal Zone Management Act (CZMA), NMFS must take the actions described in this letter.	We note this background and introductory information.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			---------- 1. 87 Fed. Reg. 39,804. Comment Period extended on August 16, 2022 (87 Fed. Reg. 50,319).	
			NMFS Must Provide an Opportunity for an On-the-Record Hearing to Consider the Information in the SDEIS. As discussed in my previous letters, the MMPA waiver regulations in 50 C.F.R. § 228.4(b)(6) and § 228.16(b) require that the record considered at a hearing must include the DEIS on the proposed action, in this case, the Makah hunt. My previous comments provide the full rationale and importance of this requirement.Now that it has been released, the SDEIS confirms the need to provide a renewed opportunity for a hearing on an *updated and revised record.* The SDEIS is, quite simply, a DEIS, and as such, falls within the plain meaning of the requirements of sections 228.4(b)(6) and 228.16(b).The SDEIS itself confirms that it is not some kind of a new or different document that does not fall within the term "draft EIS" (e.g., it cannot be argued that an SDEIS is somehow different than a DEIS). As described in the Abstract on the initial page of the SDEIS, the SDEIS is a "Supplement to the 2015 DEIS." Thus, NMFS concedes that the SDEIS is an addition to and part of the 2015 DEIS. As such, it is within the terms of sections 228.4(b)(6) and 228.16(b). The full DEIS that would serve as the basis for NMFS action on the waiver request now includes the SDEIS; without it, the 2015 DEIS is incomplete, and the record developed at the hearing, upon which the Administrative Law Judge (ALJ) based his recommended decision (RD), is also incomplete.The SDEIS also confirms that the 2015 DEIS is stale and out of date. Guidance from the Council on Environmental Quality (CEQ) establishes that a NEPA document that is more than five years old must be reviewed for sufficiency before it can be the basis for agency action.2 Obviously, NMFS itself has determined that the 2015 DEIS is not an adequate basis for a decision on the waiver request because it has prepared the SDEIS, and for good reason because there is so	We note the legal arguments contained herein. However, the purpose of the FEIS is to provide information, not resolve legal dispute or determine the next steps in the waiver proceeding. With respect to the information being stale, we have reviewed the information in the DEIS and SDEIS and updated the information, where appropriate.The new alternative in the SDEIS is based on the proposed waiver and regulations (84 FR 13604, April 5, 2019), which was considered in the hearing before the ALJ, and Judge Jordan's recommended decision. It is a composite elements from the other six alternatives previously considered in the 2015 DEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			much new information on key environmental factors associated with the Makah hunt over the last seven years. By taking the appropriate and commendable action of preparing the SDEIS, NMFS concedes that the hearing record is incomplete and insufficient.	
			Finally, the requirement for a renewed hearing opportunity is demonstrated by the fact in that several of the key issues that were the focus of the hearing are addressed with new information in the SDEIS. These issues include: impacts on Eastern North Pacific gray whales (ENP), Pacific Coast Feed Group (PCFG) gray whales, and Western North Pacific gray whales (WNP); the ongoing Unusual Mortality Event (UME); PCFG stock identification issues such as range, abundance, recruitment, genetics, mixing proportions of PCFG and ENP whales, and migratory and feeding behaviors; WNP, ENP, and PCFG abundance estimates; optimum sustainable population (OSP) calculations; and the significant degree of uncertainty that exists regarding the stock structure hypotheses related to WNP and PCFG whales. Indeed, the SDEIS even includes a new alternative, the so-called Composite Alternative (SDEI at 6-12), which has been designated by NMFS as the preferred alternative. Because alternatives are the heart of the NEPA process,3 the sufficiency, fairness, and objectivity of the hearing process will be severely compromised if the parties do not have the opportunity to adjudicate the very course of action that NMFS has now identified as its desired outcome. The hearing before a trier of fact is the distinguishing feature of a waiver proceeding. It provides a rigorous method to examine the evidence and the analyses relied upon by the applicant (the Tribe), to meet its heavy burden of proof under the MMPA and upon which NMFS must make its findings to ensure the law's purposes and policies are met. Such an important procedural step should not be given short shrift under NEPA, by excluding from consideration in the hearing the most recent information available in	See response above.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the form of a supplement to the outdated DEIS that existed at the time of the hearing, including the agency's own preferred alternative. Although a DEIS does not have to include a preferred alternative, there is a strong need to do so in a waiver proceeding where the burden of proof attaches to the action that is the subject of the waiver application. Without knowing what action NMFS is proposing to take, the evidence supporting that alternative cannot be fully authorized through the hearing format. The failure to allow for such a rigorous procedure is especially egregious in a case such as this where the preferred alternative was not presented at all. There is an easy solution to this problem. NMFS should provide the parties to the waiver proceeding an opportunity for an on-the-record hearing on the information contained in the SDEIS. Such a hearing, if requested, could be limited in scope, and it almost certainly could be conducted within the time that will still be necessary to complete the NEPA and CZMA (see below) procedures that NMFS must yet undertake to reach a decision on the waiver request. It is even possible that no party will seek a further hearing.	
			Failure to offer such an opportunity will be a fatal legal defect that, in the event of a lawsuit, is almost certain to result in a court invalidating the final decision on procedural grounds alone with a remand requiring a new hearing after the SDEIS has been included in the record. After decades of review and litigation, the Makah waiver process does not deserve the further delay and legal risk caused by a decision by NMFS to deny the parties the opportunity to consider the SDEIS in a hearing before an ALJ. If it is the case that NMFS would need to enter into a new agreement or contract with another agency to secure the services of an ALJ, the resulting inconvenience and cost would be minor compared to the complications,	See response above.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			delay and legal machinations that would result from a court ordered remand due to failure to include the SDEIS in the hearing record. --- 2. CEQ, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed.Reg. 18026, Question 32 (Mar. 23, 1981, as amended 1986). 3. 40 C.F.R. § 1502.14; NRDC v. Hodel, 865 F. 2d 288, 294-96 (D.C. Cir. 1988).	
			The SDEIS Fails to Give Proper Consideration to the Status of the PCFG, and NMFS Has Not Taken the Steps Necessary to Grant a Waiver to Hunt These Whales The consideration of the effects of the Makah hunt on the PCFG in the SDEIS continues along on the same legally impermissible trajectory as was true for the NMFS testimony and arguments at the hearing and in the ALJ's RD. The SDEIS also fails to consider the best currently available scientific information on the PCFG stock issues. <u>The MMPA and the PCFG.</u> My previous letters describe the fundamental flaws with the NMFS and RD analyses and findings for determining the effects of the hunt on the PCFG. In summary, the MMPA has as its primary objective to maintain the health and stability of the marine ecosystem and, whenever consistent with that goal, to obtain an OSPof marine mammals.4 Further, it is an objective of the MMPA to prevent population stocks from diminishing beyond the point at which they cease to be a significant functioning element of the ecosystem of which they are part and, consistent with that objective, that they should not be permitted to fall below their OSP.5 The MMPA also finds that there is inadequate knowledge of the ecology	We note the legal arguments contained herein, but the purpose of the FEIS is to provide information, not resolve legal disputes. Regarding the status of the PCFG, see Appendix C Responses to Frequent and Substantive Comments #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			and population dynamics of marine mammals and the factors bearing upon their ability to reproduce successfully and that immediate action should be taken internationally to encourage the conservation of marine mammals.6 To issue a waiver, the Secretary must issue determinations that the requested take is compatible with the MMPA as set forth in the objectives, purposes, and policies described above. In addition, the waiver must satisfy the requirements of sections 102, 103, and 104 to allow the taking. Those determinations must be made based on sound principles of resource protection "as provided in the purposes and policies" of the MMPA cited above.7 Relying on the intent of Congress as expressed in the legislative history, the courts have consistently interpreted these provisions of the MMPA to establish a conservative bias in favor of marine mammals and to place a heavy burden of proof on any party seeking to take marine mammals.8 To grant a waiver, NMFS, in consultation with the Marine Mammal Commission (MMC), must comply with section 103 and prescribe regulations to ensure that the taking "will not be to the disadvantage of the population stocks" and "will be consistent with the purposes and policies" of the MMPA set forth above.9 The disadvantage test has been construed by the courts to mean a population stock cannot be allowed to fall below its OSP and that no take should be allowed from a stock that is already below OSP.10 The section 103 regulations are to be developed "on the record after opportunity for an agency hearing" on the required waiver determinations regarding the MMPA purposes and policies.11 Such regulations must be accompanied by statements of estimated existing levels of the populations stock, the expected impact of the taking on OSP of the stock, a statement	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			of the evidence upon which the regulations will be based, and any studies by or for NMFS or recommendations from the MMC relating to the taking to be allowed under the waiver.12 To satisfy these requirements, NMFS must first determine whether the PCFG is a population stock. After doing so, it must determine whether that stock is within its OSP range. Having made those findings, NMFS must then determine what effects the take occurring under the waiver would have on the stock. If the stock is below OSP, no take can be allowed because it would be to the disadvantage of that population. If the stock is above OSP, the take must not cause the stock to fall below OSP for the same reason. These findings must be made with the conservative bias of the MMPA in mind, and the burden is on the applicant, in this case, the Tribe, to establish the evidence that meets these tests. In cases of uncertainty, the benefit of the doubt must be given to the protection of the marine mammals. For the PCFG, these principles and requirements have largely been left behind. On stock discreteness, NMFS acknowledges the uncertainty of the evidence, but concludes that "the PCFG is not considered a stock under the MMPA." SDEIS at 29.13 Indeed, NMFS notes that a workshop held 10 years ago determined that "there remains a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the PCFG and that the group might warrant consideration as a distinct stock in the future."14 The fact that NMFS acknowledges the uncertainty with the stock discreteness issue means that it should err on the side of the PCFG and separate stock status. At the very least, NMFS should admit that a determination of stock discreteness cannot be made, in which case the MMPA purposes and policies cannot be satisfied, and the disadvantage test cannot be satisfied. Whether due to lack of required	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			information or uncertainty, the impact is the same—the waiver cannot be granted without further steps to comply with the MMPA for the PCFG.15 The Failure of NMFS to Provide Evidence that Supports a waiver. In addition to jettisoning the conservative bias of the MMPA in reaching a stock discreteness determination, NMFS is relying on a flawed analysis of the evidence and has even failed to consider the most recent ongoing studies and developments that support stock discreteness. These flaws in reasoning and analyses derive, to a large degree, from the record developed by NMFS leading up to the SDEIS, as summarized below. It is beyond the scope of the SDEIS comment letter to comment in detail on the technical and scientific issues presented by the NMFS testimony, briefs, and the RD on the PCFG population stock issue. That is the job of the hearing process. However, it is apparent that the SDEIS inherits some of the deficiencies of the underlying NMFS/ALJ analyses presented in those contexts. The problematic nature of these agency arguments and findings have been compounded by the failure to apply the bedrock MMPA principles discussed in this letter. On the separate population stock issue alone, the main problems with the agency record are as follows: · NMFS suggests that the PCFG must be a "closed" stock to be considered separate for MMPA purposes. SDEIS at 30, 33. As a legal matter, NMFS ascribes far too narrow a definition of what constitutes a population stock. There is nothing in the MMPA definition in section 3(11) ("a group of marine mammals of the same species or smaller taxa in a common spatial arrangement that interbreeds when mature") which requires that there be a "closed stock," or that interbreeding not occur between ENPs and PCFG animals.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			· NMFS claims that recruitment into the PCFG is equally from internal and external sources.16 This statement is not correct. There is insufficient evidence to support that conclusion. The evidence simply does not answer the question of the levels of recruitment from inside and outside the PCFG. · NMFS argues that is "unknown" whether a calf will return to feed in subareas of the range where it has fed with its mother. Again, being unknown does not mean, under the MMPA, that the determination should be made that it does not happen. To the contrary this level of uncertainty means either that a conclusion cannot be made or that the benefit of the doubt must be given to the PCFG that the calves do return to that location to feed. · Photo identification, according to NMFS, demonstrates large-scale movements and variability in PCFG distribution due to prey availability, which in turn means there is an obvious and natural mechanism for new whales to join the PCFG. Again, as noted above, the MMPA definition of population stock does not preclude such intermingling of ranges between stocks. · In addition, Bickham's testimony establishes additional uncertainty, and calls NMFS's own conclusions on the lack of stock discreteness into question. He finds the statistically significant genetic differences between eastern and western gray whales surprising, given the degree of intermixing between the two populations during the migration and mating season. He believes that the reason is the result of genetic drift in a small, isolated population.17 This conclusion confirms the uncertainty in NMFS's recruitment requirement in designating a separate stock. If there is an extremely high amount of intermixing between ENP and WNP, but they are still separate stocks, could that also apply to PCFG somehow? · NMFS also fails to give due deference to the findings of other expert agencies. NMFS disregards the finding of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that the PCFG, which it	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			shares with U.S. The Canadian government has now taken the next step, as of October 3, proposing that the PCFG should be added to its endangered species category under the Species at Risk Act. See Attachment 3. Clearly, making an affirmative finding, as the SDEIS does on the absence of a PCFG stock that contradicts the now proposed endangered status finding of a country that shares the same population is inconsistent with the international conservation purpose of the MMPA and fails the section 103(a) finding of necessity and appropriateness test required for a waiver. The flip side of the agency's reliance on problematic evidence and analysis is its failure to look at the record in the light most favorable to the marine mammals, as it is required to do. If it had done so on the PCFG issue, an appropriate and legally defensible line of reasoning would have gone as follows. *The PCFG As Distinct Stock/Management Unit.* Contrary to the NMFS argument and the RD finding that the PCFG is part of the larger ENP population, there is considerable evidence that it is indeed a separate stock. For the most part, NMFS simply ignores this evidence and fails to explain why it should be discounted. For example, photo-identification data shows the PCFG is largely made up of a small group of whales seen repeatedly and in multiple years from N California to SE Alaska from June to November (Calambokidis et al. 2019). It is estimated at under 250 whales, and these are heavily made up of the same individuals seem repeatedly year and after year; an average of 157 individuals were identified each year with 95% of the encounters with whales summer/fall in the PCFG range made up of whales seen multiple years. The recruitment appears to be largely internal with data through 2015 showing that 62 PCFG mothers were documented with 102 calves	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			and that 65% of calves seen (through 2014) had been seen in a subsequent year in the PCFG range recruited to this group (Calambokidis and Perez 2017a). While there were other whales not documented as calves that were recruited to the PCFG, many of these may have been born from PCFG mothers as well since the average wean date for calves was found to be August 1, indicating many likely calves would have only been sighted after weaning and not recognized as calves. In addition, two studies have examined and tested for differences in the mtDNA sequences in PCFG whales compared to other portions of the gray whale population (Frasier et al. 2011, Lang et al. 2014). These were largely based on two different sets of samples collected from the PCFG with Frasier et al. relying on 40 samples from PCFG whales almost exclusively from Canadian waters and Lang et al. (2012) using 113 PCFG samples largely collected in US waters. These two studies compared the PCFG samples in one case to 105 from the migratory population (Frasier et al. 2011) or 75 samples from animals from Arctic feeding grounds (Lang et al. 2014). Despite these differences in samples and comparison, both studies found similar results with significant differences in haplotype frequencies between the PCFG and the comparison sample. Frasier et al. (2011) estimated these differences would represent an exchange rate of <<1% per generation between the two maternally based groups. Frasier et al. (2011) concluded that their genetic results, in combination with photo-identification data demonstrating strong maternally directed fidelity to summer feeding grounds, demonstrated that the PCFG should be treated as a separate Management Unit. NOAA guidelines (https://repository.library.noaa.gov/view/noaa/22660): Martien et al. (2019) summarize the lines of evidence for delineating stocks of marine mammals and identified 11 types of evidence and their	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			relative strength and identify genetics as one of only three of these lines evidence that across all three taxonomic groups of marine mammals constituted a "Strong" line of evidence which they define as suitable to "be used alone to delineate Demographically Independent Population." Another of the three lines of evidence considered "Strong" was movement data, something that has been demonstrated as being different for PCFG whales from both photographic identification (Calambokidis et al. 2019) and satellite tag data (Lagerquist et al. 2019). Finally, following the COSEWIC status assessment November 2017, the previous ENP population was split into three populations; North Pacific Migratory population (Not at Risk), Pacific Coast Feeding Group population (Endangered), and the Western Pacific population (Endangered). Now, Fisheries and Oceans Canada has proposed endangered status for the PCFG, a fact not considered in the SDEIS or the record of the waiver proceeding. See Attachment 3. Weller et al. (2013) reported on a NMFS gray whale stock identification workshop, held July 31 to August 2, 2012, that evaluated the key question about whether the PCFG should be treated as a distinct stock. While some descriptions of this workshop have been cited as supporting the agency not identifying the PCFG of the stock, the opposite is actually true given: · The Task Force (TF) consisted almost solely of NMFS scientists or affiliates and did not include outside experts from the U.S. or Canada who have been primarily involved in study of the PCFG. · This meeting was held two years before the publication of the Lang et al. (2014) publication that provided the most robust evaluation of genetic differences. · Rather than concluding that the PCFG was not a stock their key conclusion was "the TF was unable to provide definitive advice as to	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whether the PCFG is a population stock under the MMPA and the GAMMS guidelines." · The reported scoring of the seven scientists on the TF that voted on key questions revealed interesting insights on key questions related to the PCFG. All "Strongly" or "Somewhat Agreed" that the ecosystem occupied by the PCFG when they are feeding differ from the other ENP whales. All voting participants voted that the genetic data and simulations indicated most probably that at least half or more recruitment to the PCFG was internal. A majority of the voting participants were either neutral or thought given all lines of evidence the PCFG should be considered a population stock under the agency's interpretation. In addition, there is currently available information that is relevant to the stock discreteness issue that has not been included in the SDEIS or elsewhere in the waiver record, with the result that the best available scientific information has not been accounted for. This information includes: 1. When the collection of biopsy samples from PCFG whales (with an emphasis on females) that ended up being used for the Lang et al. (2014) study was originally proposed and conducted it was only in part to test for mtDNA differences. It was also intended to help inform the question of internal versus external recruitment to the PCFG by looking at genetic evidence of relationship and offspring of newly recruited to known PCFG mothers to see if some of these new recruits could be calves of PCFG mothers that did not get detected while they were still associated with their mothers (very possible given that average weaning date for PCFG calves was estimated as of August 1, which is earlier than some of the initial documentation of PCFG whales in current research efforts (Calambokidis and Perez 2017a). The SDEIS does not include an analysis of this genetic	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			basis for internal recruitment from this large sample of collected biopsies, although the information is available. 2. The development of new matching algorithms and projects currently underway to match identifications of whales especially mothers with calves with the PCFG catalog also promise to provide additional insight into recruitment of PCFG whales and test the degree to which internal recruitment into the is being underestimated. This ongoing study has yielded some initial results of internal recruitment that should be available to NMFS and has to be taken into account as part of the record for this proceeding. Taken together, even on a level playing field, the evidence supports a finding that the PCFG is most likely to be a separate stock. That conclusion is even more compelling when the conservative bias of the MMPA is applied. Without question, under the evidence and MMPA principles, there is an insufficient basis to conclude, as NMFS witnesses and the ALJ have, that "NMFS's determination that PCFG whales do not constitute a separate stock is supported by best scientific evidence currently available and that NMFS included adequate protections for PCFG whales in the proposed regulations." ALJ RD at 155. The SDEIS falls victim to the same mistake when it concludes "the PCFG is not considered a stock under the MMPA." SDEIS at 29. For these reasons, NMFS must revisit the PCFG population stock, OSP, disadvantage test, and section 103(d) determination questions. These flaws in the record can best be resolved through an opportunity for a supplemental hearing, which would also cure the NEPA and MMPA procedural regulation violation discussed at the outset of this letter and allow new evidence to be taken into account. Following this prudent cause of action now should lead to an objective and	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			fully informed basis for a final decision by the Administrator that adheres to the MMPA and serves as the basis for the most scientifically accurate and legally defensible outcome on the Makah waiver request. NMFS tries to deflect the significance of its decision to include the PCFG within the overall ENP population by rolling out an evaluation of the effect of the take that could occur under the hunt under a potential biological removal (PBR) evaluation. SDEIS at 29–30. However, PBR is not a test for a waiver. PBR has a legally-defined role under the MMPA only in the section 118 domestic fisheries incidental take regime. The calculation of PBR is for evaluating the effects of the Makah hunt is only one point of information, and it is not of controlling regulatory effect and does not excuse NMFS from making the required findings for a waiver and waiver regulations. Moreover, NMFS does not estimate how the hunt would compare to PBR for the PCFG, if it were a separate stock. --- 4. 16 U.S.C. § 1361(6). 5. Id. §1361(2). 6. Id. §1361(3), (4). 7. Id. §1371(a)(3). 8. H.R. Rep. No. 92-707, at 22. 9. 16 U.S.C. §1373(a). 10.Kokechik Fishermen's Ass'n v. Sec'y of Commerce, 839 F.2d 795, 802–803 (D.C. Cir. 1988); see also Comm. for Humane Legislation v. Richardson, 540 F.2d 1141, 1149 (D.C. Cir. 1976) (stating that the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			MMPA's specific requirements "are indeed so clear as to require little discussion" and that the MMPA "was deliberately designed to permit takings of marine mammals only when it was known that th[e] taking would not ... disadvantage ... the species."); Brower v. Daley, 93 F. Supp. 2d 1071, 1073 (N.D. Cal. 2000) (citing to the holding in Comm. for Humane Legislation that the MMPA is for the benefit of the protected species) (citation omitted); Animal Prot. Inst. of Am. v. Mosbacher, 799 F. Supp. 173, 179 (D.D.C. 1992) ("What emerges somewhat more clearly from all of the above is Congress' general concern about protecting marine mammals from human depredations"). 11. 16 U.S.C. § 1373(d). 12. Id. § 1373(d)(1)–(4). 13 .See also Carretta et al. 2020a, U.S. Pacific Marine Mammal Stock Assessment: 2020. Gray Whale (Eschrichtius robustus): Eastern North Pacific Stock and Pacific Coast Feeding Group at 162; Bettridge First Decl. ¶¶ 11, 17; Weller Decl. ¶¶ 10, 35; Scordino Decl. ¶ 71; Bickham Decl. ¶¶ 20, 63. 14. Id. 15. NMFS itself adopted this position in its brief in the 1977 tuna dolphin general permit proceedings, and it has been a fundamental principle of the MMPA ever since—if a species or stock is depleted or of uncertain status it cannot pass the disadvantage test. As stated in the September 26, 1977 NMFS brief at page 16: "Thus, the mandate given to NMFS from the Act is clear: no commercial activity involving marine mammals can be undertaken unless NMFS is assured that the taking is not to the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			disadvantage of the marine mammals, that no affected stocks are depleted and that the other policies of the Act are satisfied. This assurance is required no matter what the economic harm may be. Because NMFS is not assured that the eastern spinner is at or above the lower end of optimum sustainable population, NMFS asserts that it must retain the finding of depletion for the eastern spinner." Attachment 1; see also, Attachment 2, Brief of Marine Mammal Commission at 7 (Sept. 26, 1977) ("when there is doubt [as to depleted status] it is desirable to maintain the status quo and make changes if new information provides the basis for such changes"). This is the same situation for the PCFG, but NMFS tries to deflect the OSP question be denying the threshold question of the existence of a stock. It cannot escape the logic of its stance on eastern spinners, however, because the question of whether the PCFG is a separate stock is wrapped in as much uncertainty as the depletion question for eastern spinners. Until the uncertainty is resolved, like eastern spinners, the PCFG cannot be subject to take due to the failure of NMFS and the Tribe, bearing the burden of proof, to satisfy the disadvantage test. 16. See Weller Second Decl. ¶ 15 (quoting NMFS Ex. 3-2, at 44 (Weller et al. 2013)); Bettridge Decl. ¶¶ 15–16 (evaluating grey whale stock structure, including interbreeding); Scordino Initial Direct Decl. ¶¶ 107–144 (discussing the methodologies used in analyzing PCFG genetics and emigration); Bickham Initial Direct Decl. ¶¶ 10–11, 46–54 (focusing on the PCFG population structure, including reviewing the genetics data and explaining the degree of uncertainty that exists regarding PCFG stock structure). 17 Bickham Initial Direct Testimony at 15.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The SDEIS Treatment of the PCFG Population Stock Issue is Contrary to the Ecosystem Health and Stability Objective of the MMPA. The PCFG stock discreteness issue is not only necessary to determining if the Makah hunt satisfies the requirements for a waiver, it also goes to the heart of the ecosystem health and stability primary objective of the MMPA. The MMPA states that "it is the sense of the Congress that [marine mammals] should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem."The MMPA uses the terms "stock," and "population stock" to indicate management units and defines those terms to mean "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature."However, marine mammal stock structure is not fixed and constant, but rather always evolving, albeit at variable paces. In rare cases new stocks may be formed almost instantaneously, such as when a small group of marine mammals is isolated by a major environmental event (e.g., harbor seals in a lake or bay isolated by a collapsing glacier). More commonly, new stocks form because of isolation over years, decades, centuries, or millennia.Stocks change in response to various selective forces in their environment, and their ability to evolve is central to their persistence. Protecting groups of marine mammals in transition is particularly critical now, because of the multiple strong selective forces imposed by human activities (e.g., hunting, habitat destruction, climate change). An inability to adapt or evolve is perhaps the surest route to extinction. This is true of a feeding aggregation, which may very well be an actual stock, or a stock that is int eh process of forming as a part of the evolving marine environment.In fact, contemporaneous marine mammal science is coming to recognize the importance of groups of marine mammals that move together for a variety	See Appendix C Responses to Frequent and Substantive Comments #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales.The DEIS, SDEIS, and FEIS acknowledge that stock structure may change and must be re-evaluated. The Stock Assessment Report process under the MMPA is the primary tool for these evaluations. These reports are published annually and undergo both scientific and public review. While the PCFG is not recognized as a stock, the DEIS, SDEIS, and FEIS evaluate the effects of the action on this feeding group and the ecosystem, which is assessed at a range of scales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			of biological reasons, including feeding, and that these units, sometimes referred to as "herds, are the appropriate focal point of MMPA conservation and management actions. For example, NMFS is treating humpback whale herds as animals that travel in groups between a feeding area and a breeding area as a demographically independent population (DIP), in essence recognizing those animals as a unit, even though they might intermix with other humpback whales from other feeding areas on the breeding ground. See https://repository.library.noaa.gov/view/noaa/33497; https://repository.library.noaa.gov/view/noaa/33457. Following such an approach for the humpback DIP, as well as for the PCFG, reflects the best available current scientific methodology by NMFS for unique aggregations of marine mammals and is consistent with the guidelines set forth in Martien, K.K. et al., The DIP Delineation Handbook: A Guide to Using Multiple Lines of Evidence to Delineate Demographically Independent Populations of Marine Mammals, NOAA-TM-NMFS-SWFSC-622.The idea that only definitively identified marine mammal stocks with little or no interbreeding defined under the rigid formulation (i.e., closed population) followed by NMFS for the PCFG warrant conservation as an MMPA "population stock" is inconsistent with the "primary" objective of maintaining the health and stability of the marine ecosystem. Groups of marine mammals not recognized as full and discrete stocks (e.g., feeding aggregations) are, nonetheless, essential components of the marine ecosystem. Such groups play a critical role in the ecology of marine ecosystems, mainly through their foraging effects, which are substantial in the case of gray whales. Their loss may substantially, if not profoundly, degrade the marine ecosystem, as has also been observed when individual species are removed from terrestrial ecosystems. Thus, the health and stability of the marine ecosystem—the primary objective of the MMPA—cannot be maintained over time if such groups are not	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			protected.Throughout their testimony, expert witnesses Weller and Bickham note that the information on recruitment, genetics, and discreteness is not sufficient to conclude that the PCFG forms a distinct stock and, for that reason, it does not warrant protection under the MMPA.18 But that conclusion fails in three important respects. First, we do not have all the information needed to make that judgement with full and absolute confidence. The fact that studies are still ongoing and that scientists continue to debate this issue argues that we do not have all the information needed to be conclusive.Second, we cannot satisfy the primary objective of the MMPA if we do not protect the PCFG, even if even if we conclude that the evidence indicates that it is not a definitive stock. Interpretations of the MMPA have mistakenly concluded that protecting only well-defined stocks is sufficient to maintain the health and stability of the marine ecosystem. Unfortunately, that is not the case.Finally, as explained repeatedly in my comment letters, the Weller/Bickham conclusion on the lack of sufficient evidence to establish the existence of a separate stock leads to the required legal outcome of giving the PCFG full MMPA protection, not allowing it to be subject to exploitation. Clearly there is good evidence of stock discreteness. That evidence is in many ways stronger than the evidence of the ack of discreteness. As a result, the uncertainty that exists means that the PCFG must be protected from exploitation under a waiver until a clear and definitive finding can be made. ----------18 See Bickham Decl. ¶¶ 10–11, 14, 20; Weller First Decl. ¶¶ 18–20, 26–32; Weller Second Decl. ¶¶ 3, 13–23; Weller Second Decl. ¶¶ 8, 11.	
			The SDEIS Is Incorrect in Asserting that an Incidental Take Authorization Could Be Issued for the Take of Endangered Western North Pacific Gray Whales During the Makah Hunt	We note the legal arguments contained herein, but the purpose of the FEIS is to provide information, not resolve legal disputes.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The SDEIS indicates that NMFS would authorize the take of the WNP whales pursuant to an incidental take authorization (ITA) issued under section 101(a)(5)(A) of the MMPA. SDEIS, at 9, 11. As discussed in my last letter, the notion that the deliberate act of shooting at, or otherwise hunt, any marine mammal when the purpose is to kill that animal is "incidental take" is a non-starter. Three elements of the MMPA take definition are implicated (harass, hunt, kill), and even if it can somehow be argued that a WNP whale is killed or harassed by accident or incidentally, there is no such claim that the art of "hunting" that individual whale was not intentional and non-incidental. The Makah hunters would have singled out that individual animal for take by hunting it. It would be a direct take, not subject to section 101(a)(5)(A). Simply put, there is no "whoops, wrong whale" provision in section 101(a)(5)(A) for incidental take authorization. The deliberate and premeditated act of hunting and shooting a whale with the intent to kill it can in no way be considered "incidental take" under the MMPA. As reported in my November 15, 2021 letter, never, in the history of the MMPA has section 101(a)(5) been used for such a purpose. The attachment to this letter further updates the supporting research for that conclusion, showing an additional 14 ITAS that have been issued since my last letter, all of which cover truly incidental take where there is no intent to kill the marine mammal that is the subject of the action. See Attachment 4. Simply put, the incidental take authority of the MMPA cannot be stretched so far as to allow the Makah Tribe to hunt, harass or kill any WNP, if a waiver cannot be granted for that purpose the take cannot be allowed. Any other result pushes this waiver proceeding over the brink into the realm of Kabuki theater where the MMPA is being postured to achieve the desired result of issuing the waiver rather that applying the law fully	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			and properly. Such a result cannot be countenanced, and if the waiver is dependent upon take authorization of the WNP, then the waiver cannot be granted.	
			The SDEIS Fails to Explain How NMFS Will Comply with the Coastal Zone Management Act. It appears that NMFS has not yet complied with the CZMA consistency review requirement. The SDEIS does not address the relationship of the waiver decision to the CZMA; however, section 1.6 of the 2015 DEIS does raise this issue. Under this section, NMFS states that the CZMA is an authority that may apply to the whale hunting activities. It further states that the CZMA "requires federal agencies to ensure that activities carried out in or outside of the state's coastal zone are consistent with the enforceable policies of approved state management plans, to the maximum extent practicable. NMFS may consult with Ecology" (emphasis added). [add cite to page in footnote] However, the CZMA does not simply establish that NMFS may consult with the Washington CZM Program, but rather that when consistency is triggered, it must consult. For the reasons discussed in this section, until the consistency review has been conducted, no decision can be made on the Makah waiver request.Under the CZMA, states and territories may establish a Coastal Zone Management (CZM) Program with the authority to implement enforceable policies for the management of their coastal resources.19 Upon establishment of a CZM Program, the state or territory has the authority under section 307 of the CZMA to review whether actions of federal agencies within and outside of the coastal zone which have reasonably foreseeable effects on coastal land and water are consistent to the maximum extent practicable with the enforceable policies of the program.20 Federal actions include both direct actions of federal agencies, as well as non-Federal actions that require a Federal license or permit.21 When a federal agency is taking an action that requires federal	NMFS submitted a consistency determination for the ALJ's recommended decision to the Washington State Department of Ecology pursuant to Section 307 of the CZMA on April 18, 2023. The Department of Ecology reviewed our determination and concurred that the proposal is consistent with Washington Coastal Zone Management Plan on June 2, 2023.(see section See Section 1.2.5).

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			consistency review, the agency is required to consult with the CZM Program on a consistency determination "at the earliest practical time in the planning or reassessment of the activity" and before the agency "reaches a significant point of decision making."22 In accordance with the CZMA, the federal action of issuing a waiver under the MMPA for the Makah hunt requires NMFS to make a federal consistency determination and provide Washington State's CZM Program, under the Washington Department of Ecology (Ecology), with an opportunity to review that determination.Admittedly, NMFS would incur some cost and administrative inconvenience by needing to contract for ALJ services and to conduct the proceeding. The fact remains that the law requires such a result, and the cost/inconvenience factors for a required hearing pale in comparison these what would result from a remand.Washington State established an approved CZM Program in 1976. Under the Washington CZM Program, the State's network of laws and regulations, including the Water Pollution Control Act, Clean Air Act, Environmental Policy Act, Ocean Resources Management Act, and the Shoreline Management Act, 23 have been submitted to NOAA and formally approved, in whole or in part, as enforceable policies for which the State can review federal actions for consistency.24Federal agency actions which are within the coastal zone, as well as those outside of the coastal zone that will have impacts on the coastal zone and which have reasonably foreseeable effects on land and water uses and natural resources of the coastal zone.25 In order to be reviewable, the action is not required to occur within the coastal zone, but instead to simply have an effect on the coastal zone.26 It must also only be reasonably foreseeable that the federal action will have an effect on the coastal zone resources, which means that "the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."27 Further, under NOAA's definition of natural resources of the coastal zone, natural resources are not limited only to	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			those that are entirely in the coastal zone or always in the coastal zone, they may include wildlife species which travel through the coastal zone, such as marine mammals.28 As stated in California Coastal Commission v. Norton, activities "that may permanently injure marine mammals affect the coastal resources and require a consistency determination" and further that an impact on the entire population [of marine mammals] is not necessary to require a consistency determination.29 Since it is certain that the issuance of a waiver for the Makah hunt would have an effect on gray whales, which are migratory resources that are present within Washington's coastal zone, the waiver is a federal action under the CZMA.Under the CZMA, Washington's CZM Program has the authority to review for consistency all Federal agency actions which are within the coastal zone, as well as those outside of the coastal zone that will have impacts on the coastal zone and which have reasonably foreseeable effects on land and water uses and natural resources of the coastal zone.25 In order to be reviewable, the action is not required to occur within the coastal zone, but instead to simply have an effect on the coastal zone.26 It must also only be reasonably foreseeable that the federal action will have an effect on the coastal zone resources, which means that "the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."27 Further, under NOAA's definition of natural resources of the coastal zone, natural resources are not limited only to those that are entirely in the coastal zone or always in the coastal zone, they may include wildlife species which travel through the coastal zone, such as marine mammals.28 As stated in California Coastal Commission v. Norton, activities "that may permanently injure marine mammals affect the coastal resources and require a consistency determination" and further that an impact on the entire population [of marine mammals] is not necessary to require a consistency determination.29 Since it is certain that the issuance of a waiver for the Makah hunt would have an effect on gray	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whales, which are migratory resources that are present within Washington's coastal zone, the waiver is a federal action under the CZMA.The Washington CZM Program would review the federal action for consistency with its enforceable policies. Washington has at least one enforceable policy that is relevant to the waiver—RCW 43.143.030— but others may also apply.30 RCW 43.143.030 requires any activity which requires a federal, state, or local permit or other approvals that will adversely impact renewable resources and marine life, among other things, to meet the following eight criteria: (a) There is a demonstrated significant local, state, or national need for the proposed use or activity;(b) There is no reasonable alternative to meet the public need for the proposed use or activity;(c) There will be no likely long-term significant adverse impacts to coastal or marine resources or uses;(d) All reasonable steps are taken to avoid and minimize adverse environmental impacts, with special protection provided for the marine life and resources of the Columbia River, Willapa Bay and Grays Harbor estuaries, and Olympic national park;(e) All reasonable steps are taken to avoid and minimize adverse social and economic impacts, including impacts on aquaculture, recreation, tourism, navigation, air quality, and recreational, commercial, and tribal fishing;(f) Compensation is provided to mitigate adverse impacts to coastal resources or uses; (not an enforceable policy); (g) Plans and sufficient performance bonding are provided to ensure that the site will be rehabilitated after the use or activity is completed; and (h) The use or activity complies with all applicable local, state, and federal laws and regulations.31When a federal agency is taking an action that requires federal consistency review, such as the decision on the Makah waiver request, the agency is required to consult with the CZM Program on a consistency determination "at the earliest practical time in the planning or reassessment of the activity" and before the Federal agency "reaches a significant point of decisionmaking."32 At a minimum, the federal agency	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			must provide the state the opportunity to review a consistency determination at least 90 days before final federal approval.33 While NMFS may be more than 90 days away from issuing a final decision, it has already reached "a significant point of decisionmaking" with the ALJ issuance of the RD. Thus, the CZMA Consistency Consideration requirement has already been triggered. Clearly, some of the elements of Washington enforceable policy RCW 43.143.030 are implicated in the Makah hunt (e.g., significant need for the proposed action; likely long-term significant adverse impacts to coastal or marine resources; all reasonable steps are taken to avoid or minimize adverse environmental impacts; all reasonable steps are taken to avoid or minimize adverse impacts to tourism and recreation). NMFS, therefore, needs to explain for the record when and how it intends to comply with the CZMA. Ultimately, the failure of NMFS to consult with the Washington CZM Program would constitute a violation of the CZMA. --- 19. 16 U.S.C § 1455; 15 C.F.R § 923.41.20. 16 U.S.C § 1456; NOAA, Federal Consistency (August 12, 2022), https://coast.noaa.gov/czm/consistency/.21. 16 U.S.C § 1456; 15 C.F.R. § 923.53.22. 15 C.F.R § 930.36.23. Washington Department of Ecology, Washington Coastal Zone Management Programs Policies, https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Coastal-zone-management/Programs-policies. 24. 15 C.F.R. § 923.53 (establishing the procedure for submitting enforceable policies for federal consistency review); 16 U.S.C. § 1453(6a) (defining enforceable policies as "State policies which are legally binding through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a State exerts control over private and public land and water uses and natural resources in the coastal zone.").25. 16 U.S.C § 1456; NOAA, Federal Consistency (August 12, 2022),	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			https://coast.noaa.gov/czm/consistency/.26. 16 U.S.C. § 1456(1)(a)(C) (Congress amended the CZMA in 1990 to apply federal consistency to activities within or outside of the coastal zone").27. Sierra Club v. Marsh, 976 F.2d 763 (1st Cir. 1992).28. 15 C.F.R. § 930.11(b) (defining natural resource as including "biological or physical resources that are foundwithin a State's coastal zone on a regular cyclical basis" and include "fish, shellfish, invertebrates, amphibians,birds, mammals, [and] reptiles." (emphasis added)).29. 311 F.3d. 1162, 1171 (9th Cir. 2002).30. Washington Coastal Zone Management Program Enforceable Policies, WASHINGTON DEPARTMENT OF ECOLOGY,1, 29–32 (September 2020), https://apps.ecology.wa.gov/publications/documents/2006013.pdf.31. RCW 43.143.030; Washington Coastal Zone Management Program Enforceable Policies, WASHINGTONDEPARTMENT OF ECOLOGY, 1, 30–31 (September 2020),https://apps.ecology.wa.gov/publications/documents/2006013.pdf.32. 15 C.F.R § 930.36.33 Id.	
			Conclusion The Makah waiver request is not currently postured to result in a decision that complies with the MMPA, NEPA or the CZMA. Procedurally, the SDEIS needs to be made available for consideration at an on-the-record hearing and NMFS must comply with the CZMA. Substantively, the ground rules for decision making need to be brought back to the fundamental principles that have guided the MMPA for its 50 years of the precautionary approach in favor of marine mammals and heavy burden of proof on the party seeking to exploit the species. The no disadvantage to marine mammals test must be met, which requires a conservative judgment on the discreteness of the PCFG (including its status as a DIP). The possibility of a future application for an ITA for the hunting and injury or	We note the legal arguments contained herein, but the purpose of the FEIS is to provide information, not resolve legal disputes or determine the next steps in the waiver proceeding.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			killing of the WNP needs to be ruled out as a matter of law. Over the course of the MMPA, NMFS has taken many favorable actions to advance the purposes and policies of the law. It is also the case, however, that for every decade of the MMPA's existence, NMFS has embarked on decision-making forays on controversial issues where the bedrock principles of the law have been cast aside or given short shrift so as to reach a desired policy result, only to be defeated in court. The initial tuna dolphin permits of the 1970s, the Dall's porpoise permit of the 1980s, the failure to designate the southern resident killer whale (SRKW) population for separate listing under the MMPA and Endangered Species of the 1990s, the chase and encirclement/dolphin safe label studies of the 2000s, and in the 2010/2020s, the failure to impose the burden of proof on parties seeking to exploit marine mammals or take actions that cause harm to them (e.g., whale watching in Puget Sound and the SRKW; fishing and vessel traffic in New England and the North Atlantic right whale; full enforcement of Mexican law by Mexican authorities and the vaquita in the Gulf of California). In each case, the burden has instead been left to third party advocates to come forward to try and enforce conservation and protection under the terms of the MMPA. The Makah waiver runs a significant risk of being added to the litany of NMFS failures rather than successes. It assumes this place not because the waiver necessarily cannot be granted (that verdict is still out), but instead because NMFS is failing to adhere to the foundational principles of the MMPA and apply the tools that are required to reach a decision. The avenue for doing so remains readily available and should be adopted without further delay by NMFS so that a proper decision, based on a complete record, and in furtherance of the MMPA findings and declarations of policies, can be made.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			---------- Attachments: IN THE MATTER OF Proposed Regulations to Govern the Taking of Marine Mammals, and Related Matters, Incidental to Commercial Fishing Operations Docket No. MMPAH #1 - 1977 BRIEF OF THE RATIONAL MARINE FISHERIES SERVICE IN THE MATTER OF Proposed Regulations to Govern the Taking of Marine Mammals, and Related Matters, Incidental to Commercial Fishing Operations Docket No. MMPAH #1 - 1977 INITIAL BRIEF OF THE MARINE MAMMAL COMMISSION Canadian Government webpage 10/14/22 Consultations on the Grey Whale, Pacific Coast Feeding Group and Western Pacific Populations ITA Table	
484	Alaniz, Yolanda	10/14/22	Yolanda Aurora Alaniz Pasini, on behalf of the Conservacion deMamiferos Marinos de Mexico (ICOMARINO), Fundacion Antonio Haghenbeck y de la Lama, Centro Mexicano de Derecho Ambiental (CEMDA), Grupo Gema del Mayab (GEMA), Marea Azul, Producciones Serengueti, and Protectora Nacional de Animales. I submit the following comments in response to Supplemental Draft Environmental Impact Statement (SDEIS) regarding the Makah Tribe´s Request to resume ceremonial and Subsistence harvest of Eastern North Pacific Gray Whales, under the following lines.Comarino ratifies each and every one of the theoretical approaches, arguments and conclusions set out in the opinions presented on March 16 2020, and November 2021, and requests to be taken as an integral part of this document.As for the Supplemental Draft	We note this background and introductory information.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Environmental Impact Statement (SDEIS) we insist that there are relevant aspects that are no taken in account. So we will analyze what the Marine Mammal Protection Act (MMPA) determines and then we will address the most important points namely: The primary objective of marine resource management under the MMPA is to maintain the health and stability of the marine ecosystem, points about current and future levels of marine mammal species and populations; The existing obligations of international treaties and agreements of the United States.Based on our following arguments and findings our opinion is that the waiver should not be granted:· The Marine Mammal Protection Act and the health of Ecosystems: The MMPA establishes about that the primary objective of marine management is the health and stability of ecosystems: “The primary objective of marine resource management underthe MMPA is to maintain the health and stability of the marine ecosystem. 16 U.S.C. § 1361. To that end, the principal goal is for marine mammals to achieve and maintain their optimum sustainable population (OSP), meaning “the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent part.” 16 U.S.C. § 1362(9). (pag 26-27) Similarly, and essential for this work is that the Act for the Protection of Marine Mammals (MMPA) establishes in Section 103, paragraph (b) the regulations that must be taken before approving any the extraction of marine mammals: "When prescribing such regulations, the Secretary will take fully into account all the factors that may affect the extent to which such animals may be taken or imported, including, but not limited to, the effect of such regulations on: 1. - Current and future levels of marine mammalspecies and populations;2. - The existing obligations of international treaties and agreements of the United States3. - The Marine Ecosystem and related environmental considerations4. - The conservation,	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			development, and use of fisheries resources5. - The economic and technological viability of the implementation	
			· Marine health ecosystems, and levels of species and populations: The marine ecosystem is a living system in which all elements(animals, plants and elements) play a fundamental role in maintaining their balance and health. The integral management of human activities must be based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and act on the influences that are critical to the health of marine ecosystems, thus achieving a sustainable use of the goods and services of the ecosystem and the maintenance of their integrity1. As we stated before the UNEP-FAO-UNESCO report "Blue Carbon, the role of healthy oceans binding carbon" established that the ecosystem perspective and management should focus on climate change adaptation and mitigation measures, which in turn would lead to improvements in health, food security and productivity. The conservation of carbon sinks would be the focus of these measures2.The ocean is the world's largest carbon sink, accounting for 20 to 35% of atmospheric carbon emissions and 93% of the carbon dioxide stored and processed. It has been scientifically discovered that in addition to plankton, marine vertebrates intervene in different ways and pathways in the carbon pump, with multiplying effects that have not been well studied, such as large aggregations of fish and other vertebrates, which have been called "fish carbon". In healthy marine ecosystems, marine vertebratesfacilitate uptake of atmospheric carbon into the ocean and transport carbon from the ocean surface to deep waters and sediment, thus providing a vital link in the process of long term carbon sequestration3	The FEIS describes gray whales' role in the marine ecosystem, including, "whale falls" and evaluates the impacts of the alternatives on the ecosystem at various scales. For example, see Subsections 3.4.3.1.2, Feeding Ecology and Role in the Marine Ecosystem, and 4.3.3.2.2, Benthic Environment, of the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Whales play a fundamental role in the balance, health and maintenance of marine life as we have stated in our previous opinion, and therefore in primary productivity and climate change mitigation, since they are the most important carbon sinks in the system. In general, it can be said that whales perform four eco-systemic functions: They are predators; they are food for predators;they carry nutrients for primary production; and they are huge carbon reservoirs when they die and fall into the seabed. Thus, it was established that stopping the degradation of oceanic and coastal ecosystems would reduce the vulnerability of coastal communities and could even be a source of economic income generation, contrary to what was previously thought,that preserving nature implied an economic loss. Just as it is important to conserve forests and jungles as green carbon sinks, the need to avoid the loss and deterioration of blue carbon sinks, that is, those originating from the oceans and coastal areas, which remain hijacked on the ocean floor for millennia; much more than remains kidnapped in forests4. Today it is known that whales play a fundamental role in maintaining the health conditions of the oceans, in particular they have positive effects on primary productivity, since they take nutrients from the depths to release and disperse fecal matter on the surface by releasing nitrogen that is used by primary producers. In other words, they play a role of primary fertilizers. Especially baleen whales, as isthe case with the gray whale, need large food congregations, which they find in the waters of the Bering and Chuckchi Sea, where they feed, the krill, of which they need large quantities. The mechanism through which whales transport nutrients from one side to the other either vertically, falling towards the seabed and also	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			horizontally due to their long migrations is known as the "WhalePump”5. Thus, it was established, through scientific knowledge of the functioning of ecosystems that stopping the degradation of oceanic and coastal ecosystems would reduce the vulnerability of coastal communities and could even be a source of economic income generation, much contrary to what was previously thought, that preserving nature implied an economic loss. Today it is known that conserving nature is the best measure to achieve a sustainable marine economy. Just as it is important to conserve forests as green carbon sinks, the need to avoid the loss and deterioration of blue carbon sinks, that is, those originating from the oceans and coastal areas, which remain sequestrated on the ocean floor for millennia, was highlighted; much more than what remains in forests and jungles. In such a way that there is an ecosystem relationship between all the organisms participating in this mechanism. At the same time, whales are deposited on the seabed at the seabed, making them carbon sequestration sites, known as sinkholes, which are as or more important than coal sequestration in forests and jungles. Moreover, an economic assessment can be made of the contributions of whales for conservation, which can be incorporated into the economic perspective of countries. Once again, whales are better worth alive than dead. It is pertinent to emphasize that recent studies have estimated that phytoplankton in the North Pacific has decreased approximately between 8 and 10% in the last century and that this may be due to the effects of climate change, but also to the intense commercial hunting of whales, thus decreasing the pollination effect with the subsequent decrease in nutrients.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			This reveals the fundamental role of whales in the ecosystem 6. --- 1. https://www.biodiversitya-z.org/content/ecosystem-approach 2. Blue carbon: the role of healthy oceans in binding carbon [2008]Nelleman, C. (ed.); Corcoran, E. (ed.); Duarte, C.M. (ed.); Valdes, L. (ed.); et al. UNESCO, Paris (France) [Corporate Author] FAO [Corporate Author] UNEP, Nairobi (Kenya) [Corporate Author] FAO, Rome (Italy) [Corporate Author] World Conservation Union (IUCN), Gland (Switzerland) [Corporate Author] 3. Lutz SJ, Martin AH. 2014. Fish Carbon: Exploring Marine Vertebrate Carbon Services Published by GRID-Arendal, Arendal, Norway. https://gridarendal-website-live.s3.amazonaws.com/production/documents/:s_document/163/original/Fish-Carbon-2014.pdf?1484140288 4 Aguirre, Alonso, Weber, E. Scott 2011. Living Ocean, An Evolving Oximoron. Educating Our Public on the State of Fisheries and Ecosystems around the Globe. http://dx.doi.org/10.1007/978-1-4419-0851-3_910 5. Roman J, McCarthy JJ (2010) The Whale Pump: Marine Mammals Enhance Primary Productivity in a Coastal Basin. PLoS ONE 5(10): e13255. doi:10.1371/ journal.pone.001325 6. Lutz SJ, Martin AH. 2014. Fish Carbon: Exploring Marine Vertebrate Carbon Services Published by GRID-Arendal, Arendal, Norway. https://gridarendal-website-live.s3.amazonaws.com/production/documents/:s_document/163/original/Fish-Carbon-2014.pdf?1484140288	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			· Mass stranding and mortalityAnother element that must be strongly taken into consideration is that since January 1, 2019, a very large increase in the mortality of gray whales began to be noticed throughout their migration route. On May 3, 2019, the office in charge of the National Atmospheric and Oceanic Administration (NOAA) officially declared that a phenomenon of mortality and unusual gray whale stranding (UME) was in progress along the entire migration coast, from the north pole to its breeding grounds in Mexico, very similar to an event that occurred just over 20 years ago, which lasted two years and killed 25% of the whale population.This time the phenomenon of strandings is still in process and the records of strandings from its beginning until June 3, 2022 shows that a total of 578 strandings have been recorded, of which 279 have been on the coast of Mexico, which represents 48.3 of all the strandings registered in the three countries (See Table 1). [see letter for table]However, we must emphasize and it is recognized even by the NMFS, that mortality is much higher, since only whales that are stranded on the coast have been counted, but the number of those that die at sea and are dragged, or sink, is unknown. The latest update presented by the June Draft Environmental Impact Statement (DEIS) this year, recognizesthat the 1999 Event only lasted two years, after which the recovery of the species was observed, but that it is not possible to predict the duration of this Unusual Mortality Event (UME).Even so, in the middle of the fourth year of mass strandings and real ignorance of their causes, the administrative process has continued, and it concludes that whaling would not have impact on the whale population. The most that has been done is to propose 6 different scenarios in which the number of whales to be hunted is reduced, as well as the "strucks " in training. And the temporalities are modified as well asthe total number of days to hunt in summer and winter. But in total there would be (in alternative VII,) 12 harponed and arrived, 15 harponed and lost whales, plus the whales beaten in training.More than the discussion of	See Appendix D Responses to Frequent and Substantive Comments #19-Ongoing UME. See also Section 3.4, Affected Environment-Gray Whales, and Section 4.4, Environmental Consequences-Gray Whales, of the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the six alternatives, we will focus on the points that we believe that the NMFS authorities are failing to analyze and relate to the authorization to hunt gray whales. Strandings have not ceased, the population is decreasing, the body condition isstill poor, and the calves production is very low. And there is no satisfactory explanation.	
			· Poor Nutrition and Body Condition It is important to note that many of the stranded whales were found in a state of emaciation, that is, very thin and in very poor body condition, which has been related by some scientists to the loss of abundance of their food in the feeding sites in the Bering Sea, and that consists of amphipods and small crustaceans that whales capture in the seabed. This decrease in food for gray whales may be related to the effects of climate change, but also to the effects of the past decrease in whales due to commercial hunting as I mentioned earlier and the consequent decrease in the food source, which would cause the thinning of the whales and the lack of energy to make the long journey and reach the breeding areas. However, there is also the hypothesis that some disease may be in process, probably infectious that has not yet been identified, but that is impacting not only on an increase in mortality but also on the reproductive capacity of gray whales7 At the same time that strandings have been found, it was discovered that the whales that reach the breeding lagoons in Mexico are, many of them in poor physical condition, that is, with great losses of fat and muscle mass. First of all, there was a decrease in the number of female-calves and an increase in the number of skinny whales for the period 2019-2021. Several researchers suggest that this enormous and worrying weight loss in whales may be due to the decrease in their food in the northern seas, with the consequence that they do not ingest enough food and energy for migration. It is known that since the late 1980s there has been a decrease in the abundance of food from the biomass of amphipods that are the food of	See Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME. See also Section 3.4, Affected Environment-Gray Whales, and Section 4.4, Environmental Consequences-Gray Whales, of the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			gray whales, mainly in the so-called Chirikov Basin, which is the main feeding area of gray whales.The result is that year after year gray whales have arrived in worse body conditions8. [see letter for graphic] This phenomenon has manifested itself with the least presence of females with offspring in the breeding lagoons in Mexico. This last season was characterized by the low number of births and a 20% increase in whales in poor body conditions in addition to an earlier migration to the north. For 2022, it was found that this phenomenon continues: a total of 278 whales were identified and photographed, of which it was found that the percentage of whales in good condition was 43%; regular condition 37.5% and poor body condition 19. 5%. This data contrasts with those recorded after the UME registered for 2009-2011, in which the percentage of whales in poor physical condition was 7.6 by 2009 and 4.9% in 20119 (See graph 1). [see letter for graphic] Trends of percentage of gray whales by body condition] In general terms the trend of good condition has increased and the poor condition has slightly decreased, but still present in almost 20% of single whales. Scientists report that the main cause of the current Grey Whale Unusual Mortality Event (UME) has not been identified so far. It is likely that this event has multiple causes, including mortality linked to predatory by killer whales, trapping in fishing nets, collisions with boats and poor body condition possibly associated with ecosystem changes in sub-arctic and arctic feeding areas10. But probably infectious causes have not been completely studied 11.. Similarly, scientific hypotheses suggest that if whales do not feed enough during the summer, whales reduce their body condition enough not to complete their pregnancy and give birth to a healthy calf. If food resources are limited, breeding females may not produce one breeding every two years as is the normal reproductive cycle	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			of gray whales12 .In addition, the latest abundance studies reveal that the gray whale population shows a rapid decrease of approximately 24%, between 2016 and 2020, even without taking into account the mortality rates of the last two years13, 14. Recently, dated September 2022 it was published the NOAA Technical Memorandum on Abundance and Migratory Phenology of Eastern North Pacific Gray Whales 2021/202215. Thisreport about research if abundance carried out between 28 December 2021 and 18 February 2022 revealed that the estimated total abundance of gray whales during the 2021/2022 southbound migration was 16,650, which represents a decline and the 19.6% decline in abundance that occurred between 2020 and 2022.It meansthat only in two years the population declined almost 20%. But comparing to the whale population in 2016 (26,960) it has been a decline of 38% (Graphic 2). [see letter for graphic] Considering the 23.7% decline in abundance from 2016 to 2020 (Stewart and Weller 2021a), a continued decrease in the numbers of ENP gray whales has occurred since 2016: 26,960 whales in 2016, 20,580 in 2020 and 16,650 in 2022 (Fig. 2). The most recent estimate of 16,650 in 2021/2022 is comparable to those from 2000/2001 and 2001/2002 According to authors that gray whales population has been resilient over the years, but this time the continuing decline year after year between 2016 and 2022 “represents a pattern that requires further regular monitoring to determine when the population trajectory levels off and, in turn, again becomes positive”. In other words there is scientific uncertainty, which leads to precautionary principle, at least. In the same way the study on calf production 1994-202216 shows that the estimate of total calf production for 2022 was 216.7, which is the lowest estimate since the survey study started in 1994. In the same way it is similar to the period of Unusual	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Mortality Event (UME) 1999-2000, with declines of the population and the consequent periods of low calf production, but again recommends the following up of the process. (Graphic 3). [see letter for graphic] The above data allow us to affirm that the gray whale is going through a critical period that is not yet well known, that it is still in process, possibly multifactorial and evidently systemic, but that what is needed are measures that tend to facilitate the recovery of the population, and not aggravate the threats and risks already existing for its survival. Hunting, that is, the extraction of individuals from its population, cannot be an option. The ecosystem approach then indicates maintaining or restoring the composition, structure, function and provision of services of natural ecosystems with the aim of achieving sustainability. Scientific findings both in mexican lagoons and global counts on abundance and migratory phenology are consistent. There is a great decline in the population of gray whales that has fallen down from 26,960 whalesin 2016, to 16,650 in 2022, the strandings continue so far, after 4 years, the “poor body condition” is still in almost 20% of single whales for this 2022, and the number of calves is the lowest ever counted. These facts cannot be ignored by NMFS, and it must be recognized that this UME is somewhat different from the one of 1999-2000. It has been larger and with highest cost for gray whales. No serious scientific findings permit to make predictions. There is again scientific uncertainty. Therefore “Current and future levels of marine mammal species and populations “must take in account these facts of a declining and sick population. --- 7. Stimmelmayr R and Gulland FMD (2020) Gray Whale (Eschrichtius robustus) Health and Disease: Review and Future Directions. Front. Mar. Sci. 7:588820. doi: 10.3389/fmars.2020.588820	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			8. F. Christiansen, F Rodríguez-González, S Martínez-Aguilar, J Urbán, S Swartz, H Warick, F Vivier, L Bejder. Poor body condition associated with an unusual mortality event in gray whales. Marine Ecology Progress Series, 2020; DOI: 10.3354/meps13585 9. SC_68D_CMP_08-Valerio-et-al-body-condition.pdf (sanignaciograywhales.org) 10. SC_68D_CMP_071-Urbán-et-al-abundance.pdf (sanignaciograywhales.org) 11. Stimmelmayr R and Gulland FMD (2020) Gray Whale (Eschrichtius robustus) Health and Disease: Review and Future Directions. Front. Mar. Sci. 7:588820. doi: 10.3389/fmars.2020.588820 12. Ronzón-Contreras, F., Martínez-Aguilar, S., Swartz, S.L., Calderon-Yañez, E., and Urbán R. J. 2019. Gray whale body condition in Laguna San Ignacio, BCS, Mexico during the 2019 winter breeding season. Rep. Intl. Whal. Commn. SC/68A/CMP13 13. IWC.Scientific Report SC/68, 2022. https://archive.iwc.int/pages/download.php?ref=19447&size=&ext=pdf&k=&alternative=-1&usage=-1&usagecomment= 14. Joshua D. Stewart and David W. Weller. 2021. Abundance of eastern North Pacific gray whales 2019/2020. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-639. https://doi.org/10.25923/bmam-pe9 15. Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07 16. Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667. https://doi.org/10.25923/4g6h-9129	
			· The existing obligations of international treaties and agreements of the United StatesIn this regard, we note that the DEIS and also the recommendation of Judge Jordan only take into account matters relating to the International Whaling Commission, which is essential, but it is not the only international treaty that should be considered in this particular decision-making. The United States of America has been a signatory to the United Nations (UN) since October 1945, one of the main objectives being leadership and collaboration on the issue of Human Rights, and the Charter of the United Nations. This Charter establishes that the obligations arising from it are above the obligations of the rest of the treaties (art.103).	Section 1.2 describes the legal framework applicable to this request.
			· Marine Ecosystem and the Right to a Healthy Environment In this regard, we must highlight that in April 2022, the United Nations Human Rights Council declared access to a "clean, healthy and sustainable environment" as a universal human right. Recognizing that sustainable development, in its three dimensions, and the protection of the environment, including ecosystems, contribute to and promote human well-being and the full enjoyment of all human rights, for present and future generations17 In accordance with the above, on July 28 of this year, with 161 votes in favor, including the United States (and 8 abstentions18) the Member States	Section 1.2 describes the legal framework applicable to this request. Chapter 4 describes the impacts of the alternative on the environment.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			of the General Assembly adopted Resolution A/76/L.75 which recognizes asfundamental "The human right to a clean, healthy and sustainable environment" as a universal right19 It was recognized that climate change and environmental degradation represent the most urgent threats to the future of human beings, so this Resolution asked Member States to redouble their efforts to ensure that all people on the planet have access to a "clean, healthy and sustainable environment." It also recognizes that the impact of climate change, the unsustainable management and use of natural resources, the pollution of air, land and water, the unsound management of chemicals and waste, and the resulting loss in biodiversity interfere with the enjoyment of this right - and that environmental damage has negative implications, both direct and indirect, for the effective enjoyment of all human rights20. This Resolution: 1. “Recognizes the right to a clean, healthy and sustainable environment as a human right; 2. Notes that the right to a clean, healthy and sustainable environment is related to other rights and current international law; 3. Affirms that the promotion of the human right to a clean, healthy and sustainable environment requires the full implementation of multilateral environmental agreements in accordance with the principles of international environmental law; 4. Urges States, international organizations, companies and other relevant stakeholders to adopt policies, increase international cooperation, strengthen capacity-building and continue to share good practices in order to intensify efforts to ensure a clean, healthy and sustainable environment for all”.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Universal Human Rights are inherent in all of us, regardless of nationality, gender, ethnic or national origin, color, religion, language or any other condition. They range from the most fundamental - the right to life - to those that value our lives,such asthe rightsto food, education, work, health and freedom. The principle of universality of human rights is the cornerstone of international human rights law. This means that we all have the same right to enjoy human rights. Human rights are inalienable. They should not be deleted, except for specific situations and in accordance with an appropriate procedure. For example, the right to freedom can be restricted if a person is found guilty of a crime by a court of law. All human rights are indivisible and interdependent. This means that a set of rights cannot be fully enjoyed without the others. For example, advancing civil and political rights facilitates the exercise of economic, social and cultural rights. Similarly, the violation of economic, social and cultural rights can negatively result in many other rights. This issue is relevant, since the Makah tribe invokes its traditional and cultural rights to justify their intention to hunt whales again after more than a hundred years of not doing so. But no only the Makah Tribe. The Administrative Law Judge George J. Jordan in his Recommended Decision dated September 2021, establishes: “The Makah Tribe argues that whaling has significant cultural, spiritual, and historical significance, as evidenced by the whaling rights the Makah Tribe secured in the Treaty of Neah Bay. Makah whaling includes a constellation of practices including	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			ritual preparations and ceremonies, songs and dances, artistic representations, marriage practices, family titles, place names, potlatches and feasts, oral histories, authority and governance, and trade, among others. The Makah Tribe argues that its voluntary cessation of whaling in the early 20th century was always intended to be temporary, and did not affect their relationship with whales and whaling". (p. 72). "How central is whaling to Makah Tribal identity? Does the Tribe have a continuing traditional dependence? The Makah Tribe presented unrebutted evidence on the centrality of whaling to tribal identity"(p.25) "Is it possible for the Makah Tribe to substitute other, non lethal activities and maintain their traditional ties to whaling? The Makah Tribe presented convincing evidence that hunting and consuming whalesis an integral part of their culture" In the same way NMFS states that "Alternative 7, like the other action alternatives, would be consistent with the Makah stated need for the whale hunt, which is to allow the Tribe to exercise its trate whale hunting rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whale hunting traditions". (p. 94) 21. (p. 25) Said so, the Makah Tribe, NMFS, and Judge Jordan all together identify the Makah whaling as a cultural, traditional issue. Having said this we can say that although it is stated that the MMPA does not take into account cultural aspects, which is true, the authorities involved in the administrative process identify the Makah hunt with a cultural practice as one and the same thing. It could not be understood in any other way.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Cultural rights are internationally recognized, as the right that every person has in the cultural life of his community. The right invoked by the Makah tribe is very generally part of Articles, 22 and 27 of the Universal Declaration of Human Rights22 Article 22. Everyone, as a member of society, has the right to social security, and to obtain, through national effort and international cooperation, taking into account the organization and resources of each State, the satisfaction of economic, social and cultural rights, indispensable to his dignity and the free development of his personality. Article 27. Everyone has the right to take a free part in the cultural life of the community, to enjoy the arts and to participate in scientific progress and the benefits that result from it. It must be said that, the Universal Declaration on Cultural Diversity of UNESCO recognizes as culture "*the set of the distinctive spiritual and material, intellectual and affective traits that characterize a society or a social group and that encompasses, in addition to the arts and letters, the ways of life, the ways of living together, the systems of values, traditions and beliefs*." 23 It is then that when it refers to traditions, beliefs, and values, such as the case of the Makah, they are framed in cultural rights as protected and delimited by the Universal Declaration on Cultural Diversity, referred to above. It clearly establishes that every person must be able to participate in the cultural life of their choice and exercise their own cultural practices, within	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the limits imposed by respect for human rights and fundamental freedoms. Article 5 ... Every person has the right to a quality education and training that fully respects his cultural identity; every person must have the possibility to participate in the cultural life he chooses and conform to the practices of his own culture, within the limits imposed by respect for human rights and fundamental freedoms. According to the provisions of article 17 , cultural rights cannot be seen in isolation from other human rights recognized by international law. This is stated in Article 17 of that declaration: "The right of every person to participate in cultural life is closely linked to the enjoyment of other rights recognized in international human rights instruments. Therefore, the States Parties are obliged to comply with the obligations imposed on them by Article 15, paragraph 1 (a), as well asthose stipulated in the other provisions of the Covenant and the international instruments, in order to promote and protect all the variety of human rights guaranteed by international law." Moreover, it establishes that states must ensure, promote and protect all human rights and fundamental freedoms. However, it clearly establishes that cultural rights cannot be invoked to violate the human rights guaranteed by international law, or their scope can not be limited; as established in Article 18: . .. “although it is necessary to take into account national and regional particularities and the various historical, cultural and religious environments, States, whatever their political, economic or cultural systems, have the obligation to promote and protect all human rights and fundamental freedoms. Therefore, no one can invoke cultural diversity to	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			violate the human rights guaranteed by international law or to limit their scope." And Article 19 has a greater scope when it comes to conducts that are negative or that violate other human rights: "In some circumstances it may be necessary to impose limitations on the right of everyone to participate in cultural life, especially in the case of negative practices, including those attributed to custom and tradition, which violate other human rights",...24 (such as the right for a healthy and clean environment). That is, cultural rights have limitations that have to do with the common good and the other human rights. These limitations must pursue a legitimate purpose, be compatible with the nature of that right and be strictly necessary for the promotion of the general welfare of a democratic society. In so Article 15, paragraph 1 (a), cannot be interpreted as meaning that a State, group or individual has the right to undertake activities or perform acts aimed at the destruction of the rights or freedoms recognized in the Covenant or their limitation to a greater extent than that provided for in it 25 The tradition and customs of the Makah tribe are framed in the concept of culture and that UNESCO defines 26 as "the total sum of the material and spiritual activities and products of a certain social group that distinguishes it from other similar groups, and a system of values and symbols, as well as a set of practices that a specific cultural group reproduces over time and that gives individuals the symbols and meanings necessary to act and relate socially throughout life"	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The Makah Tribe invokes its ancient cultural and traditional right to hunt whales. However, ancestral traditions and cultures evolve in time and do not constitute an abstract and immobile concept in time but are built and reconstructed from the social interaction between the members of the group and with the external society, as well as a response to environmental and technological changes in the evolution of time. Cultural traditions are active, dynamic and adaptive. In this regard, UNESCO itself establishes that culture acquires different forms through time and space, so the evolution and dynamism of cultures and different groups is recognized, with different originality and plurality, in coexistence. In this intercultural network, human rights coexist and govern, in a dynamic and congruent way. The United States of America has been a signatory of the International Convention on Economic, Social and Cultural Rights since 197727 to which I refer in this document. Therefore, despite not being binding, it does forcefully guide the actions to be followed in order to prevent the erroneous interpretation of the cultural rights of any person or group from being contrary to fundamental human rights, in this case the right to a healthy environment. In other words, actions must be focused on this purpose. Therefore, whaling under the argument that two or three whales per year is sustainable, loses argumentative strength and sense in the face of an scenario of a decimated and sick population that is suffering a very important ecological stress throughout its migration route. From the feeding grounds that show a serious decrease in their biomass and whose cause may be the effects of climate change.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			But also recent studies that show that this decrease is related to the commercial whaling that was suspended just a few decades ago and caused the loss of millions of whales, including the gray whale hunt that reached only about 2,000 individuals, which lost the largest source of pollination and fertilization in the northern seas. Everything is interconnected and it cannot be ignored that the whaling that took place in the past two centuries has harmful effects not only in the short term, but also in the medium term as we are seeing now28. In this situation, each individual counts and is valuable for its ecosystem. The state of health of the gray whales of the Pacific and their high mortality are not oblivious or independent of the state of health of the marine ecosystem, nor from the human, past and present actions that can influence to mitigate or aggravate the impacts that the species is currently suffering. The health of gray whales is drawing our attention to an altered and sick ecosystem. The concept of One Health, developed in the last 20 years and currently adopted by international organizations (WHO, FAO, OIE) emphasizes the close interrelationship between all elements of ecosystems, which includes the human being. The appropriate solution to the serious problem faced by the gray whale must be made from the perspective of One Health, without a doubt. It is necessary to adopt scientific advances, recognize the profound interrelationship of our actions and the ecological imbalance in marine systems in general and the facts found and described in this opinion as well as in other opinions issued by non-governmental organizations in favor of the gray whale.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The Human Right to a healthy environment necessarily goes through the precautionary measures of not doing more damage and favoring the recovery of gray whales. To this end, the Kunming Declaration of the Convention on Biological Diversity established, on October 13, 2021, the need to build an ecological civilization that guarantees a shared future for all life on Earth, where respect and care for other animals and nature are learned from childhood. Today it is proposed to "lead biological diversity towards recovery," as a decisive and urgent challenge. --- 17. https://www.ohchr.org/en/statements-and-speeches/2022/04/right-healthy-environment#:~:text=Human%20Rights%20Council%20resolution%2048,at%20the%20UN%20General%20Assembl 18. Belaurus, Cambodia, China, Ethiopia, Iran, Russian Federation, Syrian Arab Rep, Kyrgyzstan 19. https://www.ohchr.org/en/statements-and-speeches/2022/04/right-healthy-environment#:~:text=Human%20Rights%20Council%20resolution%2048,at%20the%20UN%20General%20Assembl 20. UN General Assembly declares access to clean and healthy environment a universal human right | | 1UN News 21. Recommended Decision on Proposed Waiver and Regulations Governing the Taking of Eastern North Pacific Grey Whales by the Makah Tribe (noaa.gov) 2.2 NU: Asamblea General, Declaración Universal de	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Derechos Humanos, 10 Diciembre 1948, 217 A (III), disponible en esta dirección: https://www.refworld.org.es/docid/47a080e32.html [Accesado el 3 Octubre 2022] 23. Declaración Universal de la UNESCO sobre la Diversidad Cultural | UNESCO. https://es.unesco.org/about-us/legal-affairs/declaracion-universal-unesco-diversidad-cultur 24. ONU: Comité de Derechos Económicos, Sociales y Culturales (CESCR), Observación general No 21, Derecho de toda persona a participar en la vida cultural (artículo 15, párrafo 1 a), del Pacto Internacional de Derechos Económicos, Sociales y Culturas), 21 Diciembre 2009, E/C.12/GC/21, disponible en esta dirección: https://www.refworld.org.es/docid/4ed35beb2.html [Accesado el 30 Septiembre 2022] 25. Op cit 26. Rodolpho Stavenhagen, “Cultural rights: A social science perspective", en H. Niec (coord.), Cultural Rights and Wrongs: a collection of essays in commemoration of the 50th anniversary of the Universal Declaration of Human Rights, París y Leicester, UNESCO Publishing e Institute. https://link.springer.com/chapter/10.1007/978-3-642-34153-3_3#citeas 27. UN Office of the High Commissioner of Human Rights. Status of Ratification of 18 Treaties of Human Rights -OHCHR Dashboard 28. Mathew Savoca et al Baleen Whale prey consumption based on high resolution foraging measurementsNature. Volume 599 4 Novembre 2021. Baleen whale prey consumption based on high-resolution foraging	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			measurements | Nature https://www.nature.com/articles/s41586-021-03991-5.epdf?sharing_token=rHBDna3XhK7JhmQMwiOWUdRgN0jAjWel9jnR3ZoTv0OACKkTxadDc1of6AUcWjOzU9YIrLjq	
			Therefore, and in view of the arguments presented, the reasoning that must be followed is in the sense that the hunting of whales would result in an unpredictable way that will aggravate the precarious situation of whales and the ecosystem on which whales and humans depend. It is a situation where the cultural rights that have been invoked are opposed and contrary to the right to a healthy environment; therefore contrary to International Human Rights Law. Consequently, there is a great concern about the possibility of the NMFS authorizing the hunting of gray whales, in contravention of the main objective of the Act for the Protection of Marine Mammals (MMPA), which is to maintain the health and stability of the marine ecosystem and the Right to a Healthy Environment. It is also contrary to the legitimate rights of fishermen in Baja California Sur who depend economically on the sighting of gray whales every season, legally regulated. Therefore, respectfully but firmly we manifest that the Exception (waiver) for hunting gray whales for the Makah tribe should not be approved.	We note this closing information.
485	AWI	10/14/22	On behalf of the Animal Welfare Institute (AWI), I submit the following comments on the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (SDEIS), which purports to analyze additional information relevant to the Makah Tribe's request for a waiver of the Marine Mammal Protection Act's (MMPA) take moratorium to conduct ceremonial hunts. 87 Fed. Reg. 39,804 (July 5, 2022). The SDEIS relied on outdated data, failed to consider a number of viable alternatives, and the process by which it was produced deprived outside experts and other interested parties of the opportunity to fully analyze and address the new data made available at the tail end of the process.1	We note the comments raised in this introduction and provide responses to the points as they are raised in the body of the comment letter.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			On February 27, 2020, the National Marine Fisheries Service (NMFS) published a Notice of Intent to prepare the SDEIS, noting that the analysis would include, among other things, information about the ongoing gray whale Unusual Mortality Event (UME). 85 Fed. Reg. 11,347, 11,348 (Feb. 27, 2020). However, the SDEIS did not provide any meaningful analysis of the UME. To the contrary, the SDEIS's glaring deficiencies, including NMFS's failure to timely disclose critical information, prevented both the agency and interested stakeholders from fully reviewing and assessing the environmental impacts of the proposed action and its alternatives. Consequently, the SDEIS violates the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370m, and its implementing regulations, as well as the Administrative Procedure Act (APA), 5 U.S.C. § 706(2).2 As discussed below, as well as in various comments submitted as part of the MMPA and NEPA processes, NMFS's proposed waiver and regulations eschew the conservative, precautionary approach that the MMPA demands and, instead, prioritize the interests of the Tribe over marine mammals. Grey whales are facing ongoing and increasing threats, including from ship strikes, bycatch, contaminants, ocean noise, and ocean warming, including localized and regional marine heatwaves. NMFS itself recognizes the precarious situation facing each recognized subpopulation. Indeed, the Western North Pacific (WNP) gray whales remain listed as endangered under the Endangered Species Act (ESA). The ENP gray whale and Pacific Coast Feeding Group (PCFG) gray whale populations continue to suffer steep declines in abundance and calf recruitment due to the multiyear, ongoing UME, the cause of which remains unknown. Additionally, questions remain regarding the appropriate designation of the PCFG gray whale management unit under the MMPA. Unfortunately, NMFS's flawed, results-oriented decision-making in this matter has carried	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			through to the NEPA process, resulting in an SDEIS that ignores important data and violates NEPA's requirements in several crucial respects. Accordingly, the SDEIS is arbitrary, capricious, and not in accordance with law. These flaws must be corrected before any final decision can be issued. As it did in its comments on the Recommended Decision, AWI again feels compelled to point out its strong organizational commitment and dedication to environmental justice and civil rights matters generally and Native sovereignty issues specifically. While AWI fully appreciates the Tribe's unique cultural heritage and its interest in hunting gray whales, at this time AWI does not view such a hunt as consistent with the best available science regarding the various gray whale populations that could be affected by the proposed hunt, nor the precautionary principle embodied in the MMPA. Nor does AWI view the SDEIS process as taking the legally required "hard look" at the impacts of the proposed hunt or its alternatives, as required by NEPA. Accordingly, AWI submits these comments through a law- and science-focused lens that is in no way intended to demean or diminish the Tribe's interests in engaging in important cultural practices. --- 1 AWI incorporates by reference its comments on the Recommended Decision, as well as comments submitted on the 2015 Draft EIS, and declarations and briefs submitted during the MMPA waiver process. 2 In 2020, the Trump Administration issued sweeping changes to NEPA's implementing regulations that apply only to NEPA processes "begun after the effective date" of September 14, 2020. 85 Fed. Reg. 43,304, 43,339 (July 16, 2020). The SDEIS was prepared pursuant to the NEPA regulations in place at the time of NMFS's 2015 Draft EIS (DEIS) for the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			proposed hunt. See SDEIS at iv. Accordingly, the citations to NEPA regulations in this comment letter likewise refer to the NEPA regulations in place prior to the 2020 Final Rule.On behalf of the Animal Welfare Institute (AWI), I submit the following comments on the	
			STATUTORY BACKGROUND3 Congress enacted NEPA more than four decades ago "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment." 42 U.S.C. § 4321. In light of this mandate, the Supreme Court has reasoned that NEPA is "intended to reduce or eliminate environmental damage and to promote 'the understanding of the ecological systems and natural resources important to' the United States." Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).To achieve NEPA's substantive goals, Congress created two specific mechanisms whereby federal agencies must evaluate the environmental and related impacts of a particular federal action—an Environmental Assessment (EA) and an EIS. See 42 U.S.C. § 4332(c). These procedural mechanisms are designed to inject environmental considerations "in the agency decision-making process itself," and to "help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." Pub. Citizen, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, "NEPA's core focus [is] on improving agency decision-making," Id. at 769 n.2, and specifically on ensuring that agencies take a "hard look" at potential environmental impacts and environmentally enhancing alternatives "as part of the agency's process of deciding whether to pursue a particular federal action." Balt. Gas & Elec. Co. v. NRDC, 462 U.S. 87, 100 (1983).The alternatives analysis "is the heart" of an EIS or EA. 40 C.F.R. § 1502.14. NEPA's	This background information is noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			implementing regulations require that the decision-making agency "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." Id. To assist in NEPA's twin aims of ensuring that agencies "consider every significant aspect of the environmental impact of a proposed action" and "inform the public that it has indeed considered environmental concerns in its decision-making process," id., an EIS must "provide full and fair discussion of significant environmental impacts" and must "inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." Id. § 1502.1. Importantly, the NEPA process "shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40 C.F.R. § 1502.2(g) (emphasis added); see also id. § 1502.5 (requiring that NEPA review "shall be prepared early enough s*o that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made"* (emphases added)). --- 3. In light of the extensive comments AWI has submitted at various stages of this decision-making process, AWI feels it unnecessary to discuss the factual background in depth. Additional relevant facts are incorporated into the discussion throughout.	
			DISCUSSION **A. The SDEIS Process Suffered from Procedural Irregularities That Deprived <u>Commenters of Timely Access to Critical Information</u>** Although AWI appreciates NMFS's initial grant of a 60-day extension of the comment deadline, 87 Fed. Reg. 50319 (Aug. 16, 2022), the agency's subsequent denial of an additional extension to review newly released	See Appendix C Responses to Frequent and Substantive Comments #16-Amount of time allowed to comment on the DEIS Harris et al. (2022) was "in press" when the SDEIS was released and is cited as such throughout the SDEIS. As soon as Harris et al. (2022) and Eguchi et

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			materials bearing directly on the issues of gray whale abundance and the impacts of the UME is particularly troubling. Shortly before the comment deadline, NMFS published several papers that contain information vital to an accurate assessment of the proposed hunt and its environmental impacts. For example, one paper contained a revised abundance estimate for PCFG gray whales, see Harris et al. (2022),4 while other papers contained a revised gray whale population abundance estimate and new gray whale calf recruitment numbers, see Eguchi et al. (2022).5 Despite the belated release of these studies that NMFS knew were in the process of being finalized during the SDEIS process—indeed, reports concerning the revised ENP gray whale abundance estimates and calf production were posted on NMFS's website a mere seven days before the SDEIS comment deadline—NMFS denied AWI's request for a second, limited extension to allow it time to review and incorporate the new data into its comments. As a result, AWI's ability—and indeed, that of all stakeholders—to review and address the reports was compromised. NMFS's decision is particularly troubling given the fact that these reports document an ongoing, dramatic decline in ENP gray whale abundance estimates, as well as the lowest number of northbound gray whale calves since counts were initiated in 1994. Such information is directly relevant to the subject matter and analysis contained in the SDEIS. Yet, AWI and other stakeholders were denied sufficient opportunity to review and incorporate the data into their comments. NMFS's failure to provide timely access to the reports is likewise troubling because NMFS issued its SDEIS a mere three months before the updated gray whale abundance report was finalized. See 87 Fed. Reg. 39804; Harris et al. (2022). Rather than wait to ensure that the SDEIS contained the most accurate and updated information available—which NMFS knew was "in prep[aration]" and would be finalized shortly—NMFS once again barreled	al (2022) were published, we made them available to the public. These papers were available during the initial comment period and when it was reopened on October 25, 2022.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			ahead and issued its SDEIS based on outdated information, compromising the integrity and accuracy of the decisionmaking process. The agency's failure to disclose such information that goes to the very heart of the decision under review—i.e., whether to waive the MMPA's moratorium and allow a hunt for individuals of the declining ENP gray whale population—deprived interested stakeholders of a sufficient opportunity to review, analyze, and incorporate highly relevant information into their substantive comments. This lack of transparency violates the information disclosure requirements of NEPA and is a major flaw with the SDEIS. --- 4 J. Harris et al., NOAA Fisheries, Recent Trends in the Abundance of Seasonal Gray Whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020, AFSC Processed Rep. 2022-05 (Sept. 2022). 5 Tomoharu Eguchi et al., NOAA Fisheries, Abundance and Migratory Phenology of Eastern North Pacific Gray Whales 2021/2022, NOAA Technical Memorandum NMFS-SWFC-668 (Sept. 2022).	
			B. The SDEIS is Woefully Inadequate and Fails to Satisfy the Requirements of NEPA.NEPA requires agencies to ensure that the information they use is "of high quality." 40 C.F.R. § 1500.1(b). Indeed, "[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." Id. The SDEIS fails to meet this requirement.First, despite the fact that two of the SDEIS's preparers were also named authors of the paper reporting the revised ENP gray whale abundance estimates—which again, was not only in the process of being finalized while the SDEIS was being prepared but was released a mere seven days before the SDEIS comment deadline—NMFS inexplicably elected to rely on outdated 2020 abundance estimates in the SDEIS, skewing its analysis. Since 2016, the ENP gray whale population has declined by 38%, and calf production last year was at its lowest since	We disagree. The information included in the NEPA documents is of high quality and accurate. Subsequent to the publication of the SDEIS, new scientific papers were published. These papers were made available to the public during the comment period. The papers and the comments received on them are considered in the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			scientists began counting births in 1994. The 2022 abundance estimate now sits at a mere 16,650 whales. Not only is this nearly 4,000 fewer whales than the population estimate relied upon in the SDEIS's analysis, it is also below the abundance estimate when gray whales were delisted under the ESA (i.e., 20,000-21,000 whales). 58 Fed. Reg. 3121, 3125 (January 7, 1993). Given the low calf production, this decline is likely to continue. The PCFG gray whale population has likewise experienced an 18% decline from an estimated high of 257 in 2015 to 212 in 2020 (the most recent year for which a PCFG abundance estimate is available). Although the SDEIS briefly discussed the impacts of setting a "low abundance trigger" on the hunt—i.e., an abundance estimate below which the hunt would not occur—NMFS did not meaningfully examine the impacts of conducting a hunt on a population that is undergoing a dramatic decline. For example, although NMFS dismissed the impacts of non-lethal approaches or strike attempts on individual whales as being "temporary," NMFS did not take a hard look at how those takes will impact whales, both individually and cumulatively with other stressors, including declining food availability, climate change, and whether lethal or non-lethal, it is likely that such takes will have a serious adverse impact on malnourished or otherwise compromised individuals.6 Yet, NMFS never examined such effects. Because the SDEIS relied on outdated data despite the availability of updated data that bear directly on the environmental consequences of the action, and further, because the reliance on outdated data skewed the agency's analysis and masked adverse impacts, the SDEIS violates NEPA and its implementing regulations.	
			Relatedly, NMFS failed to examine the impacts of the hunt relative to PBR in light of the revised abundance estimates and negative population trend data. PBR is intended to determine the maximum number of animals that can be removed from a population or stock as a result of human-caused mortalities (not natural mortalities) while allowing the population or stock	With respect to the consideration of PBR, we considered alternative values for the recovery factors and Rmax, calculating an "informational" PBR for ENP gray whales (see FEIS Subsection 3.4.3.3.4) .

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			to reach or maintain its optimum sustainable population (OSP). SDEIS at v. Given the precipitous decline in the ENP and PCFG gray whale populations, NMFS must revisit the other variables used in the calculation of PBR, including Rmax and the recovery factor, to determine whether the variables must also be revised. 7 Indeed, for declining populations, the precautionary principle dictates that a more conservative Rmax be used to ensure that human-caused mortalities are not contributing to a population's failure to maintain OSP. Likewise, where a population is in danger of falling below OSP, the recovery factor of 1.0 may not be appropriate. Determining an accurate and biologically justifiable PBR is essential to achieving the MMPA's purposes, and is especially critical where, as here, evidence suggests an increase in human-caused mortalities in a population as a result of, for example, ship strikes,8 bycatch,9 and ongoing subsistence harvest.10 NMFS must rigorously examine the direct, indirect, and cumulative impacts of the proposed hunt, including all of the best available data regarding population trends, sources of human-caused mortality, and the impacts of climate change on gray whales. NMFS's failure to conduct such a robust analysis, either in the DEIS or the SDEIS, violates NEPA's hard look requirement.	See also Appendix C Responses to Frequent and Substantive Comments #7-Calculation and use of 'potential biological removal' (PBR) for a PCFG mortality limit.
			Second, the SDEIS failed to fully examine the impacts of the UME on the ENP and PCFG gray whale populations. Although the causes of the UME have not yet been determined, available evidence suggests that the increased mortality of gray whales is due in part to decreased food availability in the Arctic, which in turn is linked to climate change. The SDEIS dismisses the UME as merely a population fluctuation typical of a boom/bust cycle, but the year-over-year decline in abundance since 2016 is strongly suggestive of a larger trend. NMFS failed to examine this potential. Instead, NMFS remained myopically focused on dismissing the impacts of the proposed hunt, insisting that its cursory assessment of "low-impact triggers" for ENP and PCFG gray whales suffices for an	With respect to the ongoing UME and the decline in population, we have updated the FEIS throughout. See also Appendix C Responses to Frequent and Substantive Comments #19--Ongoing UME.The NEPA documents examine the effects of the action on whales, both individually and cumulatively, in the context of the recent decline. See, among others, Sections 4.4 and 5.4 of the FEIS. See also Appendix C Responses to Frequent and Substantive Comments #10-Response of gray whales to being hunted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			examination of the actual impacts of the proposed hunt on a declining population. In so doing, NMFS ignored an important aspect of the problem, and failed to take the requisite hard look at the effects of its action. NMFS must take a hard look at the impacts of the proposed hunt and its alternatives—direct, indirect, and cumulative—in light of the long-term impacts of the UME and its causes on gray whale abundance.Third, the SDEIS failed to fully examine the direct, indirect, and cumulative impacts of take on ENP, PCFG, and WNP whales. The SDEIS suffers from the same fatal flaw as the Recommended Decision, i.e., it presumes without evidence that the effect of takes by approach or pursuit will have only a temporary effect on WNP whales. However, as previously explained in AWI's comments on the Recommended Decision, vessel approaches to within 100 yards are known to have the potential to cause behavioral disturbances and thus have long been formally considered by NMFS to constitute harassment. Moreover, at the administrative hearing, when asked to describe gray whales' reaction to being approached by research vessels, Dr. Weller admitted not only that many whales do in fact react, but that such reaction "is often related to the behavior of the boat and how it is operated." Tab 102, 10:10-14. Thus, it stands to reason that a gray whale that has been targeted by Tribal hunters and subjected to an approach and pursuit in a hunt scenario may react quite strongly. As a result, NMFS's SDEIS failed to take a hard look at this critical aspect of the proposed hunt, and as such violates NEPA, its implementing regulations, and the APA.	
			NMFS's failure to take a hard look at the impacts of take on gray whales is particularly egregious with respect to the endangered WNP gray whale. The SDEIS erroneously focuses only on the potential of a WNP whale being lethally struck. However, as explained, even so-called "temporary" disturbances can have serious adverse impacts on whales, including energy expenditures, disruption or abandonment of important life history behaviors, and stress, all of which could impact the long-term viability of	Villegas-Amtmann et al. (2015) and Villegas-Amtmann et al. (2017) are considered in the FEIS. These papers develop a conceptual framework for understanding how disturbance can potentially translate into energetic consequences to marine mammals and apply this model to gray whales. These energetic consequences can potentially lead

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			individuals and even the stock itself. Indeed, Villegas-Amtmann et al. (2017) (Attach. 2) used a female bioenergetics model to predict the consequences of energetic loss in WNP female gray whales. Considering the longer migration distance for WNP gray whales either to Mexico or China, they found that the energy requirements for WNP female gray whales were generally 11-15% higher than those of female ENP gray whales. The modeling output predicted that female WNP "mortality would likely occur at 38-40% annual energetic loss" and that "[l]ong-term yearly energy loss of 30% would result in adult female mortality the first year, followed by lower reproductive rates of survivors." NMFS's SDEIS fails to meaningfully discuss gray whale bioenergetics or analyze the direct, indirect, or cumulative impacts of sub-lethal take on WNP gray whale individuals or on the stock as a whole, thereby minimizing the potential adverse effects of the proposed hunt on the endangered species. As a result, the SDEIS violates NEPA, its implementing regulations, the MMPA, and the APA. Finally, the SDEIS failed to examine all reasonable alternatives. Specifically, the SDEIS failed to examine the mid-range alternative of conducting a hunt without authorizing any training activities. This alternative would accomplish the purpose and need for the action while also reducing the adverse effects on ENP, PCFG, and WNP gray whales and the marine environment. Yet, NMFS never examined such an alternative either in the DEIS or in the SDEIS. "The existence of a viable but u nexamined alternative renders an [EIS] inadequate." Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 868 (9th Cir. 2004) (quotation omitted). It is particularly troubling here that NMFS failed to consider any alternatives that "might meet the goals of the agency by using different approaches which may reduce the environmental impacts of the agency's action." Soda	demographic consequences. Certain activities (e.g., approaches, training harpoon throw) may translate into the whale behaving in a particular way (e.g., moving to a new feeding area, increased swimming speed). The response will vary based on the individual and their behavior (e.g., migrating, feeding) at the time of the activity. In addition, the whale may compensate for these impacts (e.g., by moving to another feeding area). While we do not know how a particular response translates into energy loss, the impacts from non-lethal hunt activities would be short-term in nature and would likely be recovered from (for example, see section 4.4.2.4 Change in Numbers of Gray Whales Using the Makah U&A and OR-SVI Areas). They are unlikely to result in long-term impacts to individuals or the population.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Mountain Wilderness Council v. Norton, 424 F. Supp. 2d 1241, 1265 (E.D. Cal. 2006).	
			Notably, to our knowledge no other subsistence whale hunt permits "training activities." It is unclear why NMFS has incorporated such training activities into its proposed activity, particularly given the serious adverse impacts of such activities on the affected whales and their constituent stocks. Yet, NMFS never analyzed, either in the DEIS or in the SDEIS, an alternative that would forbid such training activities and allow only the core proposed action, i.e., the hunt. NEPA imposed a clear-cut procedural obligation on NMFS to take a "hard look" at alternatives that would entail less significant impacts on resources affected by the project. Balt. Gas, 462 U.S. at 100. An EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives" and, in particular, "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." 40 C.F.R. § 1502.14. NMFS's objectives must take into account "the views of Congress, expressed . . . in the agency's statutory authorization to act." Citizens Against Burlington, Inc., 938 F.2d at 196; see also Theodore Roosevelt Conservation P'ship, 661 F.3d at 72 (defining "reasonable alternative" to mean one that "is objectively feasible as well as 'reasonable in light of [the agency's] objectives'" (alterations in original) (quoting City of Alexandria v. Slater, 198 F.3d 862, 867 (D.C. Cir. 1999))). With respect to marine mammals, Congress mandated that the management of populations be carried out with the interests of the animals as the prime consideration. H.R. REP. NO. 92-707, at 18, 1972 U.C.C.C.A.N. at 4145 (emphasis added). Accordingly, a reasonable range of alternatives must include alternatives that have fewer adverse effects on gray whales. Legally and logically, this includes a mid-range alternative that prohibits	With respect to the consideration of an alternative that does not include authorization of training activities, see Appendix D Responses to Frequent and Substantive Comments #22-Authorization of Training ActivitiesWe have incorporated Sato and Wiles (2021) into the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			training activities. NMFS's failure to examine such an alternative and its impacts violates NEPA, its implementing regulations, and the APA. Cf. Union Neighbors United, Inc. v. Jewell, 831 F.3d 564, 577 (D.C. Cir. 2016) ("Accordingly, because the Service in these circumstances did not consider any other reasonable alternative that would have taken fewer Indiana bats than Buckeye's plan, it failed to consider a reasonable range of alternatives and violated its obligation under NEPA.").	
			---------- 6. Villegas-Amtmann et al. (2015) (Attach. 1), for example, used a bioenergetics model to determine the energy requirements for a two-year reproductive cycle for female gray whales and to predict the consequences of energetic losses under three possible disturbance scenarios. The authors determined that an annual energetic loss of only 4% would prevent a successful gray whale pregnancy. During the birth year, a pregnant gray whales would wean her calf at a lower mass if she experienced a 37% energetic loss. If an adult female gray whale experiences a 30-35% energetic loss, she would lack the energy to become pregnant. Moreover, a 40-42% energetic loss would likely be fatal. 7. For example, although the previous PBR calculation for ENP gray whales used an Rmax value of 6.2, the currentprecipitous decline in calf production numbers merit a reevaluation of that value. 8. The impact of ship strikes on gray whale may be greater than previously considered. As noted in the SDEIS, "a recent qualitative assessment of the co-occurrence of North Pacific gray whales and vessel traffic found that ship strikes, and related underwater noise may pose a significant risk to gray whales." SDEIS at 39. Recent studies have determined that certain areas present a "high risk" of ship strikes and underwater noise, including the Russian Far East (Kamchatka	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			peninsula and Okhotsk Sea), Bering Sea, Gulf of Alaska, and along the entire west coast of North America. Id. "The study estimated that the number of gray whales killed annually rangewide may be in the tens or perhaps low hundreds, and the risk was greatest during gray whale migration periods when animals are near shore and overlap with coastal shipping routes and fisheries." Id. This is particularly concerning where the 2020 Stock Assessment Report indicated that annual mortality from vessel strikes from 2014-2018 was only 1.8 whales. NMFS must account for the most recent data in human-caused mortality in its analysis of effects of the proposed hunt on gray whales.	
			9 According to the Washington Department of Fish and Wildlife, "[g]ray whales are especially vulnerable toentanglement because of their use of nearshore coastal waters, where fishing activity is often highest." Chris Sato &Gary J. Wiles, Wash. Dep't of Fish & Wildlife, Periodic Status Review for the Gray Whale 10 (Feb. 2021), available athttps://wdfw.wa.gov/sites/default/files/2021-02/gray_whale_psr_final_draft_fwc-ready.pdf. Indeed, "[f]rom 1982 to2018, gray whales were the most frequently entangled whale species along California, Oregon, and Washington,averaging 6.9 entanglement reports per year, although actual numbers of entanglements are likely much higher thanindicated by these reports." Id.10 According to gray whale kill data provided to the IWC, from 2019 through 2022, Russian indigenous whalers killedan average of 133.33 gray whales each year. See IWC, Aboriginal Subsistence Whaling Catches Since 1985,https://iwc.int/table_aboriginal.	
			CONCLUSION Although AWI appreciates NMFS's willingness to prepare a supplemental	These concluding comments are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			EIS, AWI is extremely disappointed that NMFS is using this opportunity to once again sidestep important issues that matter to AWI, its members, and many American citizens. In doing so, NMFS is failing to follow its legal mandate to protect the marine life in its purview. The proposal to grant the first waiver under the MMPA is highly consequential and requires a rigorous examination of the impacts of the proposal and its alternatives to ensure that any activities authorized comply with the policies and purposes of the MMPA. Unfortunately, the SDEIS falls far short of offering such an analysis. AWI urges NMFS to reconsider the unduly narrow scope of its SDEIS, and to instead analyze all relevant issues that have been raised to the agency at the DEIS stage and in the parallel MMPA process.	
486	MMC	10/14/22	On 5 July 2022, the National Marine Fisheries Service (NMFS) published a notice in the Federal Register (87 Fed. Reg. 39804) requesting comments on a supplemental draft environmental impact statement (SDEIS) regarding the Makah Tribe's request to hunt eastern North Pacific gray whales. Due to its consultative role under section 103(a) of the Marine Mammal Protection Act (MMPA) and participation as a party to the rulemaking, the Marine Mammal Commission (Commission) has had numerous opportunities to comment on various aspects of the proposed waiver of the Act's moratorium on the taking of marine mammals to authorize the Makah Tribe to hunt gray whales and on the associated analyses under the National Environmental Policy Act (NEPA). As such, the Commission is limiting these comments to only a few aspects of the SDEIS and trusts that these comments will be read in conjunction with our previous comments on the waiver request, NMFS's proposed regulations, the Administrative Law Judge's recommended decision, and earlier NEPA documents.	We note this background information.
			Preferred Alternative and New Information The SDEIS introduces a new, seventh alternative that NMFS identifies as the preferred alternative. This alternative assembles elements from the	Comments noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			other six alternatives previously considered in the 2015 DEIS and reflects evolution of the proposed rule during the course of the rulemaking to authorize alternating winter/spring and summer/fall hunts. The Commission believes that this alternative best meets the objectives of the Makah Tribe in seeking authorization to hunt eastern North Pacific (ENP) gray whales, while appropriately apportioning the risks associated with the hunt between non-target, endangered gray whales from the western North Pacific (WNP) stock and the Pacific Coast feeding group (PCFG) of gray whales. As reflected in its 13 November 2021 comments on Judge Jordan's recommended decision, the Commission supports adoption of Alternative 7 subject to certain amendments and additional conditions. The SDEIS also updates the analyses of other alternatives reviewed in the 2015 DEIS to reflect new information on gray whale abundance and distribution that was not previously available. Most importantly, the SDEIS incorporates information concerning the unusual mortality event (UME) involving ENP gray whales declared by NMFS in May 2019. As noted in the SDEIS, as of 3 June 2022, 578 stranded gray whales had been reported across their range in Mexico, the United States, and Canada since 17 December 2018. An earlier die-off of gray whales occurred in 1999-2000 that similarly coincided with a more than 20 percent decline in ENP gray whale abundance.	
			ENP Gray Whale Population Abundance Threshold In his recommended decision, the Administrative Law Judge (ALJ) adopted the Commission's position that the regulations governing the hunting of gray whales should include a "population floor" below which hunting ENP gray whales would be suspended. Given the stock's history of UMEs, which are associated with rapid, significant declines in abundance, the Commission continues to believe that setting a floor is needed to comport with the MMPA's requirements and to prevent the hunt from adding to what	The purpose of the FEIS is to to analyze potential impacts of alternatives to inform decision-making. The impacts of the Preferred Alternative are analyzed without an ENP population abundance threshold. However, three thresholds are considered as Sub-alternatives. Under the Sub-alternatives, hunting would cease if the abundance estimate (N) of the ENP gray whale stock dropped below: a) N=11,000,

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			already would be a precipitous decline in abundance. Although supportive of setting a numeric floor in the regulations, the ALJ's recommended decision did not suggest what number would be appropriate.The SEIS includes three possible abundance thresholds below which hunting would cease: 11,000 whales, 16,000 whales, or 18,000 whales. Although there is some population floor below which hunting of ENP gray whales should be suspended due to conservation concerns, the Commission's argument is primarily a legal one. Section 103(a) of the MMPA requires that regulations issued thereunder be consistent with the purposes and policies set forth in section 2 of the Act and not be to the disadvantage of the affected species and stocks. The courts have interpreted these provisions as requiring NMFS to determine that the stock currently is within its optimum sustainable population (OSP) and will remain so despite the authorized taking, as preconditions to waiving the MMPA's taking moratorium. Thus, whatever population floor ultimately is adopted, it should have a clear relationship to the lower bound of the OSP range, the stock's maximum net productivity level (MNPL).The proposed threshold of 11,000 whales is clearly below the OSP range of ENP gray whales and should be rejected on that basis alone. Notwithstanding the fact that the stock has been able to "recover" from that number before, allowing taking under a waiver to persist once the population drops below its MNPL would be inconsistent with the requirements of section 103 and the broader purposes and policies of the Act.Arguments can be made in favor of either 18,000 or 16,000 whales as the appropriate threshold. As discussed in section 4.1.6.6 of the DEIS, a plausible case can be made that the MNPL of the ENP stock is approximately 16,000, given Punt and Wade's 2012 estimate of carrying capacity (K) and the theoretical relationship between MNPL and K for large whales of approximately 60 percent. MNPL would similarly be about 16,000 using the point-estimate of 26,960 in 2015/2016 as the stock's abundance prior to the onset of the 2019 UME, and assuming the stock was	b) N=16,000, or c) N=18,000. Should a waiver be granted, the Agency will condsider whether an abundance threshold for ENP whales is appropriate in acordance with the requirements of the MMPA. The MMC's legal arguments and comments related to abundance thresholds are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			at K at that point and that MNPL is 60 percent of K. 1 Nevertheless, the Commission favors setting the hunting floor at a population level of 18,000 and recommends that this number be incorporated into the preferred alternative and the final regulations. It represents a more precautionary approach that takes into account uncertainty as to whether the population was in fact at K in 2016 (or any other year that might be used as the benchmark), uncertainty in the population estimates (by using the upper 95 percent confidence interval of the best—e.g., most recent—pre-UME abundance estimate as a measure of carrying capacity) and uncertainty about the ratio between K and MNPL, which could be greater than 60 percent. Moreover, erring on the side of the whales where uncertainty exists would be consistent with goals of the MMPA as interpreted in Committee for Humane Legislation v. Richardson, and with the mandate in section 103(a) that NMFS "*insure*" that the authorized taking will not be to the disadvantage of the stock (emphasis added). --- 1 Using the point estimate of abundance from 2014/2015, however, would result in a somewhat higher estimate of the MNPL threshold, 17,274 whales.	
			Pacific Coast Feeding Group (PCFG) One way in which the proposed rule seeks to protect the PCFG is through the establishment of abundance thresholds below which hunting would be suspended. Hunting would not be allowed in the upcoming season if the most recent PCFG abundance estimate drops below 192 whales or the associated minimum abundance estimate is less than 171 whales, or if one of these thresholds is projected to be met during that hunting season. Such measures are incorporated into the SDEIS's preferred alternative. The Commission supports the inclusion of the proposed "floors" below which hunting would stop, but, as noted in its comments on the ALJ's	Comments on the PCFG abundance thresholds are noted. With respect to the comment on a "dimmer switch," See Appendix C Responses to Frequent and Substantive Comment #20- PCFG Abundance "Dimmer Switch".

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			recommended decision, is concerned that there can be a time lag of two or more years between when surveys are conducted and results become available. That was one reason that the Commission recommended that the regulations governing the summer/fall hunt also include a "dimmer switch" that would slow the hunt before the "on-off" triggers are reached, if the number of PCFG whales drops below some higher threshold.2 Without explanation, the SDEIS does not consider this alternative. The Commission therefore recommends that this alternative be discussed and analyzed in the final EIS and that NMFS incorporate it into the preferred alternative and the regulations. --- 2 In its comments on the ALJ's recommended decision, the Commission recommended that the maximum number of strikes authorized during the summer/fall hunt be reduced from two to one per year if the abundance of PCFG whales (Nbest) drops below 212.	
			Identification of Western North Pacific (WNP) Gray WhalesNMFS expects to rely on existing catalogs of photographs and genetic samples to determine whether struck or landed whales are from the WNP stock or are PCFG whales. As noted by the ALJ in his recommended decision, "[i]n the event the catalogs are not kept current and at an adequate standard, NMFS would not issue a hunt permit." Unlike the case concerning the PCFG whale catalog, NMFS has little control over the upkeep of the catalogs for WNP whales, which depends on research conducted in waters under the jurisdiction of Russia.The shift in relations between the United States and Russia since publication of the 2015 DEIS is a changed circumstance that could significantly affect the ability of the United States to identify WNP gray whales reliably, either through losing access to the catalogs or impairing the ability of researchers to secure the information needed to keep the catalogs up-to-date. This is an issue that could materially affect NMFS's ability to authorize a winter/spring hunt or to provide continued	See Appendix C Responses to Frequent and Substantive Comment #18 -Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			assurance that no WNP whales occur in the hunting areas at other times of the year. As such, the Commission recommends that NMFS consider and discuss in the final EIS the current tensions between the two countries and their possible implications for continuing access to adequate information on WNP whales. Among other things, it would be appropriate for NMFS to discuss the criteria that it intends to use to ascertain whether or not the catalogs are being adequately maintained.	
			Further NEPA Review The SDEIS notes that at least two additional agency decision points will remain after regulations have been issued, but before hunting would be authorized—consideration of an incidental take authorization for WNP whales and the issuance of hunting permits. It is unclear if NMFS anticipates that either of these actions will trigger the preparation of other NEPA documents and whether the public will have an opportunity to provide comments at those junctures. It would be helpful if NMFS provided further guidance on these points. If additional analyses and opportunities for public comment are not anticipated, NMFS might want to expand the scope of this EIS to address the broader suite of issues likely to arise during these other phases.	As described on our Frequently Asked Questions webpage, there are a number of remaining steps if a waiver is granted. As part of the MMPA permit process, NMFS would determine the appropriate level of NEPA review needed at that stage of the process. This would also apply to other steps in the process.
			Technical Comments Section 2.1.4 — This section states that, under Alternative 7, no more than 25 ENP gray whales may be harvested over the 10-year waiver period. As we read Alternative 7, that number should be 20. Up to 15 could be harvested in the winter/spring hunts (3 per year for 5 years). During the summer/fall hunts only one whale could be harvested in each of the five years of the hunt. --- 3 This is the number given on page 44, in Table 4-1.	This infomration was clarified in the FEIS (see Subsection 2.3.7.1.1, Number of Whales Struck and Harvested (Annual and 10-Year)).
			Section 2.1.10 — As drafted, the last sentence of this paragraph is confusing and it is unclear who may do what with handicrafts made from	If a waiver is granted, the regulations will specify who may do what with handicrafts made from whale

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whale products. It would be helpful if it were redrafted to track section 216.116(a)(2) of the ALJ's version of the proposed regulations more closely to clarify that any person may possess, purchase, sell, barter, etc. a handicraft once it has been marked and certified.	products. We do not believe this information is necessary to inform the analysis of the alternatives under NEPA.
			Table 3-7 — The cell concerning OSP for the ENP stock is either incorrect or, at best, confusing. It states that the stock is at 91 percent of K and cites Punt and Wade 2012 for this determination. As noted in the first paragraph on page 22 of the SDEIS, Punt and Wade estimated K to be 25,808 whales. If the most recent abundance estimate given in the table is used (20,580), the stock would be at less than 80 percent of K.	We have updated Table 3-11 in the FEIS.
			Section 3.2.2 — In the paragraph before Table 3-8, the number of stranded whales is given as 678. Presumably, the number cited in the table and elsewhere in the SDEIS (578) is correct.	We have corrected this discrepancy and updated the stranding data throughout the FEIS.
			Section 4.1.6.3 — The second paragraph of this section lists five potential scenarios under which hunting would cease. This list appears to be limited to scenarios triggered by the taking or abundance of ENP and PCFG whales. Although stated elsewhere, it would be worth clarifying here that whaling also would cease if a WNP whale were struck. Thank you for taking these additional comments and recommendations from the Commission into account as you prepare a final EIS and consider the adoption of final regulations.	FEIS Subsection 4.1.1.1, Potential Number of ENP and PCFG whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested, has been clarified.
0487	PCPW	10/14/22	Please accept these comments on NMFS' recently released Supplemental Draft EIS, on behalf of the PCPW. We are a grass roots group based in Port Angeles, WA, who came together in 1998 to oppose the killing of gray whales in the waters of Clallam County. We have a long-term understanding of the views of our community, and know that we represent the views of the great majority. Not in an opposition to treaty rights in general, but in the sincere belief that the inhumane harassment and killing of our gentle aquatic neighbors will do unnecessary harm to our human	These introductory comments are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			community relations, as well as to our small group of resident gray whales. We oppose the killing of any whales for any reason, but feel that we must be particularly vocal about protecting the "locals".	
			From the Introduction to the SDEIS, 1.1, pg 4:"Issuing this SDEIS provides the public with the opportunity to comment on the composite alternative and updated information..."PCPW comment:"The public" has no idea that there is a comment period underway. PCPW received a special alert, likely because we were a party to the ALJ Hearing process. We waited in vain to see an official press release to inform "the public", both in our local paper , and in the regional media. We are told that NMFS' only obligation to "the public" is the issuance of a Federal Register notice. That method of informing the public will never be effective. We ourselves (PCPW) do not continually check the Federal Register, or NMFS' "social media". Neither do we feel that we should have to nag the local paper to run comment information, (as we have done in the past), or write an informational letter to the editor, (as we have done in the past), or try to convince NMFS' own public spokesperson to create a succinct informational press release at the very **start** of NMFS' always too short comment periods, (as we have done in the past.) An official NMFS press release to the local newspaper needs to be mandatory protocol for rural communities at the heart of NMFS' actions. Communities,such as this one, who still receive their local news from the newspaper. And as much as PCPW understands the feelings of our community, we cannot speak for all. Why have a "public relations person" if that person cannot send out important information to news outlets utilized by "the public" ? No, this SDEIS has only been viewed by the few who have made it their full-time job to remain vigilantly informed over the last 25 years, or those who hear about it through some "grapevine". "The public"on the Olympic Peninsula, "ground zero", is still very much in the dark.	The SDEIS was released on July 1, 2022 via publication in the Federal Register, NOAA Fisheries website, and notice to the parties who participated in the hearing before the ALJ. We disagree that this was not sufficient public notice.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			SDEIS , 2.1.1 Location of Hunt Area , pg.9 : **The location of the hunt area will be "...the Makah Indian Tribe's Usual and Accustomed fishing grounds ...(excluding the Strait of Juan de Fuca)."** **PCPW comment:** Those people relatively new to the whaling issue may not know why that exclusion from the Strait is in place. It is relevant to relate the history behind that brief statement. In 2001, the Makah Tribal managers devised an expanded hunt plan that did include the entire Makah U&A : the outer coast portion as well as east into the Strait to Tongue Point , also known as Salt Creek County Park and Campground This hunt would have no time or area restrictions. NMFS agreed. There was no public comment allowed. And, said NMFS, the gray whales feeding spring, summer, fall and winter along the south shore of the Strait , the oft-sighted ones that we called "resident whales," did not exist as a group distinct from gray whales migrating north to the Arctic. The Makah could kill 4-5 per year. 20 every 5 years. There was no analysis of the impacts. We objected mightily to all aspects of this radical new plan. People living and recreating and traveling regularly along Highway 112 understood the problems: – In the Strait, gray whales feed in shallow water within a mile of shore, often much closer. We know this, because we see the whales feeding here in every month of the year, including at Tongue Point. – The whalers' NMFS- approved weapon is a .50 caliber rifle. A .50 caliber shell can travel 5 miles and can also ricochet off the water and speed off in unpredictable directions. – PCPW and others gathered and shared this information locally, raising objections to NMFS' plan to allow the .50 cal into the Strait, on the	The background information is noted. Subsection 4.6.2.1, Tourism, describes Olympic National Park and visitors to the Park. Section 4.15, Public Safety, assesses impacts to public safety under the action alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			grounds that it was extremely unsafe for the public. We also insisted that the "local whales" be protected. The 9th Circuit Court agreed with plaintiff NGOs that NMFS had acted unlawfully by not preparing an EIS. Fast Forward: **2015 DEIS : "Project Location" 1.1.2 pg.1-3** contains the subsequent, post 9 th Circuit Court loss, plan for the hunt area : **"The Makah's proposed action area is smaller than its adjudicated U&A because the Tribe proposes to exclude the Strait of Juan de Fuca to address concerns about public safety and the effects on gray whales in that area of its U&A."** Both of our points were conceded by NMFS and the Tribe : The .50 caliber should never be fired within range of innocent bystanders, and there is a group of genetically distinct whales, whose small numbers demand concern. As to "bystanders", in response to PCPW's comments about the same danger to Olympic National Park visitors on the coastal beaches as existed along the Strait, the 2015 DEIS added Alternative #3, that would take the hunt five miles off-shore. NMFS acknowledged that Alt.3 , the "Offshore Hunt", would help mitigate the very real danger to"bystanders"(campers and hikers in the National Park), from a powerful .50 cal. shell that can travel 5 miles on a missed shot. But it is now clear that NMFS will refuse to choose Alternative #3, the "Offshore Hunt ", to move forward. They propose more near-shore hunts in all seasons, right up against the Wilderness beaches of Olympic National	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Park. And the very same resident whales that feed at Tongue Point will be among the easiest targets as they spend time feeding on the coast. It seems that modern day Makah whalers do not want to go offshore even 5 miles. (Jonathan Scordino, ALJ testimony) While we have no objection to NMFS' concern for National Marine Sanctuary "resources"(birds), it does highlight the fact that there is, as always, no mention of the need to consult with Olympic National Park about threats to some of their "resources" : people visiting the Park. And there is still no answer to the question: WHO WILL BE HELD LEGALLY LIABLE FOR ACCIDENTAL GUN SHOT INJURY OR DEATH OF "BYSTANDERS" HIKING AND CAMPING ON OLYMPIC NATIONAL PARK BEACHES?? "Accidental" but avoidable.	
			SDEIS , 2.1.2 Timing of Hunt pg. 9Winter / Spring Hunt "Migration Season"December 1 – May 31Summer / Fall Hunt " Feeding Season"July 1 – October 31PCPW Comments:Regarding the "Migration Season Hunt":ALJ Jordan's Recommended Decision states that :" **The best available scientific evidence shows that the removal of a single WNP whale would be detrimental to the stock...I consequently recommend...the Makah Tribe obtains an Incidental Take Permit (ITP) for take of WNP whales.**" He also recommended that no training activities take place during "migration season" without a permit. But even if an ITP is granted to the Tribe , a strike on a WNP gray whale will have the exact same grave and isadvantaging impact on that small endangered stock as if they hunted without one.**"NMFS must ensure that approving a waiver will not jeopardize the WNP." (Judge Jordan)**The issuance of an ITP does nothing to safeguard the WNP. It will just allow NMFS and the Tribe to go ahead and play "Russian Roulette"with this depleted whale stock.NMFS declares that there is a "very small risk"of striking a WNP whale. Remove the words "very small"...**there is a risk. Period. ITP or**	We have incorporated and evaluated the new information, regarding the ENP gray whale stock in the FEIS.We updated the estimates of the probability of striking a WNP gray whale (see Moore, Jeffrey E., David W. Weller, and Aimée R. Lang. 2023. Estimates of the probability of striking a western North Pacific gray whale during the proposed Makah hunt: 2023 update. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-682. https://doi.org/10.25923/hxhv-sb94Subsection 4.1.2.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested, describes the available information on mixing proportions and the basis for the proportions used in the analysis. See also Appendix D Responses to Frequent and Substantive Comment #12-Risks to WNP gray whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			not.The number of WNP whales ID'ed on the southbound and northbound migrations keeps rising. There is no way to accurately predict the "odds" of hunters encountering one. But the risk rises with every new ID made. The current number is 54. Many, if not all, ID's seem to be made in the coastal nearshore as they pass Vancouver Island and Washington State. Where is the sighting data for these WNP whales that would provide the public with the exact locations?_____ _____**** AND THIS JUST IN: new population estimates of ENP whales reflect a significant drop in numbers. A 40+ % drop! The odds of striking a WNP gray whale, sadly, just went up. The risk must be recalculated.***_____ _____**And why are WNP whales found in the nearshore with the PCFG whales? In both directions, north and southbound, they need to eat before and after their huge migrations across the Pacific Ocean. That travel requires immense amounts of energy. Why would they choose to cut off-shore with the main ENP "herd", heading either direction, when desperately needed food can be found near shore in the Biologically Important (feeding) Areas of the PCFG ? It is likely that the WNP grays have been feeding with the PCFG whales, fall and spring, for a long, long time. Some of the WNP whales will be heavily pregnant southbound (December, January). Many will have calves with them or be newly pregnant on the northbound journey (February, March, April, May).**The new WNP mothers need to stay near shore with their calves as much as possible. Just like the PCFG mothers, feeding is required to support nursing, resting time is also important. Vigilance is necessary to protect against deeper water orca attack . This danger keeps mothers and calves near shore when possible. Whether gray whale mothers and calves are slowly transiting	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			through, or will stay the spring and summer, the nearshore of the northern Washington's coast is a calf rearing nursery with particular needs. There should be no deliberate disturbance from hunting or practice in this area that would spook mothers and calves from the space they need to feed, nurse, rest, and shelter.It is not enough to promise that strikes will not be made on mothers with nursing calves. It is also inaccurate to claim that mothers and calves occupy completely different areas of the nearshore feeding grounds, and therefore will not be bothered by hunts or practice activities. These sensitive and vulnerable females, whether WNP, PCFG, or ENP , will certainly be frightened and spooked from the feeding areas during many of the hunts and practices. Energy will be wasted and time feeding and nursing will be lost while they attempt to avoid noisy boat traffic, gun shots, "practice throws", etc. None of this activity should be allowed in the coastal near shore of the Makah Tribe's U&A during the "winter-spring hunt." **These hungry whales need to forage unimpeded in one of their core, critical feeding habitats.*** _____ _____ ***THIS JUST IN: ENP CALF COUNTS ARE AT AN All TIME LOW LEVEL. Have the WNP calf counts also gone down? Every calf is now rarer and more important than ever, and if the population is to rebound, their needs must be respected.*** _____ _____ Judge Jordan stated that "...**training activities should not be permitted when WNP may be present in the Makah U&A."** An ITP will not mitigate the criminal level harassment of the "training activities". **And if the Judge feels that WNP whales should not be exposed to it, then neither should any of the whales, particularly the mothers, calves and pregnant whales of all the gray whale groups.NMFS labels December 1 – May 31 "migration season".** This is not a complete description of the Makah U&A during the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			stated time frame. The PCFG and ENP gray whales' use of the outer coast near shore during this time is actually quite varied. **Whale presence on the Northwest coast of Washington State between Dec-May 31 includes :**– The presence of PCFG whales feeding, who never went south.– The presence of PCFG whales, migrating or not, engaged in mating activity.– The presence of heavily pregnant female PCFG whales intending to head south.– The arrival of newly pregnant PCFG whales arriving back to PCFG feeding grounds.– The spring arrival of PCFG mothers and calves, feeding and nursing near shore.– The early spring arrival of PCFG whales anxious to begin feeding– The early spring arrival of "Puget Sounder" whales, entering the Strait of Juan de Fuca.– Some northbound ENP mothers and calves who may not "cut the corner "off shore, but travel, feed, nurse, and shelter, closer to the safety of kelp beds on the Washington and Vancouver Is. coasts. **All gray whales will be very hungry during a UME.Newly pregnant females may not carry calves to term if their nutritional needs are compromised.There will also be WNP gray whales in the coastal portion of the Makah U&A throughout that time frame :**– South bound WNP whales will pass through in December, and early January.- WNP whales may be engaging in mating activities in the "project area" in December.- WNP gray whales may be feeding in the "project area" in December.- WNP whales may be heavily pregnant as they pass south through the area in December.**As the WNP migration heads northward:- WNP whales are known to be in the "project area" from March through May.– The WNP mothers and calves will be feeding and nursing in the near shore, like the PCFG and ENP mothers and calves. They should be allowed this time in the "nursery" to prepare for their imminent journey back across the Pacific Ocean. They are hungry, sensitive and vulnerable. It is heartless to open them up for harassment. There should never be a hunt or practice season in the near shore in March, April, and May. And there is no ra*tional reason*	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			for a "hunt season" in December, January, and February.**In all hunt plans and calculations of "mixing" numbers, it must be acknowledged that 20,000 gray whales do NOT migrate through the nearshore of the northern Washington coast. They DO travel close to shore in some coastal areas of California and Oregon. That is because the continental shelf drops off to deep water closer to shore in those areas, and gray whales prefer to travel over the shallower water. The continental shelf widens out off Washington's coast affording gray whales a wider migratory corridor. (See Green, et al.) They can "cut the corner" and get up to arctic feeding grounds faster by not hugging the shore through the "project area".Most of the main herd is seen from the coast as distant blows moving steadily north or south. Binoculars may be needed , but the blows are sometimes visible to the naked eye when conditions are conducive. MOST of the 20,000 ENP gray whales have always, and still do, travel more than 5 miles off shore. That is where a hunt for actual migrating ENP gray whales should take place.** **_____** ****THIS JUST IN : With a huge population drop now verified, "mixing" numbers must be recalculated. With fewer ENP whales in the mix, the odds must be assumed to have gotten higher for striking WNP and PCFG whales in the nearshore in spring.** ***_____** **_____** **_____**	
			The Summer / Fall "Feeding Season Hunt" **July 1- October 31** **PCPW Comments:** This hunt has only one target for harassment and for death: the "resident grays", the "locals", the "PCFGs". Things have certainly changed since the years (1997-2000), when NMFS and the Tribe reluctantly agreed to *only*	We have incorporated and evaluated the new information regarding the ENP gray whale stock in the FEIS. We updated the estimates of the probability of striking a WNP gray whale (see Moore, Jeffrey E.,

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			target *migrating* whales. Now targets are on the backs of every one of the very few (35-40) local Makah U&A gray whales. This is unsustainable at any quota level. The "co-managers" have never wanted to have to avoid killing these convenient ("sitting duck") whales. The judges of the 9th Circuit Court required NMFS to study the problem, and emphasized the importance to the local environment of these local whales, genetically distinct or not. The local whales then became *very* inconvenient to hunt plans. Makah whaling proponents wanted a substantial "by catch" quota of local whales. Killing by another name, ("accidental"), was acceptable to the tribe and to NMFS. **But NMFS had an additional "work-around" to try, as well. Deny the PCFG stock status, and declare a quota on the PCFG based on the total number of PCFG IDed whales, instead of the smaller subsets of PCFG whales: the Oregon-Vancouver Is. (OR-SVI) or Makah U&A PCFGs.** **These local whales have become so calm, trusting, and habituated to close approaches by tribal biologists' motorized boats, that they will have to become wary and frightened to survive the abuse that will soon come, if this hunt is approved. Jonathan Scordino stated at the ALJ hearing that he has observed and experienced "friendly" behavior from the local whales.** **When this trust is broken, the"bait and switch" will swap camera for harpoon, and dart gun for .50 caliber shell blasts. The summer "Feeding Season" hunt is an abomination. These whales are always hungry after their winter fast, but now are also suffering existential peril with the effects of the UME : diminished body condition , lowered birth rates, and possible starvation. Whatever the causes of the UME, there is a diminishing food supply in the benthic feeding**	David W. Weller, and Aimée R. Lang. 2023. Estimates of the probability of striking a western North Pacific gray whale during the proposed Makah hunt: 2023 update. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-682. https://doi.org/10.25923/hxhv-sb94 Subsection 4.1.2.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested, describes the available information on mixing proportions and the basis for the proportions used in the analysis. See also Appendix C Responses to Frequent and Substantive Comment #12-Risks to WNP gray whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			grounds of the arctic. South of the arctic, rapidly changing conditions such as ocean acidification, water temperature rises, low oxygen episodes, and toxic algae blooms will harm and reduce most prey species. **And now, even with the gray whales in such fast moving peril , there is no re-thinking of this decision to harass, maim, kill , and eat weakened, starving animals. There should be no "cultural value or pride" extracted from that. Only shame that they do not now help the struggling whales.**	
			SDEIS 2022 Numbers of Whales Struck or Lost 2.1.3 pg.9 :PCPW Comment: If a WNP whale is struck "...all hunting will cease unless and until NMFS determined that measures were taken to ensure that no additional WNP gray whales would be struck during the remainder of the waiver period." **Would a ban also occur if WNP population numbers drop below a specific threshold ? NMFS claims "...a very small risk of striking a WNP whale." They are still describing and admitting a risk. Have the WNP been affected by the UME/ food reduction? What is a current population count for the WNP?**	Although a low abundance threshold is not included in the alternatives for WNP gray whales, the alternatives do consider a range of measure to reduce the likelihood of impacts to these whales. Subsection 3.4.3.2, Western North Pacific (WNP) Gray Whales, includes the best available information on the WNP population.
			SDEIS 2022 ENP Population Abundance Threshold Sub-alternatives 2.1.5 pg.10 **PCPW Comments:** **PCPW has, in the past, challenged NMFS to show any sign of concern in regard to the ENP population . How low of a population drop is too low, we have asked. NMFS has always maintained that whatever the drop, the ENP are always "at (a new) carrying capacity", and therefore "robust" and beyond concern.** **Now the ALJ has joined PCPW and others in stating the obvious: there must be a meaningful and precautionary low threshold**	The SDEIS and FEIS present information on several abundance thresholds, but it is not the purpose of these documents to determine what, if any, abundance threshold would be appropriate should NMFS grant the waiver request.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			population number. In a time of recurring UMEs, officially designated, as well as random years of observed bad body condition (skinny whales), the only meaningful threshold is the most protective. NMFS' best offer is c) 18,000 , so this is the low threshold sub-alternative that PCPW would endorse, although we would prefer it to be 20,000. It is not now known when or *if* the current UME will end. Will sea-ice re-form in arctic waters? Will the arctic food web come back to "normal" benthic prey production? Or will gray whales need to push continually northward? Where is the northern limit of a viable food supply for them? Will some by necessity head east to the Atlantic Ocean? Is this on NMFS' radar at all ? *NMFS' response to arriving at a "low threshold" population estimate for the ENP will be to halt hunting. Why was this UME-specific report issued without updated population estimates for the PCFG and the ENP ?* **** THIS JUST IN: Days before the comment deadline, new population numbers were released by NMFS, describing a very large drop in the ENP gray whale population. (Eguchi, Lang, Weller) The question of which "low threshold" estimate to consider implementing, has become more complicated. The sub-alternative 7(c) 18,000 , the estimated MNPL, has fallen as a threshold, as the new estimate is 16,650. Where does this leave sub-alternative (b) 16,000 ? There will be information next year, presumably, but for now, the "low estimate" falls below 16,000, at 15,170. No one knows what the outcome will be of the next count, this winter-spring. The important thing is that there does need to be a precautionary threshold. And there does need to be public input on the threshold chosen. Neither 7(a), 7(b) are acceptable. It must at least be holding solid at 18,000.**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			_____ _____	
			SDEIS 2022 Limits on Harvesting PCFG Whales 2.1.6 pg.10PCPW Comments:"Harvesting PCFG Whales" was never supposed to be a deliberate " thing", but there have now been a variety of plans for that very thing. Current plan: including struck and lost, 25 PCFG gray whales could be taken out every 10 years. Females will be among the unidentified struck and lost. This plan will harm the entire OR-SVI population, but will disproportionately disadvantage the faithful "39 " local gray whales. Other PCFG whales will meet a gruesome fate, but the 39 will be the first to get whittled down below viability. Eight females are available for harvest out of every 16 PCFG landed, and others will be struck and lost. Local feeding areas, particularly in the Strait, will eventually be forgotten and abandoned. Feeding areas in the Salish Sea will no longer benefit from their presence. People will no longer benefit from the joy of viewing them from shore, and simply knowing that they are there, living their lives in peace. As adult gray whales are killed, younger gray whales will increasingly be left without the knowledge and company of the elders. Breeding age females will be "taken" as will their future offspring, who are the future of the Makah U&A grays, and the wider PCFG gray whale group. How many known mothers are in the MU&A? NMFS acknowledges a time lag in understanding how small populations react to annual losses. How much lag-time is "safe" ? By the time the harm to marine species is recognized by the government, there is always another lag as NGOs must arrange to take NMFS to court to attempt mitigation of NMFS' wrong-headed decisions. Think about the Cooke Inlet belugas, the Southern Resident Killer Whales, the North Atlantic Right Whales , and now the Gulf of Mexico's Rice's whales. It is more often than not	The FEIS assesses impacts to PCFG whales in Subsections 4.1.2.3 (Alternative 2); 4.1.3.3 (Alternative 3), 4.1.4.2 (Alternative 4), 4.1.5.2 (Alternative 6), and 4.1.6.2 (Alternative 7). These subsections are titled Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested. All action alternatives are likely to increase the risk of adverse impacts on PCFG gray whales. Alternative 2 would increase this risk the most, while Alternative 5 would likely increase it the least. Even under Alternative 2, however, the best available information indicates that the PCFG would remain viable.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			too late.NMFS seems never to be guided by the Precautionary Principal. This problem has been obvious for so many years, that the only explanation must be a systemic bias within NMFS that always manifests as a reluctance to place marine species' needs above human desires. NMFS' thumb seems always on the scale , tipping decisions toward political expediency. NMFS' managers and scientists seem to feel no angst in exploiting the loopholes inherent in keeping some scientific results "inconclusive" for many years . In this case , "inconclusive data" means denying protective stock status for the PCFG gray whales. "Inconclusive data" translates to a small unique population being deemed "harvest-able". Deemed, and thus doomed._____ _____THIS JUST IN: Days before the comment deadline, NMFS released a paper (Harris, et al.) with new abundance numbers for the PCFG gray whales. As of 2020, two years ago, the annual average number is calculated as 212. The minimum estimate is 198. That number is only six whales above the hunt-ending "threshold" of 192. *Two more years of UME have occurred, and there is no way to know how many PCFG whales have perished. That threshold of 192 should be presumed to have been breached, until a thorough count can be done. Harris et al. is already outdated.*_____ _____It is time for NMFS to do its' job, and protect the two small gray whale groups: the struggling WNP grays and the diminishing PCFG gray whales. It is also time for NMFS to admit that if ENP numbers do not turn around soon , then the ENP gray whales must be placed back on the Endangered Species List. That will help protect ENP , PCFG, and WNP gray whales in U.S. waters. This action would not denote a "failure" by NMFS. It would represent a realistic and responsible reaction to climate change, and would be**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			applauded by many scientists and people around the world. It would represent good faith, and an actual belief by NMFS' in its own science. Climate change will have many unforeseen consequences, and this is one of them. *Sometimes the needs of nature surpass the needs of culture.*	
			SDEIS 2022 Whales Approached and Subjected to Unsuccessful Strike Attempts 2.1.7 pg. 10 **This section addresses the topic of "practice approaches and strikes". While the concept of training was briefly addressed in DEIS 2015, this full blown "practice" scenario, complete with approaches and spear-throwing , has not been seen before, or analyzed then or now. It is presented as an accepted reality that will not be analyzed further. But it does raise questions that need to be answered.** **Under Alt. 7, the Tribe must obtain an ITA to make training approaches to WNP gray whales. This potential to approach WNP whales arises from the allowable 353 approaches to ENP gray whales per year, practice and hunting. By what formula was this huge number arrived at?** **During the "Migration Hunt", the Tribe will not know if they are practicing on WNP whales, PCFG whales, or the "allowed" ENP gray whales, but the 353 allowed approaches gives them plenty of chances to motor in and sidle up on all three groups as they feed, rest, and tend to their calves in the nearshore each spring. All these approaches will be made to whales who have arrived at their Biologically Important Areas of sustenance. These whales in the near shore will not be hurrying north, they will be circling, milling, resting, feeding, nursing, moving among the patchy food spots of the moment. These are the whales who will be hit repeatedly with "blunted" harpoons.**	The basis for the 353 approaches under Alternative 7 is described in Subsection 4.1.7.4, Potential Number of Unsuccessful Harpoon Attempts and Approaches (see also Subsection 4.1.2.4). The information provided from the ACS/LA "Gray Whale Census and Behavior Project, 2021-2022 Highlights" is consistent with the non-lethal impacts considered in the analysis and does not change the conclusions.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The term "approach" means to come inside of 100 yards in a training vessel. No limit on how close to the whale is mentioned, but a stick meant to hit a whale can only be thrown so far. The term "training vessel" means a vessel that is not carrying weapons. No other criteria. The term "practice harpoon" means a "blunted spear that will not break the surface of the skin." **So the "practices" will not need to involve the vessel that will actually be used in a hunt: the canoe. The practice approaches can be made from motorized vessels .** **The "blunted spear" is not described. Will it be made of wood? Can it be made of metal? How much can it weigh? How long can it be? Will it be thrown with the force actually needed to embed a harpoon? Aim is not really too important for harpooners. Anywhere on the large target will attach a float. So what really is the great benefit derived from this excessive amount of "practice" from a very different vessel than what will be used in a hunt, and with a very different "harpoon"? They should tow an inflatable target to throw blunted harpoons at. Based on former paddling practices participated in by canoe crews in 1998-2000 , it is likely that practice crews will be paid to practice. The large number of allowed practice approaches, etc, could lead to a lucrative "sport". A fun money maker for the crews, traumatizing for the hungry whales. The 9th Circuit equated this terrorism by the whalers to "..the D.C. snipers. Kill one, scare many." Trust and calm shattered, what are the whales to do? Suspending feeding, raising anxiety hormones, moving calves quickly away from disturbances can be assumed. The ACS/LA "Gray Whale Census and Behavior Project, 2021-2022 Highlights" describes some recent harassment responses . Observers documented 13 different boats who came too close to gray**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whales. The whales' reactions included: 1) nearly all changed directions 2) zig-zagging movements 3) turning outward 4) reversed directions 5) became "stealthy" and disappeared 6) dove longer 7) head-lunged and disappeared These changes in behavior are all signs of fear, stress, and an inability to continue as they had been , whether feeding, resting, nursing, traveling, etc. They burn valuable energy. Multiply these disturbances by hundreds of times a year. Every "disturbance" of the whales by the whalers would be a felonious crime, by any other person , under the MMPA. And as NMFS admits (pg.65), the disturbances "...may be repeated incidents involving the same whale." Obviously.	
			3.2.1.2 Eastern North Pacific Gray Whales pg. 20-22Abundance and Recruitment and NMFS Stock Assessment Report for the ENP Gray Whales_____ _____THIS JUST IN: This entire section is now out of date by the just released Eguchi, Lang paper, and will need an overhaul. The ENP population has dropped at least another 20% since it was written. The section concludes with these last sentences: " The IWC...concluded that levels of harvest and other human-caused mortality are sustainable, given the population abundance." The IWC must go back to the drawing board as well._____ _____**	The FEIS has been updated with the recent publications. Comment on the IWC is noted.
			Table 3-2 pg. 25 Error in footnote (2): This unlawful killing occurred in 2007, not 2008.	Footnote updated (see FEIS Table 3-6).

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			3.2.1.3 PCFG / Abundance and Trends pg. 26-29 **SDEIS pg. 29 : "The PCFG has grown significantly from 39 animals identified in 1996 to 212 animals in 2020.The overall PCFG population has been stable over the last 20 years, declining slightly in recent years from a peak in 2015. Harris et al. (in prep.)"** **In the above quote, NMFS uses the term "*slightly*" to describe a drop from (257) in 2015 to (212) in 2020. This is also described as a "*stable*" population, with a PBR (2020 SAR) of 3.5.** **On page 38, Table 3-7, the "recent trend" for the PCFG is described as "*increasing*".** **_____** **_____** ****THIS JUST IN: A "slight" drop? A "stable" population? PCFG "increasing"? This section is about as misleading as it can be. The opposite is true. The new Harris paper announces that a huge drop in the small population had happened by 2020. That is a two year lag in getting the news out. And there have been two more bad years of the UME, with the lowest ENP calf count ever recorded. What impact have the last two years had on the PCFG and their calves?** **_____** **_____** **No answers here, as the "new" Harris paper is already two years out of date. No conclusions can be drawn as to PBR without fresh survey results. Harris et al. have at least offered a "new" PBR for the PCFG (as of 2020) of 3.1.** **NMFS needs to take this whole section back to the drawing board, and**	The FEIS has been updated with the recently published information on PCFG abundance and trends. See, for example, Table 3-11. See also Appendix C Responses to Frequent and Substantive Comment #13-Risks to PCFG whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			not continue utilizing misleading and outdated conclusions. NMFS, unlike the public, had access to the Harris paper as they prepared this SDEIS. They could have taken the time to update their "analyses" before publishing for comment. Does NMFS assume that former population numbers will bounce back so quickly that they do not have to modify their "sales pitch" for killing gray whales? **Not so fast. We all need to see how the UME and it's destructive fall-out actually play out.**	
			SDEIS 2022 National and International Regulatory Environment pg.40PCPW comments:The IWC's touted support of the current hunt plan seems based on a "modeling framework" done in 2012. All reviews and opinions expressed by the IWC are now out of date, and must be subject to facts from the new "actual" environment. An environment of starving gray whales and the lowest calf counts ever recorded. We all need up-to-date population numbers for the WNP, ENP, and PCFG , for the next few years at least, before more human-caused harassment and mortality is inflicted. PCPW's comments on many of NMFS' out-dated notions in this SDEIS have been deleted from this submission as currently moot.	Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates- IWC IMplementation Review of ENP Gray Whales, of the FEIS addresses the IWC SC's review of the hunt management plan. The SC completed their review of the hunt management plan in 2018, when they determined that it met the conservation and management goals of the IWC. The most recent Implementation Review by the SC occurred in 2020, when they recommended that the "Gray Whale SLA and the Makah Management Plan remain the appropriate basis for the provision of advice on the Chukotkan and proposed Makah hunts." In 2023, the Scientific Committee reviewed new information on ENP gray whale abundance and stock structure and concluded that the SLA and Makah Management Plan are robust to the current UME as well as future mortality events. Therefore, the SC's review of the current hunt plan has incorporated recent information regarding the UME and current abundance estimates.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			SDEIS 2022 4.0 Environmental Consequences pgs. 42-60 **PCPW Comments:** **There is no time remaining in this comment period to comment on all of NMFS' alternatives from DEIS 2015. Needless to say, they all contain out dated abundance assessments. Alt.7 is particularly plagued with misinformation.** **This SDEIS must be sent back to the drawing board, there to await and incorporate abundance information that is current and likely to remain accurate for a few years. Meaningful analysis and conclusions must wait as long as it takes to develop data and observations from "the field" to develop supportable population estimates for the ENP, the WNP and the PCFG.** **The populations numbers *may* stop dropping. They could drop *further.* They *may* plateau. They *may* begin rising. One year's numbers, or two-year-old numbers will not cut it.** **NMFS must stop "assuming". This SDEIS proves that NMFS has no special predictive powers.** **But there is someone who *did* have good judgment and predictive powers: ALJ Jordan.** **He had the good judgment to see clearly , and try to mitigate, the lack of precaution exhibited by** **NMFS in regard to the whales in their "care". Some examples:** **– Judge Jordan: " NMFS must insure that approving a waiver will not jeopardize the WNP...And I consequently recommend NMFS modify the regulations to prohibit issuance of even-year hunt permits (and**	Background comments are noted. The FEIS includes the most recent abundance estimates and analyzes impacts under the action alternatives in this context. The FEIS incorporates three alternative low abundance threshold under Alternative 7 (see Subsection 2.3.7.1.5, ENP Low Abundance Threshold) and -analyzes the impacts of this alternative with and without a low abundance threshold (see Subsection 4.1.7.6, Low Abundance Thresholds). With respect to the comment on a "dimmer switch," see Appendix C Responses to Frequent and Substantive Comment #20- PCFG Abundance "Dimmer Switch".

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			training activities) unless and until the Makah Tribe obtains an Incidental Take Permit for take of WNP whales. **– Judge Jordan: "Abundance threshold - ENP" "I find the scientific evidence weighs in favor of an overall abundance threshold... Set clear lower limits (for the ENP) below which hunting is not permitted."** **– Judge Jordan recommends a "...dimmer switch (for the PCFG)... limiting strikes if there are early signs of decline, rather than waiting for more extensive decline, to cease it entirely."** **– Judge Jordan: " The record does not contain clear evidence about the ability of the PCFG to recuperate from various levels of decline, and specifically what the outlook for the group would be if levels do reach the minimum threshold set in the regulations."** **– Judge Jordan: "However, as the full extent of the UME is unknown, i*t is possible the low abundance trigger for the PCFG has already been met or exceeded if the current UME is affecting the PCFG*."** **And there was the Crystal Ball...** **– NMFS did take a few suggestions. But Judge Jordan's recommendations should be studied to learn the ways of thinking and acting in precautionary ways. New to the subject matter as he was, he came to care about the whales at the center of it all.** **So, as NMFS requires us to continually refer back to DEIS 2015, PCPW would suggest that any topics covered in this SDEIS, and not commented on here, may be in our comments to the 2015 DEIS , or comments from any other occasion in the last 22 years. We haven't changed our minds about anything, we have just learned more about everything.** **And we still ask: who speaks for the whale? Makah Great Grandmothers did in the 1990's. One great grandmother never**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			stopped speaking for the whales all her life, resisting the heavy pressure from her Tribal Council that quieted the others. Currently, none dare speak out. **Do the whales deserve a voice? A place at the table?** **-Many NGOs care very much and do speak for individual whales, and all whales.** **-The Marine Mammal Commission speaks for aboriginal whaling.** **-And what about NMFS ? Does NMFS care about individual whales?**	
			SDEIS 2022 4.4 Gray Whales pg.71 "Welfare of Individual Whales""(There is) no reassessment of the welfare of individual whales, as the methods of approaching,striking, and killing of whales has not changed, nor have the related estimates of time to death andhunting efficiency."Nor is there a syllable of regret for the individual suffering of the whales stalked, harpooned overand over and shot in the heads over and over...the whales drowning in pain and panic.Maybe only a poet can speak as a whale..."If Whales Could Think on Certain Happy Days"As the whale surfaced joyously,Water spouted from his headin great jets of praisefor the silent, awesome mysteryhe beheld between sea and sky.Thankfulnessfilled his immense bodyfor his sense of well-being,his being-at-onenesswith the universeand he thought:"Surely the Makerof whalesmade me for a purpose."Just then the harpoonslammed into his sidetearing a hole in itas wide as the sky.Irving Layton 1980	Impacts to individual whales are assessed in Subsection 3.4.3.5, Welfare of Individual Whales, of the FEIS.See also Appendix C Responses to Frequent and Substantive Comment #1-Potential for a hunt to cause pain or suffering to whales.The DEIS, SDEIS, and FEIS consider impacts to the social environment (see FEIS sections 3.8, Affect Environment-Social Environment, and 4.8, Environmental Consequences-Social Environment).
489	Company	10/28/22	Me when the and then you but we both and then. When its fall on tuesday you really gotta think about the time when you were at.	Comment noted.
490	Mayer, Michael	10/28/22	I am in full support of the Makah Tribe exercising its express treaty right to hunt whales. The government has now done its due diligence in examining all of the potential impacts, and it is time to move forward. I hope that the	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			permits can be issued quickly, and that the tribe can soon resume its traditional whaling.	
491	Frohoff, Toni	10/31/22	On behalf of myself and TerraMar Research, a Washington-based organization, I submit the following comments on the Supplemental Draft Environmental Impact Statement (SDEIS) on the Makah Tribe Request to Hunt Gray Whales (SDEIS). 87 Fed. Reg. 39804 (July 5, 2022). On 27 February 2020, the National Oceanic and Atmospheric Administration/National Marine Fisheries Services (NOAA/NMFS) published notice of its intent to prepare the SDEIS noting that the analysis would include, among other things, information about the ongoing gray whale Unusual Mortality Event (UME) (85 Fed. Reg. 11347, 11348). The SDEIS does not provide such an analysis and its glaring deficiencies, including the failure of NMFS to disclose information critical to the analysis, prevents interested stakeholder from fully understanding the environmental impacts of the action, including alternative 7, the "composite alternative," (SDEIS at 4) and, therefore, is not in compliance with the National Environmental Policy Act NEPA) (40 CFR 1500.1 et seq.).1 I am grateful to the National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS) for granting a 60-day extension in the deadline for comment on the SDEIS. 87 Fed. Reg. 50319, August 16, 2022. Among other benefits accrued by all stakeholders as a result of this extension was the publication of the Harris et al. (2022)2 report providing a revised abundance estimate for Pacific Coast Feeding Group (PCFG) gray whales. However, as noted in the 6 October 2022 letter to NOAA/NMFS requesting a second, limited, extension in the comment deadline, the delayed publication of Harris et al. (2022) compromised the ability of all stakeholders to have sufficient time to review the report. In addition, the failure by NOAA/NMFS to provide stakeholders with timely access to its own reports (Eguchi et al. (2022)) 3 containing a revised gray whale population abundance estimate and new	We note the comments raised in this introduction and provide responses to the points as they are raised in detail in the body of the comment letter.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			gray whale calf production numbers is disconcerting. This is particularly problematic given the content of those reports (i.e., documenting an ongoing decline in Eastern North Pacific (ENP) gray whale abundance estimates and the lowest number of northbound gray whale calves since counts were initiated in 1994) and the direct relevance of such information to the subject matter and analysis contained in the SDEIS. Of even greater concern is the fact that NOAA/NMFS originally published the SDEIS on 5 July 2022 (87 Fed. Reg. 39804) while Harris et al. (2022) was still "in prep." and without first publishing the gray whale abundance and calf production papers. Failing to disclose that information before initiating the public comment period and by, subsequently, failing to provide interested stakeholders with a sufficient opportunity to review, analyze, and incorporate such information into their substantive comments demonstrates an astonishing lack of transparency and violates the information disclosure provisions of NEPA. This has fatally compromised the integrity of the decision-making process.In regard to the subject of the SDEIS – the ongoing efforts by the US government to facilitate gray whale hunting by the Makah Tribe, I remain in opposition to this proposed hunt. This opposition is based on science, the law, and ethical concerns associated with the inherent cruelty of whaling. While I fully respect the culture and traditions of the Makah tribe, including those related to whales and whaling, the United States should never have requested a gray whale catch limit from the International Whaling Commission (IWC) as the Makah Tribe cannot satisfy the requirement of having a "continuing traditional dependence on whaling and the use of whales,"4 particularly given the definition of "whaling" under the Whaling Convention Act (16 U.S.C. §916 et seq.).5 Furthermore, the IWC erred in initially granting and subsequently renewing the US request for a gray whale catch limit.Considering the ongoing and increasing threats to gray whales from ship strikes, bycatch, contaminants, ocean noise, ocean warming, including	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			localized and regional marine heatwaves, as well as the "endangered" status of Western North Pacific (WNP) gray whales, the ongoing UME, the dramatic decline in Eastern North Pacific and Pacific Coast Feeding Group (PCFG) gray whale abundance and calf production, and questions about whether PCFG gray whales should be designated as a management stock under the Marine Mammal Protection Act (MMPA)(16 U.S.C. §1361 et. seq.), it is, at best, premature to authorize the Makah Tribe to kill gray whales. The recent documented loss of 38 percent of Eastern North Pacific gray whales6 between 2016 and 2022 and 18 percent decline (257 to 202) in PCFG gray whales between 2015 and 2020 (SDEIS at 31, Table 3-3 citing Harris et al. (in prep.), should provide NOAA/NMFS with sufficient cause to terminate this entire decision-making process. While ENP gray whales recovered after the 1999/2000 UME, it would be entirely speculative to assume that such recovery will automatically occur again given the fundamental, paradigm shifting changes in the Arctic that are transforming a benthic driven ecosystem into a pelagic one.For these reasons and considering, as will be discussed below, the deficiencies in the SDEIS, I strongly support Alternative 1, the no-action alternative and encourages NOAA/NMFS to select it as its preferred action should this decision-making process continue. Absent the selection of Alternative 1, I strongly encourage NOAA/NMFS to, at a minimum, suspend the current NEPA decision-making process until it can:1. Determine the cause or causes of the current UME, document a recovery of ENP and PCFG gray whales, and published a second SDEIS containing a more accurate and comprehensive analysis of the environmental impacts of the action alternatives using the ENP abundance estimates published in Eguchi et al. (2022) and after obtaining a more up to-date abundance estimate for PCFG gray whales.7 In addition, NOAA/NMFS, in collaboration with Russian scientists,8 must endeavor to obtain a new abundance estimate for WNP gray whales as the current estimate is six years old.NOAA/NMFS has	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			established a team of scientists to study the causes of the current UME. SDEIS at 51. The status of that investigation is unknown as is any indication as to when the expert team may publish a report in its findings. Nevertheless, the 38 percent decline in ENP gray whale population abundance from 2016 to 2022 is alarming and it is imperative that NOAA/NMFS understand the causes of that decline – and acts to mitigate them if possible – prior to authorizing the intentional killing of gray whales by the Makah Tribe. While NMFS has indicated that this decline is a product of natural fluctuation in the ENP gray whale population,9 the drop in numbers has caused enough concern within the agency that it will engage in a new count of gray whales during the 2022/23 migratory season.10 Until count data demonstrate a rebound in population abundance numbers, NMFS should suspend consideration of the requested MMPA waiver and NEPA processes and not initiate and further decision-making processes including for the Incidental Take Authorization (ITA) or as part of the hunt permitting process. Furthermore, since the environmental impact analysis in the SDEIS is entirely based on what is now an outdated abundance estimate (20,580),11 a revised SDEIS must be prepared using the new abundance estimates for ENP and PCFG gray whales and published for public review and comment.2. Reassess whether PCFG gray whales warrant designation as a population stock under the MMPA. As defined under the MMPA, a population stock is "means a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature." 16 U.S.C. §1362 (11). To make this determination, NOAA/NMFS has published several Guidelines for Assessing Marine Mammal Stocks (GAMMS).12 The most recent iteration of GAMMS was published in 2016 and is entitled "Guidelines for Preparing Stock Assessment Reports Pursuant to Section 117 of the Marine Mammal Protection Act"13 (2016 Revision). In the 2016 Revision, NOAA/NMFS state that "[f]or the purposes of management under the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			MMPA, a stock is recognized as being a management unit that identifies a demographically independent biological population." 2016 Revision at 3. To make that determination, a suite of criteria or characteristics are considered including: distribution and movements, population trends, morphology, life history, genetics, acoustic call types, contaminants and natural isotopes, parasites, and oceanographic habitat.14 Furthermore, "[d]ifferent population responses (e.g., different trends in abundance) between geographic regions are also an indicator of stock structure, as populations with different trends are not strongly linked demographically."15 To demonstrate demographic independence, evidence of morphological or genetic difference in animals from different region can be used. Ultimately, "[d]emographic independence means that the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than immigration or emigration (external dynamics)."16 NOAA/NMFS last assessed whether PCFG gray whales qualify as a management stock at an internal (NMFS scientists only) workshop held in 2012, ten years ago.17 At that time, NOAA/NMFS used the 2005 version of the Guidelines for Assessing Marine Mammal Stocks as the basis for its assessment as to whether PCFG gray whales warranted designation as a population stock. At that meeting, as summarized in the 2015 DEIS and SDEIS, it was determined that "while the PCFG appears to be a distinct feeding aggregation, 'there remains a substantial level of uncertainty in the strength of the lines of evidence supporting the demographic independence of the PCFG,' and that the group might warrant consideration as a distinct stock in the future."18 Notably, as summarized by Weller et al. (2013), "[m]embers of the TF (task force) ranged in their opinions from strongly agreeing to strongly disagreeing about whether the PCFG should be recognized as a separate stock"19 suggesting that the decision not to recommend the designation of PCFG gray whales as a separate population stock was a narrow one and	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			was far from unanimous.Remarkably, despite clear disagreement amongst scientists participating in the 2012 workshop regarding the stock designation of PCFG gray whales, after passage of a decade, and since publishing not one but two revised versions of the GAMMS, NOAA/NMFS has never revisited its conclusion from the 2012 workshop. This failure is even more egregious given the wealth of new information published about PCFG gray whales since 2012 which provides compelling new evidence demonstrates that PCFG gray whales should be designated as a management stock or, at a minimum, that NOAA/NMFS should take a fresh look at the matter. Among the newly published studies are several published by scientists affiliated with Cascadia Research and others examining various aspects of PCFG gray whale abundance, ecology, biology, behaviors, and genetics.While I firmly believe that the best available science provides compelling evidence that PCFG gray whales should be designated as a management stock, here it is merely asking that NOAA/NMFS engage in a new, objective, and comprehensive analysis of the PCFG stock designation issue before concluding the pending MMPA waiver and NEPA decision-making processes.3. Determine if the Makah Tribe qualifies for an ITA for WNP gray whales. It would appear from an analysis of the SDEIS, that NMFS has decided, as recommended by Administrative Law Judge Jordan, to require the Makah Tribe to apply for an ITA for its potential take of gray whales as a result of a hunt (if authorized). I question whether NOAA/NMFS can legally grant the ITA particularly since the Makah Tribe's potential take of a WNP gray whale will be intentional not incidental. With the exception of a handful of well-known and distinctly marked PCFG gray whales, ENP, PCFG, and WNP gray whales cannot be distinguished in the field.If NOAA/NMFS does not share this view, then it erred by failing to complete the ITA decision-making process before publishing the SDEIS. Not only would the ITA process have produced information that could – and should – have been	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			disclosed in the SDEIS but, as explained in more detail below, a decision to reject the ITA after this NEPA process is concluded would invalidate or require substantial revisions to several of the action alternatives assessed in the SDEIS and compel the need for a revised SDEIS. I am aware of no MMPA regulations that mandate when an ITA decision-making process is initiated particularly when a proposal also requires NEPA compliance. Conducting the ITA decision-making process first, before publishing the SDEIS, would allow for the information garnered through that decision-making process to be fully disclosed and analyzed in an SDEIS as is consistent with NEPA.The remainder of this comment letter will address the content and analysis contained in the SDEIS. In short, I found the SDEIS to be largely devoid of information required to conduct a legally sufficient analysis under NEPA, contains a number of errors including information that is completely inconsistent with the proposed regulations published to govern a hunt (if a hunt is authorized), and its analysis of environmental impacts is superficial and is far from the "hard look" required under NEPA.My concerns about the legal sufficiency of the SDEIS (and the preceding 2015 Environmental Impact Statement (EIS)) are based on whether the analysis provided by NMFS satisfies NEPA. Historically, my opposition to the government permitting the Makah tribe to resume the hunting of gray whales has been based on science, the law, and ethical concerns associated with the suffering inherent to whaling. This remains the case. I, as noted previously, respects the Makah Tribe's interest in preserving its rituals and traditions associated with its whaling past and recognizes the importance of teaching Makah youth their native language and of continuing to practice traditional customs celebrating whales and their whaling past, including dances, tribe and family-specific rituals, songs, and stories. Nevertheless, particularly given the population structure of gray whales and the existing legal standards, the resumption of whaling is not necessary to maintain, sustain, and even expand traditional	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			customs celebrated by Makah tribal members.---------- ---------- -1 For the purpose of this comment letter, since the SDEIS was prepared pursuant to the 1978 Council on Environmental Quality regulations implementing NEPA (SDEIS at iv), the citations to NEPA will be to the 1978 regulations.2 Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022. Recent trends in the abundance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.3 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07; Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667. https://doi.org/10.25923/4g6h-91294 2015 Draft Environmental Impact Statement (2015 DEIS) on the Makah Tribe Request to Hunt Gray Whales. 2015. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, West Coast Region at 1-22. “Whaling” under the WCA “means the scouting for, hunting, killing, taking, towing, holding onto, and flensing of whales, and the possession, treatment, or processing of whales or of whale products. 16 U.S.C. §916(j).” In the context of the Makah Tribe satisfying the IWC definition of Aboriginal Subsistence Whaling (ASW) which includes the need to demonstrate a “continuing traditional dependence of whaling and the use of whales,” the Makah Tribe is unable to satisfy that definition.6 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07. 7 While Harris et al. (2022) contains a revised PCFG abundance estimate for 2020, considering the ongoing UME and its impact on ENP gray whales it is imperative that NOAA/NMFS seek a 2022 abundance estimate for PCFG gray whales as their numbers may have also continued to decline. 8 Given the ongoing war being waged by the Russian Federation against Ukraine which has resulted in a number of US-imposed sanctions against Russia, its officials, including its leadership, it is unclear if US scientists are authorized to collaborate with their counterparts in Russia at this time and, if not, when such a collaboration would be possible in the future. The implications of the war on current and future US-Russian Federation scientific and management collaborations, particularly for gray whales, must be disclosed and analyzed in a revised SDEIS. 9 National Marine Fisheries Service, "Gray Whale Numbers Continue Decline; NOAA Fisheries Will Continue Monitoring." Press Release. October 07, 2022. https://www.fisheries.noaa.gov/feature-story/gray-whale-numbers-continue-decline-noaa-fisheries-will-continue-monitoring 10 Id.11 Stewart, J.D., and D.W., Weller. 2021.Abundance of Eastern North Pacific Gray Whales 2019/2020. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-639. 5 pages.12 See, https://www.fisheries.noaa.gov/national/marine-mammal-protection/guidelines-assessing-marine-mammal- stocks13 Available at: https://media.fisheries.noaa.gov/dam-migration/guidelines_for_preparing_stock_assessment_reports_2016_revision_gamms_iii_opr2.pdf14 Guidelines for Preparing Stock Assessment Reports Pursuant to Section 117 of the Marine Mammal Protection Act, NATIONAL MARINE FISHERIES SERVICE INSTRUCTION 02-204-01, February 22, 2016. Available at: https://media.fisheries.noaa.gov/dam-migration/guidelines_for_preparing_stock_assessment_reports_2016_revis	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			ion_gamms_iii_opr2.pdf. See page 3.15 Id.16 Id.17 Weller, D.W., S. Bettridge, R. L. Brownell Jr., J. L. Laake, J. E. Moore, P. E. Rosel, B.L. Taylor, and P.R. Wade. 2013. Report of the National Marine Fisheries Service Gray Whale Stock Identification Workshop. U.S. Department of Commerce. NOAA Technical Memorandum. NMFS-SWFSC-507.18 SDEIS at 29; 2015 DEIS at 1-5, 2-6, and 2-25.19 Weller, D.W., S. Bettridge, R. L. Brownell Jr., J. L. Laake, J. E. Moore, P. E. Rosel, B.L. Taylor, and P.R. Wade. 2013. Report of the National Marine Fisheries Service Gray Whale Stock Identification Workshop. U.S. Department of Commerce. NOAA Technical Memorandum. NMFS-SWFSC-507.20 See, https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/makah-tribal-whale-hunt21 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of easternNorth Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07.22 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667.https://doi.org/10.25923/4g6h-9129.	
			The SDEIS is Woefully Inadequate and Fails to Satisfy the Requirements of NEPA: As noted in the SDEIS, NMFS is using the 1978 Council on Environmental Quality regulations implement NEPA for this analysis. Those regulations specify that NEPA is the "basic national charter for protection of the environment" 40 CFR at 1500.1(a) and that the "NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." Id. at 1500.1(b). This information "must be of high quality" and that "[a]ccurate scientific analysis, expert agency comments, and public	The background information provided is noted. We disagree with the conclusion that the analysis is deficient. With respect to the opportunity for comment, see Appendix C Responses to Frequent and Substantive Comment #16-Amount of time allowed to comment on the DEIS. See Appendix C Responses to Frequent and Substantive Comment #4-Cumulative effects and the

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			scrutiny are essential to implementing NEPA." Id. In preparing an Environmental Impact Statement, NEPA regulations specify that: The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the federal government. It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses. An environmental impact statement is more than a disclosure document. It shall be used by federal officials in conjunction with other relevant material to plan actions and make decisions. Id. at 1502.1. The SDEIS doesn't satisfy such requirements. Some of deficiencies include the following: • Does not provide sufficient opportunity for interested stakeholders to submit informed and substantive comments on the SDEIS; • Does not disclose information critical to the assessment of direct and indirect environmental impacts and/or to provide a credible foundation for the conclusions made as to the impacts of the action alternative, including the composite alternative; • Does not consider a reasonable and feasible range of alternatives particularly by electing to engage in the ITA analysis after completing the DSEIS decision-making process; • Does not accurately assess the impact of the action alternatives on the	future health of the ENP gray whale population in the face of climate change and other threats. See Appendix C Responses to Frequent and Substantive Comment #19-Ongoing UME. Under this header, the commenter does not identify identify specific deficiencies (e.g., related to the information "critical to the assessment" or the assessment of impacts). Specific comments later in the body of the letter are responded to below.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			various assessment factors evaluated in the SDEIS; • Does not conduct a comprehensive examination of the cumulative impact of the action alternatives, including the preferred action, in light of past, present, and reasonably foreseeable future actions that may impact the gray whales and/or its habitat (from the Arctic to Mexico). With these and other glaring and gaping errors in the analysis, the SDEIS is not in compliance with NEPA and should be withdrawn and, should NMFS not agree to suspend the entire decision-making process for the reasons articulated above – replaced with a more comprehensive and accurate revised SDEIS that provides a genuine and objective "hard look" at all of the science and legal issues relevant to the decision to be made. The need to revise the SDEIS is now even more compelling given the two new reports published by NOAA/NMFS just days before the comment deadline on the present SDEIS; documents that demonstrate the ongoing precipitous decline in ENP gray whale numbers and calf production. While the formal determination of the causes of the ongoing UME has not been published, the available evidence suggests that gray whales have a food problem likely emanating to the paradigm shifting changes occurring in the Arctic because of human-caused climate c change/ocean warming. NOAA/NMFS must stop ignoring this likely contributor to the decline in gray whale numbers by attempting to disguise the "borealization" of Arctic marine ecosystems as natural fluctuations in gray whale population abundance. While the gray whale population – like any wild animal population can fluctuate, suggesting that the population will always rebound from such dramatic declines is entirely speculative given the changes occurring in the Arctic. As the gray whale has been celebrated as an example of a species that	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			significantly benefited from the protections afforded by the ESA and MMPA, that success now has become muted, even if only temporarily, because of the litany of factors causing the Arctic to be the bellwether of climate change. As no one can predict the future of the Arctic in the time of such dramatic ecosystem change tied to warming as well as increasing threats to gray whales throughout their migratory route, it is entirely the wrong time to permit the intentional killing of gray whales by the Makah Tribe.	
			NOAA/NMFS has failed to provide the public with sufficient opportunity to review, analyze, and incorporate newly released scientific information into their substantive comments:Inexplicably, NOAA/NMFS published the SDEIS in July 2022 with full knowledge that a new, seminal paper cited in the SDEIS (Harris et al.) was "in prep." While NEPA provides agencies with the ability to address missing and/or unattainable information relevant to an analysis in an Environmental Assessment or Environmental Impact Statements (see 40 CFR 1502.22), in this case the information wasn't missing or unattainable it simply wasn't published. The decision to publish the SDEIS given this missing paper was misguided and inappropriate. While I am grateful that Harris et al. (2022) was eventually made available on a NOAA/NMFS website,20 this was done on 27 September 2022, only 17 days before the comment deadline.To make matters worse, it then became known that NOAA/NMFS had not published two other relevant reports containing a revised abundance estimate for ENP gray whales21 and data on calf production in 2022.22 After waiting for these reports to be published, a group of organizations, sought a second extension of the comment deadline due to the failure by NMFS to publish the two reports in a timely fashion given their direct relevance to the current analysis in the SDEIS. Those reports were finally made available on 7 October 2022, a mere seven days before the comment deadline. This request for a second extension was, contrary to the claims of	See FEIS section 1.5, Public Involvement. See also Appendix C Responses to Frequent and Substantive Comment #16-Amount of time allowed to comment on the DEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			others, entirely intended to secure a limited number of extra days to both allow the reports to be published and to afford all interested stakeholders, including the Makah Tribe, with an opportunity to fully review and evaluate the new information for incorporation into substantive comments.The decision by NOAA/NMFS to reject the request for a second extension was galling both as to its reason and as to an apparent expectation by the government that it can withhold information directly relevant to the analysis in a NEPA document until the very last minute and that this will provide interested stakeholders with sufficient time to incorporate such information into their comments on the SDEIS. Even if, as explained by Ms. Laurie Beale, in an 11 October 2022 email to parties to the ALJ proceedings, NOAA/NMFS missed a Federal Register deadline to get extension language published before the 14 October 2022 deadline, NOAA/NMFS is well aware that it could have reopened the comment period for two or three weeks to ensure transparency and to provide the public with sufficient time to incorporate this new information into their SDEIS comments. This decision does not only reflect badly on the decision-making process, but it prevents the decision makers from having access to a full record, including all relevant information from interested stakeholders, when making their decision.----------20 .See, https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/makah-tribal-whale-hunt 21. Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS- SWFSC-668. https://doi.org/10.25923/x88y-8p07.22 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667. https://doi.org/10.25923/4g6h-9129.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The analysis contained in the SDEIS is based on outdated data and must, at a minimum, be withdrawn and replaced with a new analysis: The bulk of the analysis of the impact of the action alternatives on the abundance of ENP, PCFG, and WNP gray whales and calculation of Potential Biological Removal (PBR) to restrict take (where applicable) is now either out-of-date or up-to-date population estimates (i.e., for PCFG and WNP gray whales) are not available to conduct such analyses. For ENP gray whales, the analysis is based on the 2020 population abundance estimate (20,580)23 and corresponding Nmin (used to calculate PBR) when a new abundance estimate (16, 650) and new min is now available.24 Considering the list of NMFS employees who contributed to the development of the SDEIS, SDEIS at 107, and those who are listed as coauthors on the Eguchi et al. (2022) reports, it is impossible that the NOAA/NMFS team preparing the SDEIS was not aware of the pending publications of Eguchi et al. (2022). Nevertheless, NOAA/NMFS elected to publish the SDEIS despite being aware of new data that would render incorrect a portion of its analysis. Regardless of how or why the SDEIS was published prematurely, it now must be withdrawn and, should NOAA/NMFS elect to continue with the NEPA and MMPA waiver decision making processes, it must draft a new, revised and strengthened, SDEIS for consideration by the public. For PCFG gray whales, Harris et al. (2022) provided a revised abundance estimate for 2020, not 2022. Considering that the 2020 estimate is 18 percent lower than the 2015 estimate, it is imperative that a 2022 estimate be published to determine if the abundance of PCFG gray whales has continued to decline consistent with the decline in ENP gray whales from 2020 to 2022. Absent such an updated PCFG abundance estimate, it would	The analysis in the Harris et al. (2022) is the best available information. As described in the Appendix C Responses to Frequent and Substantive Comments #7-Ongoing UME, the PCFG abundance estimates are on a 2-year time lag. This occurs due to the time delay with photo-identification processing and modeling efforts, and because the definition of a PCFG whale is any whale seen between NCA and NBC in two or more years. Animals need the chance to be seen a second time in at least one year following in order to be classified as a PCFG whale. With respect to the consideration of PBR, see Appendix C Responses to Frequent and Substantive Comments #7-Calculation and use of 'potential biological removal' (PBR) for a PCFG mortality limit.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			be premature, to consider that the PCFG analysis contained in the SDEIS was accurate. Similarly, as the WNP population abundance estimate (290)25 is also six years old, a new population abundance estimate must be published to determine if there is any evidence of a WNP gray whale population abundance decline that may be synonymous with the larger reduction in ENP gray whales. While I am not suggesting that a new SDEIS must be prepared every time a revised population abundance estimate is published, this is a unique situation considering the ongoing decline in ENP gray whales and the duration of the current UME that merits extra caution and concern. Furthermore, while seeking to obtain the data to update all gray whale population abundance estimates which then correspond to the calculation of Nmin, NMFS must also revisit the other variables used in its PBR formula including Rmax and the recovery factor. If a declining population – as is the case for ENP and PCFG gray whales (and perhaps for WNP gray whales), warrants reconsideration and revision of the numerical values for the variables used to calculate PBR, NOAA/NMFS has to provide an explanation as to the basis for the changes and their implications. Absent publication of a revised SDEIS, the analysis in the current SDEIS cannot be considered as accurate and any associated decision would be based on outdated evidence rendering the analysis far short of what's required by NEPA and ensuring that any decisions made are not based on a full record. --- 23. Durban, J.W., Weller, D.W. and Perryman, W.L. 2017. Gray whale abundance estimates from shore-based counts off California in 2014/15 and 2015/16. Paper SC/A17/GW0 presented to the rangewide workshop on gray whales, April 2017 (unpublished). 69 pages.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			24. Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07. 25 Cooke, J.G., B. L. Taylor, R. Reeves, and R.L. Brownell Jr. 2018. Eschrichtius robustus (western subpopulation), Western Gray Whale. The IUCN Red List of Threatened Species. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T8099A50345475.en.	
			NOAA/NMFS has failed to disclose sufficient information or provided information that is incomplete, confusing, or inaccurate and did not provide an objective or critical analysis of the information that was disclosed in the SDEIS in violation of NEPA:NEPA promotes transparency by directing federal agencies to ensure that the public is sufficiently aware of the environmental impacts of a proposed federal action before that action is implemented. That information must be of "high quality" and subject to "accurate scientific analysis." 40 CFR 1500.2(b)." The expectation underlying NEPA is that an agency will disclose all evidence relevant to the decision being made so that such information is available to the public before decisions are made. Moreover, the information provided in any NEPA document must be concise, clear, and to the point and supported by evidence demonstrating that the agency has conducted the relevant environmental analyses. 40 CFR 1500.2(b). In the SDEIS, there are multiple examples of the failure by NOAA/NMFS to disclose information, to provide accurate information, and to engage in the type of critical analysis expected under NEPA. Some of these deficiencies are significant and others less so but they all hinder the ability of interested stakeholders to understand and evaluate the full suite of environmental impacts:	We disagree that we have failed to disclose sufficient infomation or have provided incomplete, confusing, or inaccute information. Scientific literature was published during the open comment period which was made available to the public, and the comment period was extended. See Subsection 1.5.3 for a summary of the public comment process, including extensions granted, on the DEIS and SDEIS. See also See Appendix C Responses to Frequent and Substantive Comments #16.-Amount of time allowed to comment on the DEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			The analysis of mixing proportions in the SDEIS is incomplete, unclear, and inaccurate preventing an accurate assessment of the environmental impacts of the action alternatives on ENP, PCFG, and WNP gray whales: The analysis of gray whale mixing proportions is a cornerstone of the analysis of the numerical impact of the action alternatives on ENP, PCFG, and WNP gray whales in both the 2015 DEIS and SDEIS. In the 2015 DEIS, NOAA/NMFS explained that of the 181 gray whales seen in the Northern Washington PCFG gray whale range, 40.33 percent (73) were subsequently seen within the PCFG gray whale range (Northern California to Northern British Columbia or NCA-NBC) after June 1, 37.02 percent (67) were seen within the Oregon-Southern Vancouver Island PCFG range (or OR-SVI) after June 1, and 33.15 percent (60) were seen within the Makah U&A PCFG range (or MUA) after June 1. 2015 DEIS at 3-140. In the SDEIS, these numbers changed significantly based on the collection and analysis of additional data so that, as explained by NMFS citing Harris et al. (2022), "[f]rom 1996 to 2020, Harris et al. (in prep.) observed 417 whales in the Northern Washington coast survey area (or NWA)26 between December 1 and May 31." SDEIS at 48. NOAA/NMFS then stated that "[o]f these whales, 27.1% were observed in the PCFG range after June 1, while 25.9% were observed in the OR-SVI area and 22.54% were observed in the Makah U&A after June 1." Id. As noted by NOAA/NMFS throughout the DSEIS, DSEIS at 49, this analysis, to be conservative, was premised on the sighting of a single whale seen in the spring within the PCFG range (NCA-NBC) and subranges (e.g., OR-SVI, MUA) before June 1 to the entire catalog of PCFG gray whales seen during the summer/fall after June 1.27 These percentages are subsequently used throughout the SDEIS to assess the numerical impact of a gray whale	While the SDEIS used the recent mixing proportions and data from Harris et al. (2022), the FEIS notes that "Although Harris et al. (2022) used the same methods as Calambokidis et al. (2019) to update these mixing proportions with data from 2017 to 2022, these data were selectively processed in a manner which resulted in a known bias. Therefore, Harris et al. (2022) recommend relying on the previous mixing proportions until future reporting is complete." Thus, the FEIS relied on the mixing proportions in Calambokidis et al. (2019) (see Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements), and the numbers cited were not utilized in developing those mixing proportions.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			hunt (based on the specific hunt onfiguration under the different action alternatives) on ENP, PCFG, and WNP gray whales. There are a number of concerns, questions, and problems with the mixing proportion data as disclosed and presented in the DSEIS. 1. NOAA/NMFS characterization of the 417 whales seen within the "northern Washington coast survey area" is inaccurate. Those 417 whales, according to Harris et al. (2022) were seen within the NCA-NBC PCFG range prior to 1 June.28 Furthermore, Harris et al. (2022) only indicates that these whales were seen prior to June 1 while NOAA/NMFS characterizes the data as reflecting whales seen between "December 1 and May 31." As Harris et al. (2022) does not provide data on the distribution of these whale sightings by month, it is unclear if they were, as NOAA/NMFS suggests, distributed over a six-month period. This needs to be clarified. There is a discrepancy, however, in Harris et al. (2022) as they suggest that these 417 whales were seen within the NCA-NBC range prior to June 1 (see page 7 of Harris et al. (2022)) when the associated table (Table 3) indicates that the 417 whales were seen within the NCA-NBC between June 1 and November 30 (see page 16 of Harris et al. (2022)). Both statements cannot be true. Either the 417 gray whales were seen prior to 1 June or between June 1 and November 30. If the 417 whales were seen from June 1 to November 30, then the mixing proportions cited above would be for newly seen whales within the NCA-NBC PCFG range that were subsequently cited again within that range and within the OR-SVI and MUA ranges. This must be clarified and its implications to the mixing proportions, which may be significant, explained. 2. For the whales observed in the spring (before June 1), the number (417)	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			are ostensibly of whales seen only once. SDEIS at 49. As noted, NOAA/NMFS selected these criteria to be conservative. Yet, the 417 number, according to Harris et al. (2022) in Table 3 refers to whales that were "newly seen and seen again" meaning that they were sighted at least twice within the PCFG gray whale range over at least two years. The number of newly seen whales (including whales that were never documented to have been seen again) for the NCA-NBC range from 1996-2020 was 904.29 Consequently, whether the statistics contained in the SDEIS, particularly the 417 gray whales which is the basis for the mixing proportions, are of whales seen a single time before 1 June or at least twice within the PCFG gray whale range creates confusion and makes it difficult to determine if the analysis contained in the SDEIS is accurate. This must be clarified. 3. Neither NOAA/NMFS in the SDEIS or Harris et al. (2022) provide an explanation as to how the mixing proportion percentages (i.e., 27.1, 25.9, and 22.54) were calculated. Those percentages, based on the 417 whales ostensibly sighted within the PCFG gray whale range prior to 1 June, correspond to 113, 108, and 94 whales subsequently seen again within the NCA-NBC, OR-SVI, and MUA ranges, respectively. It is not at all clear from either the text or tables contained in the SDEIS or Harris et al. (2022) where these percentages originated or how they were calculated. In examining Tables 3, 4, and 5 in Harris et al. (2022), of the total of 417 "newly seen and seen again" whales observed from 1996 to 2020 within the PCFG gray whale range (NCA-NBC) between June 1 to November 30, 344 (82.5 percent) were "newly seen and seen again" within the OR-SVI range and 175 (42 percent) were "newly seen and seen again" within the MUA over the same time period. If only the "newly seen" whales are considered then of the 904 "newly seen" whales (from 1996-2020) within	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the NCA-NBC range, 645 (71 percent) and 356 (39 percent) were "newly seen" within the OR-SVI and MUA ranges, respectively. While there may be additional sighting data that have not been disclosed that may explain the origins of the mixing proportion percentages contained in the SDEIS and Harris et al. (2022), from the data that has been disclosed it is not clear how these percentages were determined. This must be clarified and any additional data that may not have been disclosed must be made available for scrutiny by interested stakeholders. 4. It is not clear what the mixing proportion data is describing. Presumably, given the intended purpose of developing mixing proportions (i.e., to assess the numerical impact of a proposed hunt on ENP, PCFG, and WNP gray whales) the mixing proportions should be describing the likely proportion of PCFG gray whales within the larger number of migrating ENP gray whales from December 1 to May 31 which constitute the potential dates of a winter/spring gray whale hunt. Alternatively, the mixing proportions disclosed in the SDEIS may be intended to identify the proportion of all PCFG gray whales seen from June 1 to November 30 within the entire PCFG gray whale range (NCA-NBC) to those seen within the subranges, including OR-SVI and MUA, over the same time period. If, as presented in Table 3 in Harris et al. (2022), the gray whale survey data is for the period between June 1 and November 30, then the mixing proportions in the SDEIS are, in fact, merely examining what proportion of all PCFG gray whales are found within the different PCFG gray whale subranges during summer/fall months. This must be clarified. Regardless of the answer to the correct interpretation of the mixing proportions, to determine such proportions, credible and sufficient data on the observation of gray whales within the PCFG gray whale range (NCA-NBC) must be collected for the period both before June 1 (from December	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			1 to May 31) and between June 1 and November 30. Once such data, including photographs suitable for photo-id purposes are collected, then it can be analyzed to determine the proportion of gray whales originally sighted prior to June 1 to those sighted within the PCFG gray whale range and subranges after June 1 to calculate mixing proportions. This is precisely why determining if the 417 whales identified by NOAA/NMFS in the SDEIS as observed prior to 1 June were, indeed, identified prior to 1 June or, as noted in Table 3 in Harris et al. (2022) were seen between June 1 and November 30 within the PCFG range. Furthermore, it is not clear how extensive gray whale observation efforts are or have been prior to June 1. As reported by Calambokidis et al. (2019), of the 6,815 gray whales observed during surveys conducted within the PCFG gray whale range from 1996-2017, 1,729 (28.5 percent) were observed from December through May.30 This clearly is the result of less survey effort from December through May predictably as a result of inclement weather and potentially dangerous seas. Nevertheless, considering that NOAA/NMFS is supposed to examine the mixing proportion by month (see below), it is unclear if the survey effort during the winter/spring months is sufficient to provide valid survey results. NOAA/NMFS must provide an assessment of this matter to comply with NEPA. These data do not suggest that there are extensive gray whale observation efforts undertaken prior to June 1 each year raising questions about the accuracy of the mixing proportions given the limited sample size from which they are apparently calculated. To obtain the data necessary to predict accurate mixing proportions, a more robust observation effort should be undertaken during the winter/spring and summer/fall months, perhaps with designated observers routinely sampling the same survey areas (and potentially using pre-set survey tracts). To date, while the observation efforts to identify new and returning PCFG gray whales in the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			summer/fall may, despite their apparent randomness, be sufficient, the survey effort in the winter/spring is inadequate to obtain sufficient data to calculate meaningful mixing rates that reflect actual conditions. 5. NOAA/NMFS correctly indicates that any whales killed, approached, struck, or struck and lost during the summer/fall hunt, if authorized, will, for the purposes of analysis, monitoring, and reporting be considered a PCFG gray whale unless positively identified as a WNP gray whale. SDEIS at 10 and 63 and in the 2019 proposed rules to govern the hunt if authorized (see 50 CFR 216.14(b)(2) 84 Fed. Reg. 13604, 13621 (April 5, 2019)). For the winter/fall hunt, any struck and lost whale or landed whale that cannot be ideniified will be considered a PCFG gray whale based on the mixing proportions of, presumably, ENP and PCFG gray whales during the migratory season. For this purpose, it appears that NOAA/NMFS, until new data become available, intend to use the 27.1, 25.9, and 22.54 percentages as the mixing proportions for gray whales in the NCA-NBC, OR-SVI, and MUA PCFG ranges/subranges, respectively, for the winter/spring hunts. In other words, the same proportions would be applied to each month from December through May. While, admittedly, the description of mixing proportions in the SDEIS is unclear, if this is the intent of NOAA/NMFS then it will be violating the proposed rules to govern the hunt should the hunt be authorized. 84 Fed. Reg. 13604 (April 5, 2019). The proposed rules, make clear, that the use of mixing proportions to determine the take of PCFG gray whales during the winter/spring hunt is to be based on those proportions calculated for each month. For example, in the draft rule text, NOAA/NMFS states that: By November 1 of each year, the Regional Administrator will notify the Makah Indian Tribe in writing of the proportion of gray whales in the hunt area that will be presumed to be PCFG whales and the proportion of PCFG	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whales that will be presumed to be females for each month of the upcoming calendar year. The presumed proportion of PCFG whales will be based on the best available evidence for the months of December and January through May, and will be 100 percent for the months of June through November. (see proposed rule at 50 CFR 216.14(a)(2) in 84 Fed. Reg. 13604, 13621 (April 5, 2019). It is unclear if the mixing proportions contained in the SDEIS are intended to represent a trial run of those proportions that, by rule, the NOAA administrator will share with the Makah Tribe prior to the start of each winter/spring hunt (if authorized). If they are then they cannot be used for this purpose because they do not reflect the month-by-month mixing proportions as required by the proposed rules and the entire analysis must be redone. Instead of using the mixing proportion data to reflect PCFG and ENP gray whale mixing rates for the entire winter/spring hunt (thereby assuming the mixing proportions remain the same over 6 months or even over three months (March through May) when hunting would be more likely, NOAA/NMFS must disclose the mixing rates per month and use those rates in a new analysis. Logically, as ENP gray whales migrate through the PCFG gray whale range, the mixing rates are likely to change each month with the lowest proportion of PCFG to ENP gray whales in January and February with higher proportions (i.e., a larger percentage of PCFG gray whales of all gray whales observed) observed in May. Based on those changing proportions, the impact of the hunt on PCFG gray whales will vary over the course of the winter/spring hunting season and it is that data and those variable mixing proportions that must be disclosed to the public in a revised SDEIS. Until that is done, the current SDEIS, at least its analysis of mixing proportions, is invalid. --- 26. Although not entirely clear, it appears that the NWA PCFG survey area	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			is synonymous with the MUA PCFG survey area. Calambokidis et al. (2019) only refer to the NWA PCFG survey area while Harris et al. (2022) and the SDEIS refer to the MUA PCFG survey area. 27. Specifically, NOAA/NMFS notes that "[p]ercentage estimates are based on the springtime whale analysis by Harris et al. (in prep.) that compares whales seen in the spring to the entire catalog of whales identified in the PCFG range during the summer/fall feeding period (in contrast to the definition we use in this EIS for PCFG whales, which requires a whale to be (sic) have been seen in at least 2 years). This results in estimates that are likely higher and therefore more conservative than estimates that would be derived from a comparison with whales observed in at least 2 years. We conclude that this conservative approach is appropriate as it allows for the possibility that a whale sighted in the spring might later be seen for the second time in the PCFG seasonal range." 28. Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022. Recent trends in the abundance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.See Table 3. 29. Id. 30. Calambokidis, J., A. Perez, and J. Laake. 2019. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2017. Final Report to NOAA, Seattle, WA. pp. 1-72. See Table 5, page 21.	
			NOAA/NMFS ignores the potential for the take of WNP gray whales: The MMPA prohibits the "take" of marine mammals unless expressly	See Appendix C Responses to Frequent and Substantive Comments #12-Risks to WNP gray

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			authorized by an international treaty or agreement to which the US is a signatory or is allowed by permit. 16 U.S.C. §1372 Sec. 102(a)(2)(A) and Sec. 104(a). Under the MMPA, "take" means "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Id. at 1361, Sec. 2(13). Throughout the SDEIS when evaluating the potential impact of Alternative 7 and the other action alternatives on WNP gray whales, NOAA/NMFS primarily focuses on the likelihood of the Makah Tribe striking a WNP gray whale (see, e.g., SDEIS at 9, 46, 47, 48, 49, 63, 64) likely causing the animal's death. While a strike of a WNP gray whale would certainly constitute a "take" as defined by the MMPA, any activity, including even approaching a WNP gray whale during hunt training or hunt scouting activities, also constitutes a "take." By focusing on the likelihood of a strike, NOAA/NMFS ignores the potential for a "take" to affect a WNP gray whale. NOAA/NMFS is aware of the potential for the take of a WNP gray whale associated with any authorized hunting activities of the Makah Tribe. For example, in its summary of the possibility of whales being approached and subjected to unsuccessful strike attempts, NOAA/NMFS states that "[r]ecognizing that actions by tribal hunters, short of killing a gray whale, may affect whales and may constitute a take under the MMPA." SDEIS at 10. Nevertheless, throughout the SDEIS, NOAA/NMFS repeatedly assesses the risks of striking, not taking, a WNP gray whale. Moore and Weller (2019), based on the proposed regulations to govern the hunt should it be authorized, concluded that the risk of the Makah Tribe striking a WNP gray whale is remote (but not zero) but that the likelihood of a "take" each year over the ten-year waiver period is a certainty. For example, in its analysis of Alternative 2 (the Makah Tribe's proposed hunt structure) the likelihood of a take (caused by the approach of a whale during hunting or hunt training) of a WNP gray whale is 1.79, 10.71, and 17.86 over a single year, six years, and over the 10-year duration of the waiver, respectively. SDEIS at	whales.The summer/fall hunt is consistent with proposed regulations (84 FR13604, April 5, 2019) which defined odd-year hunt to mean a hunting season spanning four consecutive months from July 1 to October 31 in an odd-numbered year. Subsection 2.1.2 of the SDEIS describes that "The 2019 Proposed Rule limited winter/spring hunts to even-numbered years and summer/fall hunts to odd-numbered years. The even-year/odd-year hunt language is not a conservation measure. NMFS could remove this language to provide more flexibility in determining when the first hunt season of the 10-year waiver period should take place." The summer/fall hunt under Alternative 7 maintains the July 1 to October 31 timing.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			49, Table 4-2. For Alternative 7 the same numbers are 1.7, 10.6, and 17.65. SDEIS at 66, Table 4-11.For approaches, NOAA/NMFS concede that under Alternative 7, approximately 18 WNP gray whales would be approached during the 10-year waiver period. While it claims that number is unlikely to be reached as many approaches may occur during the summer months when WNP gray whales are not known to occupy the area. Specifically, NOAA/NMFS downplay the potential for an approach to take a WNP gray whale arguing that it "would expect a substantial number of approaches to occur during the summer when ocean conditions are more favorable to training and, during summer/fall hunts, when approaches are restricted to July through October." SDEIS at 65. Nevertheless, since the proposed rules permit up to 353 approaches each calendar year, to be precautionary NOAA/NMFS should assume, for the purposes of the analysis, that all approaches will occur during the winter/spring period when WNP gray whales may be present in the region.Furthermore, the NOAA/NMFS claim that approaches are restricted to July through October during summer/fall hunts is wrong as such temporal restrictions are not included in the proposed rules. See proposed rules at 50 CFR 216.113(a)(4)(i), 84 Fed. Reg. 13604, 13619 (April 5, 2019). With only an estimated 290 WNP gray whales (SDEIS at 17 citing Cooke et al. (2018)),31 the limited scope of the NOAA/NMFS analysis as to the potential impact of a hunt (including all associated activities) on WNP gray whales is significant, does not properly disclose the full range of environmental impacts as required by NEPA, and ignores the primary mandate of the MMPA to avoid the take of marine mammals. The SDEIS must be amended to address the potential for a "take," not just a strike, of WNP gray whales so that interested stakeholders can consider such information in assessing the impacts of Alternative 7 and the other action alternatives as required byNEPA.----------31	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			NOAA/NMFS provides two estimates for the abundance of WNP gray whales including 290 as the "current abundance of WNP gray whales", SDEIS at 17, and, in 2016, an estimated abundance of 320- 410 whales in the combined Sakhalin-southeastern Kamchatka area. SDEIS at 18. It is unclear from the analysis in the SDEIS if both estimates refer to the same populations of WNP gray whales – suggesting a decline in numbers since 2016 – or if the latter estimate is applicable to a larger geographic area. NOAA/NMFS should clarify this matter. Notably, while there are conflicting estimates of the historical, pre-whaling, abundance of WNP gray whales (compare Yablokov and Bogoslovskaya (1984) with Cooke et al. (2019)), if the estimate of 25,000 provided by Cooke et al. (2019) is accurate that the current WNP gray whale population is only 1.16 percent of its historical abundance or, in other words, WNP gray whale abundance has declined by nearly 99 percent.	
			NOAA/NMFS has failed to provide a reasonable range of alternatives as required by NEPA: The SDEIS evaluates seven alternatives. Many of the components of these alternatives are similar but there are some differences as to, for example, the timing of the hunt, the hunt area, limits on struck and lost whales, an ENP gray whale population abundance threshold (limited to Alternative 7), limits on killing PCGF gray whales, and for the duration of the requested waiver and any associated permits. SDEIS at 7 and 8 (Table 2-1). While these alternatives cover several hunting scenarios, many of them would have to be rejected or substantively modified depending on whether NMFS grants an ITA to the Makah tribe to allow the take of endangered WNP gray whales. The SDEIS suggests that NMFS has heeded the ecommendation of Administrative Law Judge Jordan and will require the Makah Tribe to submit a request for an ITA particularly if NOAA/NMFS selects Alternative 7 as its preferred alternative. SDEIS at 11.32 The MMPA permits the issuance of an ITA to all for the "incidental, but not	We disagree that we fail to provide a reasonable range of alternatives. There are a number of steps in the process for considering the Tribe's request (see our Frequently Asked Questions webpage). No decision has been made on the request to waive the take prohibitions. If an affirmative decision is made, the Tribe would then need to apply for a hunt permit. It is premature to speculate that a waiver will be granted and what the Tribe would include in an application for a hunt permit.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			intentional" take of marine mammals for specific activities (other than commercial fishing) within a specified geographical region for no more than five consecutive years. 16 U.S.C. §1371 Sec. 101 (a)(5)(A)(i). There is nothing incidental about the Makah Tribe's potential take of a WNP gray whale if NMFS were to permit a winter/spring hunt. The Makah Tribe, if authorized, intends to hunt gray whales, WNP, ENP, and PCFG gray whales are not readily distinguishable in the field, and, therefore, any hunt of a WNP gray whale would be, as previously noted, intentional. In that case, an ITA cannot be issued. Of the seven alternatives evaluated in the SDEIS, if an ITA was denied, four alternatives (Alternatives 2, 3, 5, and 6), because they permit whaling during the gray whale migratory season when WNP gray whales are known to occupy the ENP gray whale range and traverse the Makah Usual and Accustomed hunting area (Makah U&A), would no longer be reasonable alternatives and would have to be rejected or significantly revised. If they were rejected, that would leave three alternatives (the no-action alternative and Alternatives 4 and 7) although Alternative 7 would also have to be substantively amended to remove the winter/spring hunting season. NOAA/NMFS is aware of the implications of the ITA decision-making process as there are repeated references throughout the SDEIS33 as to how that decision will affect the impact of the action alternatives on the environment, including gray whales, and the viability of the alternatives analyzed. This is precisely why NOAA/NMFS erred in publishing this SDEIS before completing the ITA decision-making process. While I am confident that any requested ITA could not, given the relevant case law, be granted. Should the Makah Tribe elect not to submit an ITA, NOAA/NMFS should	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			terminate the MMPA waiver and NEPA decision-making processes immediately. If the Makah Tribe submits a request for an ITA, it must be denied and the analysis in the SDEIS must be substantively amended so that only those alternatives that pose no risk, even a de minimis risk, of taking a WNP gray whale and any new alternatives that meet that same standard, are analyzed. If it were to reject an ITA request and continue with the current decision-making process without amending the SDEIS, the alternatives that would remain viable would not be sufficient to represent a reasonable range of alternatives as required by NEPA. 40 CFR 1500.2(e). Furthermore, administrative efficiency dictates that NOAA/NMFS should have engaged in the ITA decision-making process first since, if it denies the ITA request -- as it should -- the substantive changes it would have to make to Alternative 7 and/or its introduction of new alternatives to compensate for those disqualified from review, would necessitate a new, supplemental environmental impact statement and public comment period. --- 32 It would also appear that NOAA/NMFS would require the Makah Tribe to obtain an ITA prior to authorizing any whale hunt under Alternatives 2, 3, 5, and 6 as those alternatives include a winter/spring hunt when WNP gray whales may be present along the migration route in the ENP. 33 See, e.g., SDEIS at 65 (potential number of unsuccessful harpoon attempts and approaches); SDEIS at 66 (potential number of shots fired or grenade explosions); SDEIS at 68 (water quality); SDEIS at 62 (Potential timing of hunt and number of hunting days); (Potential number of ENP and PCFG whales killed); SDEIS at 63; SDEIS at 64 (Potential number of unsuccessful harpoon attempts and approaches); SDEIS at 66 (Table 4-11(a); SDEIS at 66 (Potential number of shots fired or grenade	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			explosions); SDEIS at 68 (water quality); SDEIS at 82 and 88 (Economics); SDEIS at 86 (Ceremonial and subsistence resources); SDEIS at 87 (Noise); SDEIS at 88 (Aesthetics); SDEIS at 89 (Transportation); SDEIS at 90 (Public services); SDEIS at 91 (Public safety).	
			NOAA/NMFS has erred in assessing the impact of unsuccessful harpoon attempts on gray whales including PCFG gray whales during summer/fall hunts:NOAA/NMFS relies on a 6:1 ration of unsuccessful to successful harpoon attempts to assess the impact of unsuccessful harpoon attempts on gray whales during the summer/fall hunt. SDEIS at 64. This ration was a product of the Makah gray whale hunt experiences in 1999 and 2000 – when the hunts occurred in May 2019 and April/May 2020 – during the gray whale migratory season. As NOAA/NMFS is aware – since they concede to this point in the SDEIS, the behavior of gray whales during the migratory season and during the summer/fall period can be very different with gray whales, during the former season, engaging in migration while, in the latter season, a larger proportion are likely to be milling and feeding than traveling, making them more vulnerable to a successful strike." SDEIS at 64. Despite admitting that whales encountered during the summer/fall season may be more susceptible to lethal strikes, inexplicably NOAA/NMFS continues to rely on the 6:1 ratio for its impact assessment versus developing an estimate that may be more applicable to a hunt during the summer/fall season. At a minimum, to comply with NEPA, NMFS should examine multiple scenarios to ensure that the behavior of gray whales during the different seasons is sufficiently considered.	As described in the Subsection 4.6.4.1, we acknowledge that the ratio could be lower during summer/fall hunts given likely differences in behaviors. Nevertheless, we use the observed ratio of 6:1 as that represents the best information available based on experience from the 1999 and 2000 hunts. We are not aware of, nor has the commenter provided, any data to inform a different ratio.
			NOAA/NMFS use of a 50:50 sex ratio in analyzing the environmental impacts of Alternative 7 is inconsistent with the analysis contained in the 2015 DEIS: For the purpose of assessing the impact of Alternative 7 on female gray whales, NOAA/NMFS uses a 50:50 sex ratio. SDEIS at 27. In the 2015	See Subsection 3.4.3.4.1, Sex Ratio of PCFG Whales, which provides the information supporting the use of a 50:50 sex ratio.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			DEIS, NOAA/NMFS used a female sex ratio of 59 percent. 2015 DEIS at 3-95 citing Lang et al. (2010). In the SDEIS, NOAA/NMFS refers to several past studies that determined that the gray whale sex ratio was 59 percent females, 53 percent females, and earlier studies that found the female percentage below 50 percent. SDEIS at 27. Instead of using the more recent sex ratio studies, NOAA/NMFS has elected to split the difference and used an equal sex ratio. Considering the importance of determining the best available sex ratio to use in assessing the impacts of the proposed hunt on female whales, particularly PCFG females, the precautionary principle dictates that NOAA/NMFS use the highest documented female sex ratio (so long as the underlying study is credible). Alternative, NOAA/NMFS should engage in further study to attempt to more precisely define this ration is critical so that the analysis can be of high quality as required by NEPA.	
			NOAA/NMFS must reevaluate the environmental impacts of Alternative 7 and the other action alternatives given the decline in ENP and PCFG gray whales: As previously noted, the ENP gray whale population has declined by approximately 38 percent since 2016 from an estimated 26,980 gray whales in 2016 to 16,655 in 2022.34 The current abundance estimate is not only well below the abundance estimate (20,000-21,000) when gray whales were removed from the Endangered Species Act (58 Fed. Reg. 3121, 3125 (January 7, 1993)) but is well below the first of the three minimum abundance thresholds (18,000) included in the SDEIS and approaching the second of the minimum abundance thresholds (16,000). SDEIS at 67. The decline in the abundance estimate also reduces PBR for ENP gray whales from 801 (SDEIS at 25 (Table 3.2) citing NOAA Technical Memorandum NMFS-SWFSC-646) to 497.55 (using Rmax of 6.2 and recovery factor of 1). While PBR is not used to limit the number of gray whales killed under Alternative 7, it is utilized to restrict the number of whales that can be killed under alternatives 2-6.	With respect to the ongoing UME and the decline in population, see Appendix C Responses to Frequent and Substantive Comments #19--Ongoing UME.With respect to the consideration of PBR, see Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates, of the FEIS.See also Appendix C Responses to Frequent and Substantive Comments #7-Calculation and use of ‘potential biological removal’ (PBR) for a PCFG mortality limit.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Consequently, this requires a reevaluation of the environmental impacts of the proposed hunt not only due to ongoing gray whale population decline but also considering other human-caused threats to ENP gray whales including ship strikes, bycatch, ocean noise, and climate change. Furthermore, given the precipitous decline in the ENP population, NMFS must revisit the other variables used in the calculation of PBR, including Rmax and the recovery factor, to determine if those variables also must be revised or, if kept the same, to provide a cogent explanation for doing so. For the Rmax variable, given the significant decline in calf production numbers in 2022,35 it is clear that ENP gray whales, while previously subject to an Rmax of 6.2, are currently reproducing at a rate significantly less than that.I recognize that the current PBR formula uses Rmax and not the actual rate of reproduction, but it seems inappropriate and biologically reckless to use the current Rmax on a population that is clearly in decline when calculating PBR. Since PBR is intended to determine the maximum number of animals that can be removed from a population or stock as a result of human-caused mortalities (not natural mortalities) while allowing the population or stock to reach or maintain its optimum sustainable population (OSP), SDEIS at v, the precautionary principle dictates, for a declining population, that a more conservative Rmax be used so as to ensure that human-caused mortalities are preventing a population or stock from maintaining OSP. Moreover, while there may have been justification for applying a recovery factor of 1.0 when ENP gray whale populations were abundant and increasing, using the same recovery factor now is questionable particularly if ENP gray whales are no longer at or near their OSP.For the purpose of demonstration, using the revised 2022 ENP abundance estimate (which corresponds to an Nmin of 16,050)36 and the default Rmax (6.2) and recovery factor (1.0), the PBR is 497.55. If alternative values are used for Rmax (4.4; which had been used for gray whales in the past) and a recovery factor of 0.5, the PBR is 176.55.While	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the current estimated amount of human-caused mortality of ENP gray whales is 130.1, SDEIS at 25 citing NOAA Technical Memorandum NMFS-SWFSC-646 (July 2021), remaining below even the lowest PBR calculated above (176.5), the numbers are exceedingly close and could be exceeded given recent evidence of an increase in gray whale mortalities as a result of ship strikes,37 bycatch,38 and ongoing subsistence harvest.39 Furthermore, if it is determined that the documented decline in gray whales has been, at least in part, the product of the direct, indirect, and cumulative impacts of climate change then, since climate change is human-caused, the current PBR (801) and any of the recalculated PBRs would be well exceeded by human-caused mortalities of gray whales.Indeed, NOAA/NMFS must address the possibility that the dramatic decline in ENP gray whales since 2016 may, in part, be due to climate change; a human-caused mortality factor that is not presently included in the calculation of PBR for ENP gray whales or for PCFG or WNP gray whales as reflected in the NOAA/NMFS gray whale stock assessment reports. At present, even if only small fraction of the 10,425 gray whales lost from the ENP population since 2016 were killed due to human-caused climate change, the current PBR (801) and recalculated PBR (497.55) for gray whales (using Rmax of 6.2 and a recovery factor of 1.0) would be exceeded. For PCFG gray whales, while NOAA/NMFS continues to cling to the fantasy that PCFG gray whale abundance estimates have remained "stable" over the past 20 years, SDEIS at 29, 38, this is belied by the actual data which demonstrated an 18 percent decline in PCFG numbers from an estimated high of 257 in 2015 to 212 in 2020 (the most recent year for which a PCFG abundance estimate is available; see Table 11 in Harris et al. (2022) and SDEIS at 31). Given this decline, NOAA/NMFS must reassess the impacts of all action alternatives that rely on PBR to limit the killing of PCFG gray whales, including PCFG gray whales in the Oregon-Southern Vancouver Island and Makah U&A (NWA-SJF) PCFG region.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			For example, the current PBR for PCFG gray whales, based on an Nmin of 227, an Rmax of 6.2 percent, and a recovery factor of 0.5, is 3.5,SDEIS at 38 citing Carretta et al. (2021) and 50.40 At present, using the revised 2020 population abundance estimate (212) and its associated Nmin (198) from Table 6 in Harris et al. (2022) along with an Rmax of 6.2 percent and a recovery factor of 0.5, the revised PBR is 3.0.41 --- 34 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07.35 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667.https://doi.org/10.25923/4g6h-9129.36 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07.37 The impact of ship strikes on gray whale may be greater than previously considered. As noted in the SDEIS, "a recent qualitative assessment of the co-occurrence of North Pacific gray whales and vessel traffic found that ship strikes, and related underwater noise may pose a significant risk to gray whales (Silber et al. 2021). Areas modeled to be high risk were in the Russian Far East (Kamchatka peninsula and Okhotsk Sea), Bering Sea, Gulf of Alaska, and along the entire west coast of North America. The study estimated that the number of gray whales killed annually rangewide may be in the tens or perhaps low hundreds, and the risk was greatest during gray whale migration periods when animals are near shore and overlap with coastal shipping routes and fisheries." SDEIS at 39 and Silber, G.K., D.W. Weller, R. R. Reeves, J.D.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Adams, and T.J. Moore. 2021. Co-occurrence of gray whales and vessel traffic in the North Pacific Ocean. Endangered Speices Research. 44. 177-201. https://doi.org/10.3354/esr01093.38 According to the Washington Department of Fish and Wildlife, "[g]ray whales are especially vulnerable to entanglement because of their use of nearshore coastal waters, where fishing activity is often highest. From 1982 to 2018, gray whales were the most frequently entangled whale species along California, Oregon, and Washington, averaging 6.9 entanglement reports per year (NMFS, unpublished data), although actual numbers of entanglements are likely much higher than indicated by these reports." See, Sato, C. and G. J. Wiles. 2021. Periodic status review for the gray whale in Washington. Washington Department of Fish and Wildlife, Olympia, Washington. 32+ iii pp. 39 According to gray whale kill data provided to the IWC, from 2019 through 2022, Russian indigenous whalers killed an average of 133.33 gray whales each year. See, https://iwc.int/table_aboriginal 40 The validity of this PBR level is questionable since the Nmin used by NOAA/NMFS for this calculation is 227 yet 227 is not identified as an Nmin for PCFG gray whale abundance estimates for any year since 1996 as presented in Table 6 of Harris et al. (2022). The Nmin closest to 227 was 224 from 2016.41 Table 3-7 from the SDEIS (page 38) is confusing since it incorporates the 2020 updated PCFG abundance estimate and associated Nmin but lists an old PBR of 3.5 instead of 3.0.	
			Other errors, inaccuracies, and issues of concern: Definition of "IWC Scientific Committee": In the glossary (SDEIS at i to vii), NMFS provides a definition of "IWC Scientific Committee." In that definition, NMFS notes that "[t]he IWC Scientific Committee meets annually in the two weeks immediately preceding the main International Whaling Commission meeting." SDEIS at iii. This is inaccurate. Since 2012, the IWC plenary meeting has occurred	We have updated to the Glossary to reflect the meeting structure.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			biennially. During those years when an IWC SC and plenary meeting are scheduled, the SC meets several months before the plenary to provide commissioners/alternate commissioners and observer organization representatives additional time to review the results of the SC deliberation.	
			Definition of "Schedule":In the glossary (SDEIS at i to vii), NMFS provides a definition of the "Schedule" and states that "[t]he most recent Schedule was amended by the Commission at the 64th Annual Meeting in Panama City, Panama, July 2012. This is incorrect. As NMFS should be aware given its reference to the changes to the Schedule in regard to the IWC's treatment of Aboriginal Subsistence Whaling (see SDEIS at 5 and 41) the Schedule was last amended at the 67th meeting of the IWC in Florianopolis,Brazil, in 2018.42 Due to the Covid-19 pandemic no subsequent meetings of the IWC have been held since 2018 with the 68th meeting of the IWC scheduled to begin this month in Portoroz, Slovenia.----------42 See, https://archive.iwc.int/pages/view.php?ref=3606&k	We have updated the Glossary to reflect that Schedule was most recently updated at the 68th annual meeting in Slovenia in October 2022.
			Potential hunt restrictions are not disclosed or evaluated: In its description of the "Location of the Hunt (Area Restrictions)," NOAA/NMFS notes that certain sites including Tatoosh Island, White Rock, and the Olympic Coast National Marine Sanctuary (OCNMS) "could be subject to hunt restrictions via the hunt permitting process," DSEIS at 9, to protect particular resources including pursuant to consultation under the National Marine Sanctuary Act. NMFS fails to disclose, particularly for OCNMS, what those hunt restrictions may be and, therefore, interested stakeholders are unable to take such restrictions into consideration when evaluating the environmental impacts of the action alternatives. If such restrictions included not landing a killed gray whale on OCNMS	Subsection 2.3.2.2.8 described the area restrictions under each of the action alternatives. It does note that other sites could be subject to hunt restrictions via the hunt permit process to protect Olympic Coast National Marine Sanctuary. If a waiver is granted, the Tribe would apply to NMFS for a permit. NMFS would publish notice of the permit request and solicit public comments, would determine the appropriate level of NEPA review needed, and make a decision on whether to issue the hunt permit.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			land, prohibiting the hunting of gray whales within a certain distance from OCNMS land, restricting the type of weapon that could be used in a near-shore hunt, and/or requiring that any weapons used to strike a gray whale be discharged in the direction away from OCNMS lands to protect the health and aesthetic interests of OCNMS visitor, those would be important restrictions to disclose and evaluate during the current decision-making process. Furthermore, NOAA/NMFS must not limit such restrictions to the above reference locations as there are other areas, including Olympic National Park, Flattery Rocks National Wildlife Refuge, and perhaps sites listed on the National Register of Historic Places that may also merit consideration for such restrictions given their overarching conservation, wildlife protection, and cultural protection objectives. Unless NMFS intends to subject the hunt permitting process to NEPA review, the DSEIS provided the ideal NEPA document to publicly disclose and analyze the impacts of such restrictions. NMFS erred in failing to do so and, consequently, violated the information disclosure requirements of NEPA.	
			IWC and needs statements:In its summary of "International Whaling Governance under the International Convention for the Regulation of Whaling," (SDEIS at 4), NOAA/NMFS states that, in the context of needs of aboriginal communities for whales, "it was no longer appropriate for the Commission to continue to require these "need statements" as a condition for receiving a quota." This is correct. However, the traditional "needs statements" were replaced by documents entitled "descriptions of the hunt" which are available on the IWC website.43 These "description of the hunt" document contain information about need which ASW countries still must provide to the IWC and which contracting governments can take into consideration when determining whether to support an ASW catch limit request or renewal. Unlike the requirement in the past where ASW countries had to resubmit "needs statements" prior to every commission	The 2015 DEIS and FEIS include a more comprehensive discussion of the IWC protocols. We believe this information is sufficient background with which to analyze the alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			meeting where ASW catch limits were up for renewal, "description of the hunt" documents do not have to be resubmitted unless there is some substantive change to the hunt description, including need, that may be the basis, for example, of a request for a new ASW catch limit authorizing the killing or more whales or additional species of whale.----------43 See, https://iwc.int/management-and-conservation/whaling/aboriginal	
			US bilateral agreement with the Russian Federation: As noted in the SDEIS, the US signed a bilateral agreement with the Russian Federation in 2021 (Fominykh and Wolff, 2021) to allocate the IWC-granted gray whale ASW catch limit between the two countries. SDEIS at 5. Since 1997, the US and the Russian Federation have submitted a joint request (often with other ASW countries) for a renewal of ASW catch limits and, hence, the bilateral agreement is required to effectuate the distribution of the catch limit granted by the IWC. According to NOAA/NMFS the bilateral agreement is renewed annually. SDEIS at 42. Considering the current unprovoked hostilities by the Russian Federation against the people and government of the Ukraine and the subsequent impact on US/Russia relations, it is unclear as to whether the bilateral agreement has been renewed for 2022 and whether it will be possible for such renewals in the future. NOAA/NMFS does not disclose or assess the potential impact of the ongoing war in Ukraine on any future US/Russia bilateral agreement over gray whales, the prospects of the US and Russia submitting a joint request for a gray whale catch limit for consideration at the 69th meeting of the IWC in 2024, nor does it evaluate the impact of the war on the need for monitoring of WNP gray whales. This information must be disclosed and provided to interested stakeholders as it directly pertains to future joint	It would be speculative to consider how the ongoing war may affect future bilateral agreements or requests to the IWC. The NEPA documents assume that these agreements will continue but also describes the impacts to gray whales should they cease. With respect to monitoring see Appendix C Responses to Frequent and Substantive Comment #18 -Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			gray whale ASW catch limit requests and bilateral agreements between the US and the Russian Federation.	
			Number of whales harvested: In section 2.1.4 of the SDEIS, NOAA/NMFS indicates that, under Alternative 7, "no more than 25 ENP gray whales maybe be harvested over the 10-year waiver period... ." SDEIS at 10. It then indicates that "harvest" is defined as "landing a whale."44 Id. This definition, however, is inconsistent with the information contained in Table 2-1 in the rows noting the "Maximum limit for harvest, struck, and struck and lost whales." SDEIS at 7/8. In its summary of Alternative 7 in Table 2-1, NOAA/NMFS indicates that the maximum number of harvested, struck, and struck and lost whales over the 10-year duration of the proposed waiver is "[u]p to 20 harvested, and 25 struck, or struck and lost." SDEIS at 8. The information summarized in the table indicates that the 25 whales "harvested" over the course of the waiver includes struck and lost whales while NOAA/NMFS suggests that in its definition of "harvest" that struck and lost whales are not included. Both cannot be true. NOAA/NMFS needs to clarify whether the 25 whales "harvested" constitute only those who are landed or include those who are struck and lost.----------44 In the glossary, "harvest" is defined as "[t]o kill and land a whale."	This is clarified in Subsection 2.3.7.1.1 of the FEIS which states "Alternative 7 imposes strike limits and landing limits for each hunt season. No more than 25 ENP gray whales may be killed over the 10-year waiver period, and no more than 20 may be harvested (i.e. killed and landed)."
			Change in abundance and viability of the ENP gray whale stock: In section 4.4.1 of the DSEIS, NOAA/NMFS notes that the ENP gray whale population declined from 26,960 in 2016, SDEIS at 71 citing Durban et al. (2017), to "20,850" in 2020 citing "Steward and Weller 2021." The 2020 population abundance estimate is wrong and should be 20,580 and the citation should be corrected to "Stewart and Weller 2021).	The FEIS has been updated with the most recent population data. Table 3-5 correctly cites the 2019/2020 estimate from Stewart and Weller (2021).
			Unusual Mortality Event stranding numbers:In the SDEIS, NOAA/NMFS provides conflicting information about the number of gray whales that stranded as of June 3, 2020. First, it reports that 578 gray whales stranded	The FEIS has been updated with the most recent stranding data.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			as of June 3, SDEIS at 20, but then it states that 678 gray whales stranded as of the same date. SDEIS at 39. As the current total number of gray whales stranded as a result of the UME (as of September 21, 2022) is 606, 45 the former number is correct and the "678" is a typographical error. --- 45 See, https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2022-gray-whale-unusual-mortality-event-along-west-coast-and	
			NOAA/NMFS has failed to disclose sufficient information and provide a level of analysis to properly assess impacts on PCFG gray whales: <u>NOAA/NMFS must reassess the stock status of PCFG gray whales:</u> As previously noted, NOAA/NMFS has grievously erred in failing to revisit the fundamental question of whether PCFG gray whales should be designated as a management stock. Despite over a decade since its last assessment of the stock status of these whales, dozens of published studies, and new methodologies for assessing stock status, NOAA/NMFS appears to be unwilling to reevaluate this matter. To make matters worse, as concluded in Weller et al. (2013) and as noted in both the 2015 DEIS and SDEIS, PCFG gray whales may warrant consideration as a distinct stock in the future. See 2015 DEIS at 2-25 and SDEIS at 29. Yet, no reassessment has been undertaken. gray whales, its analysis of the environmental impacts of Alternative 7 and the other action alternatives on PCFG gray whales is inadequate. For a group of whales that could – and should – be designated as a population stock and given the precautionary conservation paradigm envisioned by the MMPA, NOAA/NMFS should be promoting the alternative that would, if the Makah Tribe is permitted to whale, have the least impact on PCFG gray whales which, according to Harris et al. (2022) only numbered 212 animals in 2020. <u>NOAA/NMFS has failed to justify the PCFG kill allowance contained in</u>	See Appendix C Responses to Frequent and Substantive Comments #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales. The purpose of the EIS is to analyze potential impacts of range alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA. In the EIS, we evaluate a range of alternatives with different levels of lethal and nonlethal take. The impacts of this take on gray whale populations, including on the PCFG, are fully evaluated to allow for comparisons between the alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Alternative 7: Alternative 7 would permit the killing of up to 16 PCFG gray whales with a subquota of eight female PCFG whales over the 10-year waiver period (SDEIS at 10) or an average of 1.6 PCFG gray whales per year. Presumably NOAA/NMFS is promoting this mortality limit strategy over using PBR to control the numbers of whales killed (as is used in Alternatives 2-6), to be more precautionary. I agree that this approach is more precautionary than Alternatives 2, 3, and 6 which permit up to 5, 4, and 3.5 PCFG gray whales to be killed annually, respectively. SDEIS at 45. It is not, however, the most precautionary of the alternatives regarding PCFG gray whales. That distinction goes to Alternative 4 and 5 which would limit PCFG gray whale hunt mortality to a maximum of 1 per year but with the likely killing of 1 PCFG gray whale every 2 years under Alternative 4 and 1 PCFG gray whale every 4 years under Alternative 5. SDEIS at 45. While NOAA/NMFS concedes that Alternative 7 would have a greater impact on PCFG gray whales than Alternative 4 or 5, it provides no explanation as to why permitting a larger number of PCFG gray whales to be killed per year is justifiable. This is of particular concern given the small numbers of PCFG gray whales, their documented decline since 2015, their importance as a bridge population should ENP gray whales and/or their habitat continue to decline in number or quality, and since PCFG gray whales may – or do – qualify to be designated as a management stock. Disclosure of such information is essential both to comply with NEPA and to ensure that interested stakeholders can consider such a justification in preparing substantive comments.	
			NOAA/NMFS has failed to disclose sufficient information about the methodology for collection of gray whale photographs for identification purposes for PCFG and WNP gray whales or as to the status of photo-id catalogs, particularly for WNP gray whales: NOAA/NMFS proposes to treat any whale killed during a summer whaling season as a PCFG gray	Alternative 7 is based on the proposed regulations as modified by the ALJ's Recommended Decision. It is not clear why the commenter believes the SDEIS is inconsistent with the proposed rule, which specifies how whales will be accounted for during both

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whale (unless the whale is affirmatively identified as a WNP gray whale). During the winter/spring season, however, to determine if a landed whale is a PCFG whale, “observers would photograph the whale and provide those photographs to NMFS and the Cascadia Research Collective to compare with the PCFG photo catalog.” SDEIS at 10. This is inconsistent with the proposed rules that would govern the hunt if authorized (84 Fed. Reg. 13604, April 5, 2019).First, the rule specifies that “[f]or every gray whale approached by the whaling crew, the tribal hunt observer will attempt to collect digital photographs useful for photo-identification purposes.” Id. at 13622/13623. In other words, the requirement to secure photographs of the whales, or at least attempt to do so, is for every whale that is approached and not just those who are landed. NOAA/NMFS must correct this error so that the analysis contained in the SDEIS is consistent with the proposed rules. Notably, while the preambular text to the proposed rules indicate that the tribe must allow NMFS officials to take photographs of landed whales, 84 Fed. Reg. 13604, 13610 (April 5, 2019), there is no explicit language requiring that the Makah Tribe, NMFS officials, or other hunt observers take photographs of approached, struck, struck and lost, or landed whales. Considering the importance of the proper classification of approached, struck, stuck and lost, and landed whales as ENP, PCFG, or WNP gray whales the regulatory language must be strengthened to require the collection of photographs to the extent practicable (recognizing that there may be circumstances when photographs cannot be obtained or when photographs that are collected are determined to be unusable). This is an oversight that must be corrected.Second, the proposed rules do not require the collection of genetic information from approached, struck, struck and lost, or landed whales but given the repeated references to “genetics” and “genetic matching” in the proposed rules, it is clear that NOAA/NMFS recognize that such genetic materials could be used for identification. Since genetic	summer/fall (odd-year) and winter/spring (even-year) hunt. While the proposed regulations do not include a requirement to collect genetic data for identification, they do provide that persons designated by NMFS and by the Makah Tribe may "collect,store, transfer, and analyze genetic samples from struck whales." They also specify, as the commenter notes, that the Regional Administrator determine that there are adequate photoidentification catalogs and processes available to allow for the identification of WNP gray whales and PCFG whales. Comments about the catalog methods, structure, and maintenance as well as funding of the catalogs are beyond the scope of this NEPA analysis, which is done to analyze potential impacts of alternatives to inform decision-making. Under the proposed regulations, it would be NMFS' responsibility to ensure the adequacy of catalogs and to oversee the actual comparisons to determine if photographs or other data (e.g., tissue samples) of hunted whales match with a cataloged whale.See Appendix C Responses to Frequent and Substantive Comment #18 -Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			matching is a more accurate methodology (compared to photo-identification for reasons explained below) for correctly classifying whales as WNP and PCFG animals through genetic matching (assuming their genetic material has been previously collected) the proposed rules should be amended to require, at a minimum, the collection of genetic material from landed whales. Ideally, efforts should be made to collect genetic material from all struck and lost whales as well either by removing any material from the harpoon or obtaining a biopsy sample shortly after the whale is struck.Photo-identification is a standard method for identifying gray whales (and other whale species), but it is not foolproof. For live whales, photographs may be blurry or otherwise inadequate for matching purposes or the angle of the image may not be sufficient to ensure an accurate match. Weather conditions (e.g., rain/fog) and sea state can make it more difficult to obtain photographs and/or could render some photographs unusable. The skill of the photographer and the quality of the photographic equipment could also compromise the quality of the photographs. For juvenile gray whales, their markings may change as they age potentially preventing a positive match. For landed whales, if the carcass is landed upside down, it would not be possible to obtain the photographs necessary for matching purposes unless the carcass can be turned over which, for such a large animal, may be difficult. Consequently, while photo-id may be the preferred method (due to simplicity and limited cost) to collect images for classification purposes, genetic sampling is not subject to so many limitations.In that regard, NOAA/NMFS has failed, both in the 2015 DEIS and the SDEIS to disclose important information about the collection of photographs of gray whales for comparison with the photo-id catalogs (both for PCFG and WNP gray whales), the catalogs themselves, and whether there is or will be sufficient funding to continue to collect photographs from both PCFG and WNP gray whales as is required if the Makah Tribe is to be permitted to kill whales. For example,	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			there is no explanation as to the methodology for collecting photographs contained in the 2015 DEIS or SDEIS. Based on information in Calambokidis et al. (2019), it appears that, for PCFG gray whales, there are or have been 21 persons or entities, including the Makah Tribe, who have historically collected such photographs between 1996 and 2017 and each generally operate in a particular PCFG region.46 Some of these participants submit hundreds of photographs each year while others submit far fewer images. For WNP gray whales, it is entirely unclear as to who collects photographs of these whales in Russian waters for inclusion in and/or for matching purposes while, in Mexico, scientists affiliated with the Laguna San Ignacio Ecosystem Project (and perhaps others) collect photographs of whales (potentially both PCFG and WNP gray whales) for matching purposes. It does not appear that those obtaining photographs conduct systematic surveys (i.e., at approximately the same time each year/month), that specific pre-set survey tracts are used, or that data on time spent conducting surveys is reported or considered in the analysis of the data. Instead, the survey effort appears to be more random. The data/photographs collected are immensely valuable to identify new and recruited PCFG and WNP gray whales but the entire range of PCFG and WNP gray whales is not routinely surveyed. Moreover, the lack of data on the time spent conducting the surveys prevents an analysis of gray whales photographed per unit effort which could be valuable in predicting changes in gray whale distribution (perhaps in response to prey distribution and concentration) and/or population trends. The methodology used to conduct such surveys to collect photographs of gray whales for photo-identification purposes must be fully disclosed and analyzed by NOAA/NMFS given the role of photo-id in classifying gray whales if a hunt is authorized. Such an analysis must clearly include, for both PCFG and WNP gray whales in US, Canadian, Mexican, and Russian waters, the following information: • Who conducts the surveys;• Where the surveys are undertaken;• How the	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			surveys are conducted;• How new persons/entities will be recruited to engage in such surveys as existing participants retire or reduce their efforts;• The number of hours spent conducting the surveys by participant, region, and month;• What proportion of the range is surveyed by month and year;• If specific survey tracts are set and used for such surveys, where they are located and how frequently such tracts are surveyed;• Who funds such survey efforts and who will fund these surveys in the future;• What the process is for submitting the photographs for inclusion in the respective catalogs;• Who conducts the photograph matching work;• How quickly photographs can be evaluated to determine if they are of a known whale.This same information must be disclosed if or when genetic material is collected from any whale for genetic matching purposes. Failure to disclose such detailed information would not be consistent with the requirements of NEPA and would raise concerns about the ability of NOAA/NMFS to comply with the photo-id/genetic matching provisions contained in the proposed rules. Regarding the existing gray whale photo-id catalogs, the proposed rules specify that the NOAA/NMFS regional administration is required to ensure that "[t]here are adequate photoidentification catalogs and processes available to allow for the identification of WNP gray whales and PCFG whales" before a hunt can be authorized. 84 Fed. Reg. 13604, 13620 (April 5, 2019) at 50 CFR 216.113(a)(7)(iv). The PCFG catalog is maintained and managed by Cascadia Research. NOAA/NMFS should disclose what financial support is provided to Cascadia research, both at present and in the future, to maintain the catalog and to conduct the photo-id work and how it will ensure that such funding will continue throughout the duration of the waiver if granted.The current status of the WNP catalog is less clear. While NOAA/NMFS explains in the preambular text of the proposed rule that [t]he IWC is currentlyunified WNP catalog and related database to be held under the auspices of the IWC." 84 Fed. Reg. 13604, 13610 (April 5, 2019)	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			citing IWC (2017), according to the IWC Scientific Committee it does not appear that progress has been made in completing this transition. As indicated in its 2020 report, the IWC Scientific Committee reiterated its support for the development of a consolidated photo-identification catalog for WNP gray whales (given that there are presently at least two catalogs) and recommended that every effort be taken to continue the Russian Gray Whale Project which includes the collection of WNP photographs."47 In its 2021 report, the IWC Scientific Committee reiterated its previous recommendation about the creation of a consolidated WNP gray whale photo-id catalog under the auspices of the IWC, but also noted concerns with the efforts.48 Specifically, the Scientific Committee said: facilitating the development of a The Panel (and the IWC Scientific Committee) has repeatedly recommended that a 'joint photo-ID catalogue of western gray whales (together with associated data) be established under the auspices of the IWC. A draft agreement has been shared and all parties involved have agreed in principle to make their photographs, biopsies, and data available under a data-sharing agreement based upon the safeguards incorporated in the IWC's data sharing agreement and guidelines for catalogues. However, despite the agreement in principle, this initiative has made little or no progress over the last few years and remains in the hands of the two oil and gas companies (Exxon Neftegas Limited and Sakhalin Energy).49 Finally, in its 2022 report, the IWC Scientific Committee provides somewhat conflicting statements about the WNP photo-id catalog. First, it states that: Recognising that information derived from the datasets of these two research projects is critical for population assessment, the Scientific Committee of the IWC has highlighted for more than a decade the importance of combining these two photo-ID (and genetic) data holdings. While those involved in western gray whale research and conservation have expected for many years that a common (joint) photo-ID catalogue and database would become available, to be controlled and managed under	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the auspices of the IWC, this objective has not been met. Clearly, failing to combine the two catalogues works to counter the concept of using all available science (and data) to support conservation.50Nevertheless, despite an apparent failure, despite a decade of recommendations, to create a consolidated WNP photo-id catalog, the IWC Scientific Committee reports that: As a good faith gesture and to partially offset the effects of the aforementioned lack of progress in integrating western gray whale photo-ID data, the 1994-2021 catalogue maintained by the Russia Gray Whale Project (Dr. Alexander Burdin, PI) will be made available via the IWC Secretariat following SC68D.51 It is the intent of the authors to follow the guidelines set out in Olson et al. (2017), including a data availability agreement that facilitates access to the catalogue for Scientific Committee members. As an initial step, the catalogue will be provided to the IWC Secretariat in PDF form, followed in time with more complete sighting information and related digital type-specimen images.52Furthermore, the IWC SC discussed the conservation implications of the termination of the IUCN's Western Gray Whale Advisory Project which was ended recently. Specifically, the Scientific Committee noted that: Considering the WGWAP is no longer being convened by IUCN and the further geopolitical complications caused by the Russian invasion of Ukraine, the Committee discussed potential impacts on the science, and in turn conservation, of WNP gray whales. Three central themes were raised: (1) the possibility that at least some of the work carried out by the WGWAP would be taken up by Minprirody with continued input from some past members of the WGWAP and advisory support from IUCN. Given the Russian invasion of Ukraine, at present it seems questionable that this will happen; (2) the foreign oil and gas companies operating near the WNP gray whale feeding areas off Sakhalin had long funded a research and monitoring programme (2002-2022) but in response to the Russian invasion of Ukraine, these companies ceased their business interests at	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Sakhalin and elsewhere in the country. With that, the Committee expressed concern that industry-funded research on gray whales off Sakhalin will be seriously affected and quite possibly end. This same concern was expressed by the Committee regarding the ability of independent groups, like the Russian Gray Whale Project, to continue conducting research. Scordino raised the issue of how future population modelling, such as that conducted by Justin Cooke et al., would be handled if the traditional sampling effort (industry plus Russian Gray Whale Project) is disrupted. By way of example, he mentioned that sensitivity tests on estimates of abundance, in terms of accuracy and precision, may be necessary. It is possible that no research on WNP gray whales occurs in summer 2022 and beyond, making future population modelling impossible; and (3) in light of the geopolitical implications caused by the Russian invasion of Ukraine, the Committee expressed great concern that conservation actions and especially international collaborative scientific studies in Russia, including those related to marine mammals will be seriously compromised and permanently damaged and result in intractable consequences on population assessment.53 NOAA/NMFS failed to disclose any of this information in the SDEIS despite its direct implications to any proposed hunt given, particularly, the requirement that an adequate WNP gray whale photo-identification catalog be available before any hunt can be authorized. It does not appear that the consolidated WNP gray whale photo-id catalog, which NOAA/NMFS references in the preambular text of the proposed rules, will be developed. Furthermore, given the termination of the WGWAP it is unclear how or who will continue WNP gray whale research, including the continued collection of WNP photographs, into the future. NOAA/NMFS must provide a comprehensive examination of these issues in a revised SDEIS in order to comply with NEPA. Such an analysis must provide an update on the research/monitoring situation in Russia but must also provide the information about the methodology for collecting	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			photographs of both PCFG and WNP gray whales as articulated above. I note that the proposed rules are clear that if such catalogs are not available to use for photo-id purposes, the hunt cannot proceed even if authorized. --- 46 Calambokidis, J., A. Perez, and J. Laake. 2019. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2017. Final Report to NOAA, Seattle, WA. pp. 1-72. See, Tables 1 and 2, Pages 17 and 18. 47 International Whaling Commission, Report of the Scientific Committee Virtual Meetings, 11-24 May 2020. See page 49.48 International Whaling Commission, Report of the Scientific Committee Virtual Meetings, 27 April-14 May 2021. See page 57.49 Id. at 58.50 International Whaling Commission, Report of the Scientific Committee Virtual meeting, 25 April – 13 May 2022. See page 64.51 According to the IWC Secretariat, one of the two WNP gray whale photo-id catalogs was transmitted to the Secretariat on 14 October 2022. The second catalog, that must be received to prepare a consolidated catalog, has not been received by the Secretariat. The oil and gas companies that possess this catalog have previously indicated that they will not share it as it contains confidential business information.52 International Whaling Commission, Report of the Scientific Committee Virtual meeting, 25 April – 13 May 2022. See page 64.53 Id. at 62/63.	
			<u>NOAA/NMFS has failed to adequately explain its use of mixing proportions to evaluate the impact of the action alternatives on PCFG gray whales:</u> A critical element in the analysis of the impact of the hunt on PCFG and WNP gray whales in the SDEIS are the mixing proportions of whales during the proposed winter/spring and summer months. As noted in the SDEIS and as reflected in the proposed rules, during the summer hunt, all whales approached, struck and landed, or struck and lost, if not determined	NMFS relied on the best available science in determining the mixing proportions of PCFG, OR-SVI, and MUA whales in the hunt area during the winter/spring hunt season. Harris et al. (2022) provide updated PCFG abundance estimates, but report a sampling bias associated with the 2017-2022 mixing ratio estimates. Therefore, they recommend relying on the Calambokidis et al. (2019) mixing

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			to be a WNP gray whale, will be counted as a PCFG gray whale. SDEIS at 63. For the proposed winter/spring hunt, NOAA/NMFS states that "struck whales that cannot be identified will be counted in proportion to the estimated percentage of PCFG whales in the hunt area during the month of the strike." SDEIS at 10 and, see also, 84 Fed. Reg. 13604, 13621 (April 5, 2019). As explained in more detail above, the mixing proportion data used as the cornerstone of assessing the impact of the proposed hunt under Alternative 7 and the other action alternatives in the SDEIS does not meet this standard and a new analysis must be undertaken and made available for review and comment by interested stakeholders to accurately reflect the actual impact of the proposed winter/spring hunt particularly on PCFG gray whales.	proportions, which have been incorporated into the analysis in the FEIS.
			NOAA/NMFS has failed to adequately explain the origins of the PCFG abundance thresholds that would, if met, prevent hunting**:**On another matter related to proposed restrictions on the killing of PCFG gray whales if a hunt is authorized, while I support the inclusion of abundance thresholds for PCFG gray whales below which any hunt would cease, NOAA/NMFS has failed to provide an adequate explanation as to why it selected 192 as the upper abundance threshold.Apparently, NOAA/NMFS selected these thresholds based on the claim that they "represent the lowest population abundance estimates during a recent stable period from which the population has grown in the time series of data from 1996 through 2017." SDEIS at 67. Notably, the 192 that NOAA/NMFS has selected as the upper abundance threshold for PCFG gray whales cannot be found in Table 3-3 so it is unclear as to its origins. If anything, the selection of 192 appears to be somewhat random and absent any sufficient explanation as to its source and why NOAA/NMFS selected that threshold over, for example, 200, 210, or 220. If NOAA/NMFS truly wanted to be precautionary in regard to the management of PCFG gray whales, SDEIS at 62, it would have selected a higher upper abundance threshold for PCFG	The threshold values of 192 and 171 represent the best and minimum (20th percentile) estimates of abundance for the PCFG in 2007. We selected these levels as the low abundance triggers because they are the lowest values estimated for the population during the recent period of stability starting in 2002 (Calambokidis et al., 2017).The comments regarding the alternative thresholds are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			gray whales in order to increase the likelihood that a hunt, if authorized, would end if the PCFG upper abundance threshold (or its corresponding Nmin) could not be met. I strongly encourage NOAA/NMFS to revisit the selection of an upper abundance threshold for PCFG gray whales and to provide, at a minimum, a substantive discussion of the origins of the selected 192 upper abundance threshold in order to comply with NEPA.	
			NOAA/NMFS mischaracterizes the status of the PCFG gray whale population: Regarding the repeated claim by NOAA/NMFS that PCFG gray whale numbers are stable, an analysis of the data contained in Table 3-3 in the SDEIS (page 31) which contains data from Table 11 in Harris et al. (2022) reveals that this claim is not true. Indeed, far from maintaining a stable trend as suggested by NOAA/NMFS, the PCFG population has declined by 18 percent (257 to 212) between 2015 and 2020 (the most recent year for which a PCFG abundance estimate is available); a decline that NOAA/NMFS qualifies as slight. DSEIS at 29. This decline is less than the nearly 24 percent decline in the larger ENP gray whale population between 2016 and 2020, SDEIS at 96 citing Moore and Weller (2021), but an 18 percent decline through 2020 (recognizing that there is no updated PCFG population estimate for 2022) is not indicative of a stable trend.	Subsection 3.4.3.4 of the FEIS describes the best available science on the status of the PCFG, including the abundance and trends.
			NOAA/NMFS has failed to provide any substantive analysis of the UME on gray whales, including PCFG gray whales, or how the Covid-19 pandemic disrupted stranding network operations:Despite asserting in its notice announcing its intent to prepare an SDEIS that it would, among other things, include more information about the ongoing gray whale Unusual Mortality Event (UME) (85 Fed. Reg. 11347, 11348), the analysis of the UME in the SDEIS is basically limited to acknowledging the UME's existence, providing an update on the number of stranded whales, and noting that a team of scientists has been convened to consider the causes of	The declaration national emergency in response to the coronavirus on March 13, 2020, triggered several containment measures to protect human health and safety which varied by state and geographic area. These measures impacted the Marine Mammal Health and Stranding Network as most partners rely on reports of stranded marine mammals from members of the public, local authorities, and other ocean users. These restrictions also affected the level

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			the UME. This superficial analysis of the UME does not satisfy the requirements of NEPA and, therefore, prevents interested stakeholder from fully understanding how the UME affects the impacts of Alternative 7 and the other action alternatives on gray whales. Considering the ongoing UME, if NOAA/NMFS, recognizing the 38 percent reduction in the number of ENP gray whales since 2016, wanted to be precautionary, it would suspend all decision-making processes associated with MMPA waive and NEPA analyses, until the UME expert team completes and publishes its findings as to the causes of ongoing UME or, at least, until there is credible data documenting recovery of ENP and PCFG gray whale numbers. Whether that decline is linked to the current UME is unclear. NOAA/NMFS claims that there is no evidence that PCFG gray whales have experienced a decline as a result of the UME. It also claims that only two known PCFG gray whales have stranded during the UME (at least as of the July 2022 when the SDEIS was published) (SDEIS at 75 citing pers. comm. with J. Calambokidis). This claim may not be correct considering the reported cryptic mortality rate for gray whales and the impact of the Covid-19 pandemic on the operations of stranding networks responsible for responding to reports of stranded marine mammals, including gray whales. According to Punt and Wade (2012),54 strandings only represent approximately 3.9 to 13 percent of gray whale deaths suggesting that 87 to 96 percent of dead gray whales do not strand but, instead, sink to the seafloor. In other words, if two known PCFG gray whales stranded during the UME, another 15 to 50 may have died and sunk. NOAA/NMFS has not taken into consideration this cryptic mortality rate in its analysis, albeit inadequate, of the potential impact of the UME on gray whales, including PCFG gray whales. As the estimated abundance of PCFG gray whales declined from 228 to 212 between 2019 (when the UME was declared) and 2020 (the most recent year with a PCFG abundance estimate),55 this amount of loss would be consistent with the documented cryptic mortality	of response (documentation, confirmation, and sampling) to stranded marine mammals as stranding events often require many hands (e.g., staff, interns, volunteers, law enforcement), working in relatively close proximity to others, and access to public lands. However, beginning in summer 2020—and continuing through 2021—many states temporarily (and in some cases permanently) lifted or eased mandates in response to vaccine availability, downward trends in positive COVID-19 cases, and changing human attitudes. The timing and manner of lifting COVID-19 restrictions was not consistent across the United States, and some states reinstated restrictions as new variants of the virus emerged. We acknowledge that the COVID-19 pandemic impacted our ability to collect data on the ongoing UME. The SDEIS and the FEIS incorporate the available data on the UME (see 3.4.3.1, Strandings) and incorporate this data into the analysis of effects. See also See Appendix C Responses to Frequent and Substantive Comment #19-Ongoing UME.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			rate for gray whales.The reality is that NOAA/NMFS cannot be certain as to the full impact of the UME on PCFG gray whales given the Covid-19 pandemic and its impacts on the work of the stranding networks. What we do know is that, to date, a total of 606 gray whales have been found stranded since the beginning of the UME in 2019.56 While the number of stranded whales has declined since the peak in 2019, they remain above the long-term average.57 For PCFG gray whales, it is entirely possible that more known PCFG gray whales would have been confirmed to be victims of the UME if not for the Covid-19 pandemic which I understand disrupted the normal activities of stranding networks operating along the west coast of the United States and in Mexico and Canada. According to anecdotal information, the pandemic may have impacted reporting rates for stranded gray whales, slowed stranding response team access to gray whale carcasses, reduced the size of stranding response teams (due to Covid-19 required social distancing rules in place particularly during the height of the pandemic), and, in turn, limited the number of biological samples obtained from the carcasses. If stranding response times were impaired, carcass condition could have deteriorated to the point where any photographs taken were not suitable for photo-id use. Alternatively, the carcass could have stranded ventral side up preventing the acquisition of photographs suitable for identification. In those instances, if genetic samples were not taken, could not be taken due to carcass deterioration, or not assessed for a genetic match with existing genetic data available for known PCFG and WNP gray whales, a PCFG and/or WNP gray whale that perished during the UME could have stranded without being affirmatively identified.NOAA/NMFS has failed to disclose any information in the SDEIS as to the impact of the pandemic on the normal operations to visit, assess, and remove samples from stranded gray whale carcasses. Nor has it articulated how such a disruption may have compromised the ability to detect PCFG and WNP gray whales from the over 600 gray whales that are	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			known to have stranded since the UME began, particularly those whales that stranded during the height of the pandemic in 2020 and 2021. For example, no information has been disclosed as to how many of the 606 stranded gray whales were: 1) inspected by stranding network personnel; 2) photographed; 3) stranded in a position permitting acquisition of photographs suitable for photo-id; 4) necropsied; and 5) for those stranded whale carcasses that were sampled, what samples were collected, and what were the results of the analysis). It also didn't disclose which stranded whales (in terms of location – Mexico, California, Oregon, Washington, Canada) were inspected by stranding response network personnel or other experts, how many photographs were submitted to Cascadia Research for photo-id analysis, and/or if any photographs were submitted to whomever is currently maintaining the WNP gray whale catalog. The only information that NOAA/NMFS has disclosed on this matter is that "full or partial necropsies have been performed on just a few of the stranded animals," "stranding network partners often record as much basic data as possible (referred to as Level A data), such as the state of decomposition and condition of the animals, the location of the stranding, and a list of samples that were collected, if any," and that "[s]ome but not all of the stranded whales have shown evidence of emaciation..." SDEIS at 40. NOAA/NMFS must disclose the information identified in the preceding paragraph as well the results of any necropsy data that has been collected so that interested stakeholders can assess what impact the pandemic had on the inspection of stranded gray whales during a UME. In turn, that information would be valuable to evaluate the likelihood that that pandemic prevented the collection of critical information from the vast majority of stranded gray whales that could have further elucidated the impact of the UME on PCFG and WNP gray whales.---------- ---54 Punt A. E, and P. R. Wade. 2012. Population status of the eastern	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			North Pacific stock of gray whales in 2009. Journal of Cetacean Research and Management. 12(1). 13 pages. 55 Harris, J., J. Calambokidis, A. Perez, and P. J. Mahoney. 2022. Recent trends in the abundance of seasonal gray whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020. AFSC Processed Rep. 2022-05, 22 p. Alaska Fish. Sci. Cent.,NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.56 See, https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2022-gray-whale-unusual-mortality-event- along-west-coast-and 57 Id.	
			Additional information that is applicable to the analysis of environmental impacts undertaken in the SDEIS: As previously noted, NOAA/NMFS erred in publishing the SDEIS well before Harris et al. (2002) published their report and before NOAA/NMFS published the new data on ENP gray whale population abundance and calf production.58 Those data were largely in line with data collected on gray whales in Mexico's lagoons by scientists affiliated with the Laguna San Ignacio Ecosystem Science Project (LSIESP) and the American Cetacean Society (ACS). According to the findings of the 2022 LSIESP report59 containing a summary of the number and condition of gray whales in Mexico during the winter of 2021/2022, the following information, largely quoted verbatim, is relevant to the analysis in the SDEIS. • The winter of 2022 was the fourth consecutive gray whale breeding season (2019-2022) in Laguna San Ignacio and Bahía Magdalena that was characterized by: 1) very low numbers of calves-of-the-year; 2) increased adult mortality in the gray whale breeding lagoons and aggregation areas of Baja California, and 3) an increase in the percent of "skinny, poor condition" adult whales; The 2022 winter use of Laguna San Ignacio and Bahía Magdalena by gray whales was characterized by low numbers of	The data collected by scientists affiliated with the Laguna San Ignacio Ecosystem Science Project and the American Cetacean Society presented here is consistent with the analysis in the NEPA analyses. It does not provide new information which would change the conclusions of that analysis.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			calves-of-the-year, an increased percentage (19.5 percent) of whales in poor body condition,60 and an unexpected early departure of whales from both areas;61 • Departure times of single whales in 2022 were approximately two weeks earlier than in previous years. Compared to previous winters, counts of females with calves remained low throughout the 2022 winter season, with the highest count of only 18 pairs observed on 10 March 2022. In 2022, gray whales departed from the Bahía Magdalena complex earlier than in previous winters, as was also observed in Laguna San Ignacio in 2022. • The number of single adult whales (males and females without calves) remained relatively constant between 2009 (n=440) and 2021 (n=500), their estimated numbers increased slightly in the 2022 winter. The estimated number of females with calves ranged about 200 pairs from 2011 to 2017, but then their numbers declined significantly beginning in 2018 and continue to remain low (less than 100 pairs) from 2019 through 2022. • Regarding the ongoing UME, while a primary cause has not yet been identified, it is likely that this event may have multiple contributors, including mortality linked to killer whale predation, fishing gear entanglements, vessel strikes, and poor body condition possibly associated with ecosystem changes in sub-Arctic and Arctic feeding areas. Changing environmental conditions in the gray whales' northern feeding areas may be reducing the availability of food during the summer months, necessitating additional searching time to find food. While insufficient prey could contribute to the reduced reproduction and apparent decline in the body condition of some gray whales, disease and environmental stressors (e.g., climate change) cannot be ruled out;62 • Analysis of the boat-based photographs from Laguna San Ignacio obtained in 2022 revealed that the percentage of single whales with good body condition was 43 percent, an increase compared with 42 percent in 2021, and the highest percentage for single whales for the last four years.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			For single whales, 37.5 percent were in "fair" condition in 2022 compared with 33 percent in 2021. Finally, in 2022, 19.5 percent of single whales were in poor body condition, the lowest since the beginning of the current UME in 2019. The decreasing percentage of whales in "poor condition" suggest that a slow recovery of the whales' condition may be underway since 2020;63 • While females with calves were generally in "good" body condition, it doesn´t mean that breeding females are not being affected by the factors that are reducing the condition of single whales. When a breeding age female is pregnant but does not obtain sufficient food during the summer feeding season, she may not bring her calf to term, and successfully birth and nurse the calf the next winter. Without a calf, these breeding females would be considered single whales and increase the number/percent of "fair" or "poor" body condition single whales observed in the lagoon;64 • Regarding strandings, the greater number of stranded females documented in 2019 to 2020 could be a factor in the overall reduction in the number of calves born each winter since 2018. The number of reported gray whale strandings is likely an underestimate of actual mortalities, because of the differences in detectability, the dimensions of the area where the gray whales are distributed along the Baja California Peninsula, since an undetermined number of dead whales may drift out to sea and do not arrive on the coastal beaches, and the differences in search effort conducted in all areas. In 2021/2022, 12 stranded dead gray whales were found in Laguna San Ignacio, and one stranded adult in Bahía Magdalena. Half of these were extremely skinny, suggesting that they have been unable to find sufficient food during the summer months in the North Pacific and Arctic waters.65 • Regarding WNP gray whales documented in wintering lagoons in Mexico, comparison of photo-identification data from Russia and Mexico have revealed a total of 48 matches of Western gray whales migrating to	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Baja California during the winter breeding season, confirming additional trans-Pacific movements of gray whales between the gray whale populations in the Western and Eastern North Pacific. These included 21 females, 14 males, and 13 whales of unknown sex. In 2022, six whales66 from Western North Pacific were photographed in Mexico; 2 of them in Laguna San Ignacio, and four in Bahía Magdalena-Bahia Almejas, and two of these were documented in Mexican waters for the first time.67 It is unknown if NOAA/NMFS had access to this report prior to published in the SDEIS. The ACS report68 summarized the findings of its shore-based observation of gray whales from Southern California, was not available to NOAA/NMFS prior to the publication of the SDEIS. Nevertheless, the ACS data may be of interest to NOAA/NMFS as it provides further evidence that gray whales continue to be affected by those factors contributing to the current UME. Among the findings of ACS are: • 313 southbound gray whales (compared to 543 in 2018-2019 pre-UME and fifth lowest southbound count) • 814 northbound gray whales (compared to 1,612 in 2018-2019 pre-UME and ninth lowest northbound count) • 28 newborn calves observed during southbound migration (compared to 62 in 2018-2019 pre-UME and fifteenth highest newborn calf count during southbound migration as migration was delayed and more females likely to have given birth • 25 calves observed during northbound migration (compared to 37 in 2018-2019 pre-UME and fifth lowest northbound calf count). These data provide further evidence as to why NOAA/NMFS erred in publishing the SDEIS before publishing its updated abundance estimate and calf recruitment data since the LSIESP and ACS findings confirm what Eguchi et al. (2022) have documented; that gray whale abundance	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			and calf production continue to decline. This data is indicative of a gray whale population that remains adversely impacted by any of the myriad factors/threats (e.g., Arctic ecosystem shift, habitat alteration affecting prey species, density dependent population demographics, climate change/ocean warming, ship strikes, bycatch, contaminants, ocean noise) that may have triggered the ongoing UME. --- 58 Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Abundance and migratory phenology of eastern North Pacific gray whales 2021/2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-668. https://doi.org/10.25923/x88y-8p07; Eguchi, Tomoharu, Aimée R. Lang, and David W. Weller. 2022. Eastern North Pacific gray whale calf production 1994-2022. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-667. https://doi.org/10.25923/4g6h-9129. 59 Annual Gray Whale Research Report for Laguna San Ignacio and Bahía Magdalena, B.C.S., México During Winter 2022. Laguna San Ignacio Ecosystem Science Project. Available at: https://www.sanignaciograywhales.org/lsiesp-annual-gray-whale-research-report-for-2022/ 60 This information may not be accurate as the 19.5 percent of whales in poor body condition, as noted in the same report, was the lowest percentage since the UME started. 61 See, Urbán R., et al. 2022. Gray whale abundance in Laguna San Ignacio and Bahía Magdalena lagoon complex, B.C.S., México for 2022 breeding season. Rep. Intl. Whal. Commn. SC/68D/CMP/07- Available at: https://www.sanignaciograywhales.org/wp-	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			content/uploads/2022/05/SC_68D_CMP_071-Urbán-et-al-abundance.pdf 62 See, Christiansen, F., et al. 2021. Poor body condition associated with an unusual mortality event in gray whales. Marine Ecology Progress Series Vol. 658: 237-252. Available at: https://www.sanignaciograywhales.org/wp-content/uploads/2021/01/Christiansen-et-al.-GW-Condition-FINAL-21-Jan-2021.pdf); Fauquier, D., et al. 2022. Update on the Eastern North Pacific Gray Whale (Eschrichtius robustus) 2019-2022 Unusual Mortality Event. International Whaling Commission Scientific Committee Annual Meeting 2022 Paper Submission – Conservation Management Plans. Available at: https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/Final_IWC-GW-UME_Update2022_07Apr2022.pdf; Moore, S.E. et al. 2022. Changes in gray whale phenology and distribution related to prey variability and ocean biophysics in the northern Bering and eastern Chukchi seas. PLoS ONE 17(4):e0265934, doi;10.1371/journal.pone.0265934. 26pp. 63 See, Valerio-Conchas, M. et al. 2022. Gray whales' body condition in Laguna San Ignacio, Baja California Sur, México for winter breeding season 2022. Rep. Intl. Whal. Commn. Available at: https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/SC_68D_CMP_08-Valerio-et-al-body-condition.pdf 64 Id. 65 See, Fauquier et al. 2022. Update on the Eastern North Pacific Gray	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Whale (Eschrichtius robustus) 2019-2022 Unusual Mortality Event. International Whaling Commission Scientific Committee Annual Meeting 2022 Paper Submission –Conservation Management Plans. Available at: https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/Final_IWC-GW-UME_Update2022_07Apr2022.pdf; See also, Martínez et al. 2022. Gray whale stranding records in México, during the 2022 winter breeding season. Rep. Intl. Whal. Commn. SC/68D/CMP/10. Available at: https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/SC_68D_CMP_10-Martínez-et-al-strandings.pdf 66 As indicated, LSIESP has, as of 2022, documented 54 WNP gray whales in the gray whale wintering lagoons in Mexico. This is somewhat confusing as that same number had been reported in XXX. As noted in the SDEIS, "recent satellite tagging data, genetic, and photo-identification matches between Sakhalin, Canada, the United States, and Mexico have identified 54 whales known to travel between the eastern and western North Pacific." SDEIS at 18 citing Lange (2010), Weller et al. (2012), Mate et al. (2015), and Urban et al. (2019). NOAA/NMFS also report that, Cooke et al. (2019) concluded that "45-80% of Sakhalin whales migrate to the eastern North Pacific in the winter." Id. Since LSIESP (2022) reports that six WNP gray whales were photographed in Mexican waters in 2022, including two for the first time, it is unclear if the previous estimate of 54 total WNP gray whales in Mexican waters remains valid or if the total number has increased since 2019. 67 See, Martínez-Aguilar, et al. 2022. Gray whale (Eschrichtius robustus) migratory movements between the Western North Pacific and the Mexican breeding grounds: 2022 update. Rep. Intl. Whal. Commn. SC/68D/CMP/09. Available at: https://www.sanignaciograywhales.org/wp-	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			content/uploads/2022/05/SC_68D_CMP_09-Martínez-et-al-movements-west-east.pdf 68 See, ACS/LA Gray Whale Census and Behavior Project: 2021-2022: Highlights.	
			Permitting hunt training violates the conservation mandate of the MMPA and the impacts have not been sufficiently analyzed as required by NEPA:NOAA/NMFS is proposing to permit the Makah Tribe to engage in hunt training which would include opportunities to conduct practices approaches of gray whales and throw practice harpoons at them (i.e., harpoon like devices with a blunted end that could not pierce the skin of a whale). If Alternative 7 is selected as the preferred action, it permits up to 353 ENP gray whales to be approached (including both hunting and training approaches; recognizing that the majority of approaches will be for training purposes given the restrictions on strikes and unsuccessful strikes) of which no more than 142 can be PCFG gray whales. SDEIS at 11. In addition, the tribe would be authorized to conduct 18 practice harpoon throws "in any month in winter/spring hunt years," SDEIS at 11 and 84 Fed. Reg. 13619/13620 at §216.113(4)(ii), and 12 practice harpoon throws from July through October in summer/fall hunt years. Id. Effectively, while the above-reference numerical restrictions will be in place, training harpoon throws will be allowed year-round every year of the waiver period, except for January to June 30 in odd-numbered years.Allowing hunt training is unnecessary and is violates the overarching conservation and protection mandate of the MMPA as it allows the purposeful harassment or take of hundreds of gray whales, including endangered WNP gray whales, each year. While NOAA/NMFS discounts that potential adverse impacts of such harassment on gray whales used as training tools by claiming, for example, that such impacts will be temporary in nature, SDEIS at 48, it entirely ignores the potential energetic costs associated	The DEIS, SDEIS, and FEIS analyze the non-lethal effects of training under the action alternatives. See Appendix C Responses to Frequent and Substantive Comments #22-Authorization of Training Activities.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			with the chasing (for some whales repeated chasing) of the animal by Makah whaling crews.Considering the feeding ecology of gray whales where the majority of feeding is done in their summer range followed by an extensive period of nearly constant fasting, these animals may live on the nutritional knife's edge. Add to this the ecosystem changes occurring in the Arctic that may be reducing prey density, quality, and concentration as well as the increasing frequent excessive marine heatwave events in the Pacific Ocean which can cause a complete reordering of coastal and pelagic ecosystems, purposefully allowing any activity that could be energetically taxing on gray whales, particularly during the northward migration, could compromise the health and welfare of individual whales potentially increasing mortality rates and/or impacting productivity.Villegas-Amtmann et al. (2015),69 for example, used a bioenergetics model to determine the energy requirements for a two-year reproductive cycle for female gray whales and to predict the consequences of energetic losses under three possible disturbance scenarios. They found that an annual energetic loss of only four percent when a gray whale is pregnant would prevent a successful pregnancy. During the birth year, a pregnant gray whales would wean her calf at a lower mass if she experienced a 37 percent energetic loss. If an adult female gray whale experiences a 30-35 percent energetic loss, she would lack the energy to become pregnant while she would likely die if she experienced a 40-42 percent energetic loss. In a separate study, Villegas-Amtmann et al. (2017)70 used a female bioenergetics model to predict the consequences of energetic loss in WNP female gray whales. Considering the longer migration distance for WNP gray whales either to Mexico or China, they found that the energy requirements for WNP female gray whales were generally 11 and 15 percent higher compared to female ENP gray whales. The modeling output predicted that female "WGW mortality would likely occur at 38 to 40% annual energetic loss" and that "[l]ong-term yearly	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			energy loss of 30% would result in adult female mortality the first year, followed by lower reproductive rates of survivors." Despite evidence about the impacts of disturbance presented during the ALJ proceedings, NOAA/NMFS has failed to disclose information about gray whale bioenergetics or to analyze the impacts of disturbance, including due to hunting or hunt training, to the survival, productivity, and well-being of gray whales in violation of NEPA.While it has been well documented that the Makah Tribe has only killed, legally, a single whale in 95 years, if the United States asserts, as it must to secure approval of a gray whale ASW catch limit from the IWC, that the tribe has a "continuing traditional dependence on whaling and the use of whales," then the Makah Tribe should not need to practice approaching and killing whales. Even if such practice was warranted, NOAA/NMFS should not allow such practice on living animals. Surely another method could be found to permit such practice (i.e., chasing and practice harpooning a towed log, or a towed mechanical device that can dive and surface emulating the swimming behavior of a gray whale). At an absolute minimum, if NOAA/NMFS grants the requested MMPA waiver authorizing the tribe to hunt gray whales, any opportunity for training should be limited to a single season or two at which time the Makah whaling crews should be capable of pursuing and striking a live whale without the need for further practice. Today's gray whales should not have to suffer the harassment, potentially with adverse consequence, and indignity of literally being treated like training dummies because the Makah Tribe, nearly 100 years ago, elected to forego whaling.Notably, NOAA/NMFS does not allow indigenous whalers in Alaska to engage in practice whaling and I am aware of no other federally authorized hunt of marine mammals (or any species for that matter) where a practice season is permitted. Similarly, while the federal government is a strong proponent of hunting and trapping on federal lands and offers a number of unsavory methods of killing animals on its lands (e.g., bear	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			baiting, snaring, bowhunting, steel-jaw leghold traps, denning), it doesn't permit hunters to engage in practice hunting for any species of wildlife (nor do state wildlife agencies).Here, NOAA/NMFS has not provided any rational explanation for the extensive practice opportunities being afforded by the Makah tribe, why they are needed, whether they will continue indefinitely, and their legal justification under the MMPA and/or the WCA. Notably, in its own proposal, the Makah Tribe did not seek an opportunity to conduct practice whaling71 making it unclear as to why NOAA/NMFS has incorporated such training into the terms of Makah whaling should it be authorized. Considering the extent of practice opportunities under the proposed rules as written, which permit training approaches anytime during a calendar year and training harpoon throws any time during an even-numbered year, 84 Fed. Reg. at 13619 (§216.113(4)(i) and (ii)), and will cause the take of an endangered WNP gray whale, a far more comprehensive analysis of this program, including a substantive summary of the need for whaling practice, is required to comply with NEPA.----------69 Villegas-Amtmann, S., L. K. Schwarz, J. L. Sumich, and D. P. Costa. 2015. A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales. Ecosphere 6(10):183. http://dx.doi.org/10.1890/ES15-00146.170 Villegas-Amtmann, S., L.K. Schwarz, G. Gailey, D. Sychenko, and P. Costa. 2017. East or west: the energetic cost of being a gray whale and the consequence of losing energy to disturbance. Endangered Species Research. Vol. 34: 167–183, 2017. https://doi.org/10.3354/esr00843.71 See Makah Tribe's 2005 Request for a Waiver of the MMPA Take Moratorium (including Needs Statement and 2001 Management Plan), February 11, 2005, Appendix I to the 2015 DEIS.	
			NOAA/NMFS analysis of the predicted impacts of the proposed hunt and hunt related activities is partially contingent on predicting future	Section 3.15.3.2 Weather and Sea Conditions of the FEIS describes the relevance of weather and sea

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			weather conditions which could over or underestimate the actual impacts of a hunt: Much of the analysis of the impacts of a proposed hunt and hunt related activities on ENP, PCFG, and WNP gray whales assessed in the SDEIS is based on the estimated days of hunt related activities, including hunt scouting and hunting, under the action alternatives. The number of days with hunting and hunt related activities varies from 14 under Alternative 4, SDEIS at 46, to 74 (60 during winter/spring hunts and 7-14 during summer fall hunts) under Alternative 7 for an annual average of 37 days over the 10-year waiver period. SDEIS at 46, 84, 86, 87, 88, 89, 90, 91. These estimates were a product of an analysis contained in the 2015 DEIS in which NOAA/NMFS examined meteorological data from the local area to assess the number of days that may be suitable for hunt scouting and whaling and, consequently, the accuracy of the analysis is literally contingent upon the weather. Predicting hunt impacts based on past meteorological data could lead to considerable error, particularly given changing weather patterns tied to climate change. A more precise mechanism to qualify such impacts would be for NOAA/NMFS to consider establishing limits on the number of days during any authorized whaling season during which the Makah Tribe could engage in hunting or hunt related activities (noting my strenuous objection to any allowance for hunt training).	conditions to the analysis. The number of days activities can occur are restricted through the definitions of the hunt seasons and are further restricted through other measures under the action alternatives. Using weather and sea conditions to estimate hunt days provides a useful tool to distinguish between the effects of the various alternatives.
			NOAA/NMFS has failed to fully consider the precedential effect of authorizing whaling by the Makah Tribe: Despite the precedential impact of a gray whale hunt by the Makah Tribe being featured in the opinion issued in Anderson v. Evans (314 F.3d 1006 (9th Cir. 2002), NOAA/NMFS continues to largely discount the likelihood that its issuance of the requested waiver and permits to authorize whaling by the Makah	The precedential effects are considered in Section 4.17, Regulatory Environment Governing Harvest of Marine Mammals. See also Appendix C Responses to Frequent and Substantive Comments #4-Precedential effect of waiver internationally and domestically.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Tribe would have a precedential effect on other tribes to seek similar opportunities. It suggests this is unlikely due to "the complexity of the waiver process, the length of time required to complete the process, and the lack of resulting harvest opportunities." SDEIS at 93. It also continues to claim that the Makah Tribe is the only US tribe that has, in its treaty with the US government, language establishing a treaty right to whaling. SDEIS at vi. This analysis ignores the 9th circuit's decision in Makah Indian Tribe and the United States of America v. the Quileute Indian Tribe, in which the court held, in a case involving a challenge by the Makah Tribe to the boundaries of the Quileute Tribe's usual and accustomed fishing are, that the Quileute Tribe's right to fish as contained in the Treaty of Olympia included whales and seals. Specifically, the court held that: Based on the considerable evidence submitted throughout the lengthy trial, the district court's finding that the Quileute and Quinault intended the Treaty's "right of taking fish" to include whales and seals was neither illogical, implausible, nor contrary to the record. We conclude that the district court properly looked to the tribes' evidence of taking whales and seals to establish the U&A for the Quileute and the Quinault and did not err in its interpretation of the Treaty of Olympia.As the 9th circuit's opinion was issued in 2017, NOAA/NMFS had sufficient time to compile and analyze the treaties with all coastal tribal nations in the US to identify those that include a fishing right and, consequently, how substantial the precedential impact of authorizing Makah whaling could be should any coastal tribe with a treaty that protects its fishing rights may seek to also take whales. Instead, NOAA/NMFS fails to even cite to the Makah Indian Tribe opinion in the SDEIS. In addition, the Wampanoag Tribe of Massachusetts recently expressed its interest in exercising its right to hunt whales. In an article published by civileats.com, it is stated that:Based on the considerable evidence submitted throughout the lengthy trial, the district court's finding that the Quileute and Quinault intended the Treaty's "right of taking fish"	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			to include whales and seals was neither illogical, implausible, nor contrary to the record. We conclude that the district court properly looked to the tribes' evidence of taking whales and seals to establish the U&A for the Quileute and the Quinault and did not err in its interpretation of the Treaty of Olympia.Today, the Wampanoag Tribe retains the right to hunt whale and take injured or beached whales, but they don't exercise that right. "The overreaching state laws and lack of respect of tribal rights played a major role in removing our people from that common practice," says James-Perry (who is the chairman, culture bearer, and historian for the Wampanoag Tribe). And even if they did decide to take up the practice again, the tribe doesn't have the infrastructure to process a 30- or 50-ton whale. But James-Perry hopes that changes soon. "It is my hope to establish a much better system in which we can start to reclaim that tradition."72Considering this information, NOAA/NMFS must take a new look at the potential precedential impacts of it authorizing the Makah to hunt gray whales in order to fully comply with NEPA. --- 72 See, https://civileats.com/2022/02/08/revival-indigenous-subsistence-whaling-inupiaq-makah-wampanoag/amp/Considering this information, NOAA/NMFS must take a new look at the potential precedentialimpacts of it authorizing the Makah to hunt gray whales in order to fully comply with NEPA.	
			NOAA/NMFS has failed to assess the enforcement implications of authorizing the possession, consumption, transport, barter, and sharing of edible and/or sale of non-edible gray whale products: The SDEIS (SDEIS at 11/12 and proposed rules (84 Fed. Reg. 13604, 13620-13621 (April 5, 2019) include a litany of confusing provisions dictating who, when, and where edible and non-edible gray whale products can be possessed, consumed, transported, bartered, shared, and, for non-	Subsection 4.1.1.1, Management and Law Enforcement, provides information on the relative enforcement costs under the various alternatives, providing sufficient information to inform future decisions. If a waiver is granted to the Makah to hunt gray whales, specific regulations regarding the sale or transfer of whale products (including enforcement) would be developed as part of the waiver process.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			edible products, sold. What is missing is any assessment of the enforcement implications of authorizing such activities, particularly when it involves persons who are not enrolled members of the Makah Tribe. For example, if an enrolled tribal member shares edible or non-edible gray whale products within the reservation boundaries with a non-enrolled member, as permitted by the proposed rules, can the non-enrolled person transport the products outside the reservation boundaries? If so, how will that rule be enforced and by whom? Similarly, if an enrolled tribal member who resides outside the boundaries of the reservation shares or barters a non-edible gray whale product (that is not fashioned into a Makah handicraft) with a non-member, which is not permitted by the proposed rules, how will that provision be enforced and, by whom? For non-edible products fashioned into authentic Makah handicrafts and for which a certificate of authenticity has been issued that have been shared, bartered, or offered to sale outside of the reservation, which enforcement authority (tribal, state, or federal) would be responsible for determining, should there be any question of legal possession, transport, or sale, the legality of the handicraft and/or certificate of authenticity? While the international trade in any edible or non-edible gray whale product is not permitted, a provision that NOAA/NMFS does not reference in its SDEIS analysis, there appear to be no geographical restrictions on the possession, transport, sharing, bartering, consumption and/or the sale (for Makah handicrafts) of edible or non-edible gray whale products within the contiguous United States as well as Alaska and Hawaii. Since such gray whale products are currently illegal to possess, transport, consume, barter, share, and/or sell within the United States, if the proposed rules are finalized this could increase the burden on enforcement agencies responsible for enforcing the rules, including any existing or future state	The preferred alternative would limit the use of whale products to ceremonial and subsistence purposes and prohibit the commercial sale or offer for sale of any whale products, except for traditional handicrafts made from non-edible whale parts within the United States.Violations of the regulations implementing any waiver would be adressed by the NOAA Office of Law Enforcement and Makah tribal authorities within thier jurisdiction. We do not anticipate that enforcing the restrictions related to handicrafts and whale products would ovewhelm these enforcement authorities.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			bans on the sale of whale products. NOAA/NMFS has failed to provide any assessment of this impact to enforcement agencies and personnel of its potential authorization of whaling by the Makah tribe in clear violation of NEPA.	
			NOAA/NMFS has failed to comprehensively evaluate the economic impact of the action alternatives: As is commonplace when evaluating the economic impacts of a proposed action in a NEPA document, the analysis is always one-sided examining only the direct and indirect economic costs of the action (in this case the economic costs of authorizing a whale hunt) instead of also considering the economic value of the whales and resources that will be impacted by the action. The analysis in the SDEIS focuses on the costs of the proposed action to tourism, household value of whale products, whale watching, shipping and ocean sport/commercial fishing, and hunt related management and law enforcement. SDEIS at 79. With the exception of assessing the potential impact of a hunt on whale-watching operations, there is no assessment of the hunt's impact on the economic value of the whale him/herself or of other natural experiences and attributes that couldbe adversely impact by the images and sounds generated by a whale hunt.For example, what is the economic value of the serenity experienced when visiting Olympic Coast National Marine Sanctuary or Olympic National Park? What is the economic value of enjoying time with friends and family without the fear of seeing or hearing the killing of a gray whale? What is the intrinsic and aesthetic value of a gray whale enjoying the protections afforded by the MMPA to local residents who could be impacted by the hunt, state residents who care about gray whales, a national public, including those who may never see a gray whale in the wild, or to an international audience who may value merely knowing that gray whales exist and are, at least to date, protected from intentional killing in US waters? What is the value of a PCFG gray whale with a name and history that has been seen by	We disagree. NEPA does not require that every value, whether intrinsic, aesthetic, etc. as described by the commenter, be converted into dollars and cents. The analyses conducted were both qualitative and quantitative, as appropriate, and provide sufficient analyses to understand the impacts of each of the alternatives and allow for comparison between the alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			tens of thousands of people who have partaken in whale watching tours within the PCFG range and subranges?Whales have value. They have an intrinsic value independent of any utilitarian value imposed on them by humans. They play a role in the proper functioning of the ecosystems they inhabit through nutrient transport, sediment resuspension, carbon sequestration, as prey and in death as their carcasses degrade on the seafloor promoting biodiversity.Whether the value is intrinsic, aesthetic, experiential, ecological, or in some other form, such attributes can be valued – converted into dollars and cents -- so that such values can be integrated into a more holistic assessment of the economic costs of a proposed action. For example, a single bobcat in Yellowstone National Park has an economic value of US$308,105, a figure nearly 1000 times greater than exploitive values of US$315.17 per bobcat trapped or hunted in Wyoming in the same season.73 because of its value to tourism, not if trapped and its pelt sold to the fur industry. A single African forest elephant is estimated to be worth over 1.75 million solely for its provision of carbon capture and sequestration services.74 Sea otters in the eastern North Pacific have been estimated to provide ecosystem services worth an estimated 53.6 million Canadian dollars (38,870,452 USD) annually, far higher to the estimated annual loss they cause to invertebrate fisheries (7.3 million Canadian dollars or 5,293,923 USD).75 And, in the Greater Farallones NationalMarine Sanctuary in California, Hutto et al. (2021)76 analyzed the role of baleen whales, including gray whales, in sequestering carbon within this single sanctuary. They concluded that:Carbon export from the euphotic zone to the deep sea was calculated for each current population (of baleen whales that use the Farallon's National Marine Sanctuary) and ranged from just over 11 MgC per year for minke whales to 1,415 MgC per year for ENP gray whales. The estimated total annual carbon export for baleen whales in the ENP may be as high as 2,899 MgC/year, which is more than the combined annual sequestration via	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			seagrass, salt marsh, and kelp export in the sanctuary. This amount of carbon export and immobilization is equivalent to removing 2,312 passenger vehicles from the road or preventing the burning of over 1 million gallons of gasoline each year. Using the social cost of carbon, baleen whales that likely feed in sanctuary waters provide up to $542,689 in added benefit to society per year through the carbon immobilization potential of whale falls. Incorporating the pre-whaling estimates for the North Pacific stocks of humpback and fin whales brings the annual carbon export to 7,366 MgC/year.In assessing the value of several species of whale off the coasts of Chile and Brazil for the multiple services they provide including whale watching, carbon sequestration, and fisheries enhancement, Chami et al. (2020) estimated that, on average, a single whale is worth 2 million US dollars annually ranging from 165,000 for a minke whale to 4 million for a blue whale.77 While I am aware of no study that estimates the value of a gray whale. Nevertheless, considering the role of gray whales in: benthic feeding; creating seafloor burrows; resuspending sediments to the benefit of seabirds, fish, and marine invertebrates; mixing nutrients; fertilizing their own feeding grounds; mitigating climate change; for whale watching as well as for their intrinsic and aesthetic attributes, these animals have an economic value. If they happened to be named, like many PCFG gray whales, their individual value may be substantially more. Cecil the lion didn't become an international news story because he was a lion who was shot by an American trophy hunter, but, rather, because he had a name, a story, and had been routinely seen by people on eco-safaris. Even if, as NMFS claims, the impact of the proposed whale hunt on whale watching operations will be negligible, it cannot ignore an entire half of the ledger sheet when assessing the economic impacts of the action alternatives as doing so violates NEPA. ----------	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			73 Elbroch, L.M., Robertson, L., Combs, K., and Fitzgerald, J. 2017. Contrasting bobcat values. Biodiversity Conservation. DOI 10.1007/s10531-017-1397-6.74 Chami, R., T. Cosimano, C. Fullenkamp, F. Berzaghi, S. Espanol-Jimenez, M. Marcondes, J. Palazzo. 2020. On Valuing Nature-Based Solutions to Climate Change: A Framework with Application to Elephants and Whales. Duke University, Economic Research Initiatives at Duke Working Paper Number 297.75 Gregr, E.J., V. Christensen, L. Nichol, R.G. Martone, R.W. Markel, J.C. Watson, C.D.G. Harley,E,A,. Pakhomov, J.B. Shurin, and K.M.A. Chan. 2020. Cascading social-ecological costs and benefits triggered by a recovering keystone predator. Science, Vol. 368, Issue 6496, pp. 1243-1247. DOI: 10.1126/science.aay534.76 Hutto, S. H., Hohman, R., & Tezak, S. (2021). Blue carbon in marine protected areas: Part 2; A blue carbon assessment of Greater Farallones National Marine Sanctuary. National Marine Sanctuaries Conservation Series ONMS-21-10. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries.77 Chami, R., T. Cosimano, C. Fullenkamp, F. Berzaghi, S. Espanol-Jimenez, M. Marcondes, J. Palazzo. 2020. On Valuing Nature-Based Solutions to Climate Change: A Framework with Application to Elephants and Whales. Duke University, Economic Research Initiatives at Duke Working Paper Number 297.	
			NMFS has failed to comprehensively and objectively assess the cumulative impacts of Alternative 7 and the other action alternatives in respect to all past, present, and reasonably foreseeable future actions including those undertaken by non-US government agencies: NEPA requires that federal agencies evaluate the "effects" of proposed actions on the environment. Effects include those that are direct, indirect and cumulative. 40 CFR 1508.8 (a) and (b). The regulations define "effects" as:	We disagree. The analysis in the SDEIS augments the information in the 2015 DEIS and incorporates Alternative 7. We have compiled the information in the DEIS and SDEIS, and updated as appropriate, within the FEIS making it more accessible to the reader. This includes the information in Subsection 5.1.3.3, Military Exercises, of the FEIS regarding the SOCAL, NWTR, and GOA Complexes operated by the Navy. The impacts to WNP whales are evaluated

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			(a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Id. A “cumulative impact” means: ... the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Id. at 1508.7 While “reasonably foreseeable” are not defined in the NEPA implementing regulations, as disclosed in the SDEIS, NOAA/NMFS consider reasonably foreseeable future actions as those that (1) have already been or are in the process of being funded or permitted future, (2) are described or included as priorities in government planning documents, or (3) are likely to occur or continue based on traditional or past patterns of activity. DSEIS at 94.	under each of the action alternatives. The SDEIS and FEIS consider the need for an incidental take authorization. For example, Subsection 2.3.7.1.1 of the FEIS, notes that under Alternative 7, "in order to receive a permit for a winter/spring hunt, the Tribe must also obtain an Incidental Take Authorization (ITA) under the MMPA for WNP whales." If a waiver is granted and an ITA is needed, there would be additional opportunities for public comment.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			In the SDEIS, as was the case in the 2015 DEIS, NOAA/NMFS has failed to meet this burden (although the cumulative impact analysis in the 2015 DEIS was more robust than contained in the SDEIS). Instead of engaging in a comprehensive assessment of past, present and reasonably foreseeable future actions, it has merely concluded that, as to reasonably foreseeable future actions, gray whales will continue to be hunted, gray whales will continue to be subject to natural mortality, and that gray whales will continue to persist. SDEIS at 106-109. There is no updated analysis of past and present actions nor has NOAA/NMFS engaged in any type of comprehensive review of how past, present and reasonably foreseeable future actions may, individually or cumulatively impact gray whales. This analysis must include all actions NOAA/NMFS has taken in the past, present, or that it will take in the future that may impact gray whales and their habitat. Any ITA or Letter of Authorization issued under the authority of the MMPA to authorize activities within the range of the gray whale that would otherwise be prohibited. Any permit issued for the study or other use of gray whales. It must also include any past, present and reasonably foreseeable future actions that have been authorized by the states of California, Oregon, Washington and Alaska that may impact gray whales or their habitat. In this case, in the 2015 DEIS, NOAA/NMFS references permits to authorize military training exercise in gray whale habitat. 2015 DEIS at 5-10 to 5-17. Each of those permits have now expired so the SDEIS was the vehicle for which NOAA/NMFS should have disclosed if that permits have been renewed and, if so, how military training activities may impact gray whales and their habitat in combination with the proposed hunt. The purpose of a cumulative impact analysis is not to simply state the obvious, as NOAA/NMFS has done in the SDEIS (e.g., that gray whales	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			will continue to persist) or to disclose a list of past, present, and reasonably foreseeable future actions but to engage in a meaningful and credible analysis of how such actions will impact gray whales considering the proposal to authorize a hunt of gray whales. This could be done by, for example, quantifying the individual and cumulative impact of all actions to determine what the likely impacts are to gray whales and their habitat. Alternative, a model could be developed to predict such impacts based on model parameters, the data used to populate the models, and any assumptions inherent to the model. NOAA/NMFS has not met this standard and, consequently, the cumulative impact analysis contained in the SDEIS is invalid.	
			Conclusion: NOAA/NMFS has failed to provide the level of analysis, as required by NEPA, in the SDEIS. The information disclosed was incomplete, some of the analysis was inaccurate, there were multiple instances where the analysis was contradictory to the proposed rules that would govern the hunt, if authorized, and it failed to even address many issues that are directly relevant to the required analysis. During the pendency of the comment period, new information became available that invalidated many sections of the analysis effectively rendering the SDEIS as meaningless. NOAA/NMFS prematurely published the SDEIS perhaps to meet a self-imposed deadline even though critical information cited in the document was unavailable and despite knowledge that other information, demonstrating a further decline in ENP gray whale abundance and calf production was in preparation.Considering these deficiencies, NOAA/NMFS must withdraw the SDEIS and: 1) begin anew with a goal of preparing a more comprehensive, transparent, and up-to-date analysis of the full suite of impacts of the action alternatives on ENP, PCFG, and WNP gray whales; 2) terminate all decision-making processes related to this matter given the ongoing decline in ENP, PCFG (and potentially WNP	These concluding comments are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			gray whales); or 3) suspend these decision-making process until NMFS understands and has taken action to mitigate the causes of the UME, reassess the stock status of PCFG gray whales, and complete the ITA process before reinitiating any NEPA analysis.Thank you in advance for considering these comments. Should you have any questions or need anyadditional information, please contact me at toni@terramarresearch.org.	
492	Ridley, Jim	10/31/22	NOAA's own research shows that the population of the eastern North Pacific gray whale is in a alarming state of decline - https://www.fisheries.noaa.gov/west-coast/science-data/gray-whale-population-abundance https://www.fisheries.noaa.gov/west-coast/science-data/gray-whale-population-abundance#:~:text=Current%20Population%20Size,-In%202016%20we&text=The%20impact%20of%20this%20UME,the%20winter%20of%202021%2F2022. This is a species that is threatened - and without federal protection - might be extinct in less than a century. Extinction is not a favorable outcome for the waters of the Pacific Northwest. With the passing of the last of this species, a change will come that will be historic, if not catastrophic to the Pacific Northwest. From NOAA - "Gray whales serve as ecosystem sentinels, alerting us to possible changes in the environment. The Arctic, where the primary feeding areas for gray whales are located, is changing rapidly. These changes, which include reductions in the distribution and persistence of Arctic sea ice, affect the availability of gray whale prey and have been linked to changes in gray whale distribution." I respectfully oppose the request by the Makah tribe to resume their right to hunt the eastern North Pacific gray whale. I understand that this is a	The stock of ENP gray whales is not considered threatened. See FEIS Subsection, 3.4.3.3 Eastern North Pacific (ENP) Gray Whale. See also Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME. See also Appendix C Responses to Frequent and Substantive Comments#14-Cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			right granted to the tribe by The Treaty of Neah Bay (1855) but I think all parties have a greater obligation to respect the rights of the gray whales to continue to exist - and maybe flourish - without the threat of mankind to their habitat and their numbers.	
493	Ker, B	10/31/22	THE MAKAH, JUST LIKE EVERY OTHER AMERICAN SHOULD NOT BE KILLIGN WHALES ANYMORE WHALES ARE IN TERRIBLE DECLINE. NOBODY SHOULD BE GETTING ANY AUTHORIZATION TO KILL WHALES. DONT CARE WHAT CUSTOMS ARE. YOU HAVE TO GROWUP AND UNDERSTAND THE PRESENT SITUATION OF THIS EARTH, WITH ITS DECLINING WHALE POPULATIONS. THIS COMMENT IS FOR THE PUBLIC RECORD. PLEASE RECEIPT B KER	See FEIS section 3.4.3.3 Eastern North Pacific (ENP) Gray Whale. See also Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME.
494	Kelly, Amanda	10/31/22	The goal of this comment is to argue in support of the agency's preferred action sub-alternative threshold, 7(c). This sub-alternative would set the low abundance threshold for Eastern North Pacific (ENP) gray whales at 18,000 individuals. This upper value of the population threshold metric is the most prudent course of action because it would lead to the most minor effect on ENP gray whale abundance. Therefore, as a component of the proposed action plan, 7(c) is essential to manage ENP gray whale populations effectively. The SDEIS states that the probability of ENP thresholds being triggered cannot be predicted (page 73); however, it can be assumed that future threats to ENP abundances will increase with climate change and other oceanic disturbances and would impact threshold triggers. For example, a recent study by Torres et al. (2022) examined the effect of changing environmental conditions on prey resources or nutrient availability as measured by grey whale body mass. Over the course of their study from 2017-2019, gray whale body condition deteriorated. The researchers suggest the timing of the most recent UME coincides with the decline in body condition. Furthermore, body mass and nutrient availability impact growth, survival, and reproduction and fundamentally	The DEIS, SDEIS, and FEIS consider the future threats to gray whales in Chapter 5-Cumulative Effects. Comments regarding an abundance threshold are noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			influence population numbers. A review of current literature on grey whales concluded that "...our knowledge of its health and disease, and resilience..." is yet limited Stimmelmayr & Gulland, 2020, page 7). This last point is relevant as it could explain why so little is understood about the recent increase in single-stranding events. The discussion of population thresholds in the SDEIS involved significant use of past population abundances to select threshold numbers. While common practice among researchers to look at historical data, the retrospective analysis does not factor in the near-future impacts of increased exposure to harmful algal blooms or changing habitats from climate change (Stimmelmayr & Gulland, 2020). Simmonds and Elliot (2009) compiled a list of "precautionary and adaptive management" responses to threats experienced by natural systems from climate change, which was taken from Hansen et al. (2003). Their suggestions include limiting non- climate-related stressors and incorporating adaptive management. The latter is vital, given that the impacts of climate change on cetaceans are uncertain. While sub-alternative 7(c) may limit the number of harvestable whales at some point in the future, it would more fully account for the future impacts on ENP whale populations from environmental change and oceanic disturbances. Furthermore, the higher threshold would minimize the potential impacts of unforeseen factors, including social-environmental ones. For example, when the Makah first gained approval to hunt whales, only 14% of Americans supported whale hunting (Beldo, 2019). This partly explains the controversy that occurred in its aftermath. In more recent polls, the percentage of support for the protection of whales has increased. In 2021, Pew data demonstrated that an overwhelming majority (roughly 88%) of East Coast residents supported the protection of threatened whales. Unfortunately, there is no readily available equivalent statistic for ENP gray whales. Given the vast uncertainty about broader social-environmental impacts, the most conservative threshold would	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			minimize unforeseen long-term effects on this indicator and stands as the best course of action. Finally, sub-alternative 7(c), although at times more restrictive, would still honor the treaty rights to which the Makah Tribe is entitled. As such, it strikes the most conservative balance among the options. --- References Beldo, L. (2019). Stock morality: American Ethnologist, 46(1), 47–60. https://doi.org/10.1111/amet.12733 Simmonds, M., & Eliott, W. (2009). Climate change and cetaceans: Concerns and recent developments. Journal of the Marine Biological Association of the United Kingdom, 89(1), 203-210. doi:10.1017/S0025315408003196 Stimmelmayr, R., & Gulland, F. M. (2020). Gray whale (eschrichtius robustus) health and disease: Review and Future Directions. Frontiers in Marine Science, 7. https://doi.org/10.3389/fmars.2020.588820 Torres, L. G., Bird, C. N., Rodríguez-González, F., Christiansen, F., Bejder, L., Lemos, L., Urban R, J., Swartz, S., Willoughby, A., Hewitt, J., & Bierlich, K. C. (2022). Range-wide comparison of gray whale body condition reveals contrasting sub-population health characteristics and vulnerability to environmental change. Frontiers in Marine Science, 9. https://doi.org/10.3389/fmars.2022.867258	
495	Anderson, Will	10/31/22	The commenter asked us to disregard this comment when he submitted again on 11/3/22	We respected the commenter's request to disregard this comment and address the 11/3/22 comments below.
496	Henling, Molly	11/03/22	I support the Makah Tribe's sovereign right to hunt whales for traditional ceremonial uses and traditional food.	Comment noted.
497	Moore, Elliott	11/03/22	I support the Makah peoples' traditional right to whale. Their livelihood and cultural practices matter. Let them tend their land.	Comment noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
498	Poulsen, Peter	11/03/22	I support the Makah tribes request to hunt whales as is their right under treaty with the US government	Comment noted.
499	Ridley, Catherine	11/03/22	I strongly object to issuing a waiver that would permit hunting of North Pacific gray whales off the coast of Washington State. Whale populations are declining worldwide. Climate change and other human-induced environmental stressors pose an ongoing and increasing threat to marine species that warrants continued aggressive protection of all whale populations.	See FEIS Subsection 3.4.3.3, Eastern North Pacific (ENP) Gray Whale. See also Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME.
500	Branch, Mary	11/02/22	Regarding the Makah Tribe request to hunt gray whales, I would like to register my strong opposition to granting this waiver of the MMPA. The MMPA was established for a very good reason, and NOAA's duty is to uphold this Act, not continually grant waivers or IHAs on the Act. Whales globally are in decline and the soon gray whales will join the ranks of the Orcas, Right Whales who are critically endangered and close to extinction in our lifetime. NOAA's own findings on the alarming plight of gray whale population declines, published October 7, 2022 can be found here: https://www.fisheries.noaa.gov/feature-story/gray-whale-numbers-continue-decline-noaa-fisherieswill-continue-monitoring?utm_medium=email&utm_source=govdelivery As a citizen, taxpayer and whale advocate, I do not understand how you can document this very alarming situation on gray whales, merely continue to "monitor" the situation, yet grant a waiver to let a specified group or organization or corporation contribute to the decimation of these animals. Your own data states that the decline in since 2015-2016 has been almost 40%. That is an alarming rate in the last 4 years! The Makah Tribe's treaty was back in 1855. Are you kidding me? 1855?? This should not be applicable in any way, shape or form in 2022. The decline in gray whale calf births, the changing climate which affects our ocean marine life and contributes to decline in food for these animals, temperature changes that affect their health, increased vessel strikes, entanglements, pollution and increase in	See FEIS Subsection 3.4.3.3, Eastern North Pacific (ENP) Gray Whale. See also Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME See FEIS Subsection 3.4.3.3 1.2.2, Treaty of Neah Bay and the Federal Trust Responsibility. See also Appendix C Responses to Frequent and Substantive Comments #8-The Treaty of Neah Bay. Chapter 5 of the FEIS discusses cumulative impacts. See also Appendix C Responses to Frequent and Substantive Comments #14-Cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			toxicity levels of our oceans are all contributing to their declines. Now you want to give a tribal group a license to kill them. It makes no sense, and in fact is a very barbaric and inhumane practice. Here the U.S. and other countries are banning whale hunting in an effort to save these creatures, yet you are finding a loophole for an ancient Treaty for one singular Tribe to hunt whales. I strongly ask that you reject granting this waiver, take us in to the 21st century with sound environmental practices and regulations based on science, not a Treaty over 150 years old! Please!	
501	AWI	11/5/22	On behalf of the Animal Welfare Institute (AWI), I submit the following comments on the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (SDEIS), which purports to analyze additional information relevant to the Makah Tribe's request for a waiver of the Marine Mammal Protection Act's (MMPA) take moratorium to conduct ceremonial hunts. 87 Fed. Reg. 39,804 (July 5, 2022). The SDEIS relied on outdated data, failed to consider a number of viable alternatives, and the process by which it was produced deprived outside experts and other interested parties of the opportunity to fully analyze and address the new data made available just days before the end of the extended comment period (October 14, 2022).1On February 27, 2020, the National Marine Fisheries Service (NMFS) published a Notice of Intent to prepare the SDEIS, noting that the analysis would include, among other things, information about the ongoing gray whale Unusual Mortality Event (UME). 85 Fed. Reg. 11,347, 11,348 (Feb. 27, 2020). However, the SDEIS did not provide any meaningful analysis of the UME. To the contrary, the SDEIS's glaring deficiencies, including NMFS's failure to timely disclose critical information, prevented both the agency and interested stakeholders from fully reviewing and assessing the environmental impacts of the proposed action and its alternatives. Consequently, the SDEIS violates the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370m, and its implementing regulations, as well as the Administrative Procedure	See response above.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Act (APA), 5 U.S.C. § 706(2).2As discussed below, as well as in various comments submitted as part of the MMPA and NEPA processes, NMFS's proposed waiver and regulations eschew the conservative, precautionary approach that the MMPA demands and, instead, prioritize the interests of the Tribe over marine mammals. Gray whales are facing ongoing and increasing threats, including from ship strikes, bycatch, contaminants, ocean noise, and ocean warming, including localized and regional marine heatwaves. NMFS itself recognizes the precarious situation facing each recognized subpopulation. Indeed, the Western North Pacific (WNP) gray whales remain listed as endangered under the Endangered Species Act (ESA). The Eastern North Pacific (ENP) gray whale and Pacific Coast Feeding Group (PCFG) gray whale populations continue to suffer steep declines in abundance and, for ENP gray whales, calf production due to the multiyear, ongoing UME, the cause of which remains unknown. Additionally, questions remain regarding the appropriate designation of the PCFG gray whale management unit under the MMPA. Unfortunately, NMFS's flawed, results-oriented decision-making in this matter has carried through to the NEPA process, resulting in an SDEIS that ignores important data and violates NEPA's requirements in several crucial respects. Accordingly, the SDEIS is arbitrary, capricious, and not in accordance with law. These flaws must be corrected before any final decision can be issued.As it did in its comments on the Recommended Decision, AWI again feels compelled to point out its strong organizational commitment and dedication to environmental justice and civil rights matters generally and Native sovereignty issues specifically. While AWI fully appreciates the Tribe's unique cultural heritage and its interest in hunting gray whales, at this time AWI does not view such a hunt as consistent with the best available science regarding the various gray whale populations that could be affected by the proposed hunt, nor the precautionary principle embodied in the MMPA. Nor does AWI view the SDEIS process as taking the legally	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			required "hard look" at the impacts of the proposed hunt or its alternatives, as required by NEPA. Accordingly, AWI submits these comments through a law- and science-focused lens that is in no way intended to demean or diminish the Tribe's interests in engaging in important cultural practices. --- 1 Following the close of the comment period, NMFS announced a brief reopening of the comment period, setting a new deadline of November 3, 2022. 87 Fed. Reg. 64,454 (Oct. 25, 2022). AWI intends this comment letter to update and supplant the letter it submitted on October 14th. AWI incorporates by reference its comments on the Recommended Decision, as well as comments submitted on the 2015 Draft EIS, and declarations and briefs submitted during the MMPA waiver process.2 In 2020, the Trump Administration issued sweeping changes to NEPA's implementing regulations that apply only to NEPA processes "begun after the effective date" of September 14, 2020. 85 Fed. Reg. 43,304, 43,339 (July 16, 2020). The SDEIS was prepared pursuant to the NEPA regulations in place at the time of NMFS's 2015 Draft EIS (DEIS) for the proposed hunt. See SDEIS at iv. Accordingly, the citations to NEPA regulations in this comment letter likewise refer to the NEPA regulations in place prior to the 2020 Final Rule.	
			STATUTORY BACKGROUND3 Congress enacted NEPA more than four decades ago "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment." 42 U.S.C. § 4321. In light of this mandate, the Supreme Court has reasoned that NEPA is "intended to reduce or eliminate environmental damage and to promote 'the understanding of the ecological systems and natural resources important to' the United States." Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).	See response above.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			To achieve NEPA's substantive goals, Congress created two specific mechanisms whereby federal agencies must evaluate the environmental and related impacts of a particular federal action—an Environmental Assessment (EA) and an EIS. See 42 U.S.C. § 4332(c). These procedural mechanisms are designed to inject environmental considerations "in the agency decision-making process itself," and to "help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." Pub. Citizen, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, "NEPA's core focus [is] on improving agency decision-making," Id. at 769 n.2, and specifically on ensuring that agencies take a "hard look" at potential environmental impacts and environmentally enhancing alternatives "as part of the agency's process of deciding whether to pursue a particular federal action." Balt. Gas & Elec. Co. v. NRDC, 462 U.S. 87, 100 (1983). The alternatives analysis "is the heart" of an EIS or EA. 40 C.F.R. § 1502.14. NEPA's implementing regulations require that the decision-making agency "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." Id. To assist in NEPA's twin aims of ensuring that agencies "consider every significant aspect of the environmental impact of a proposed action" and "inform the public that it has indeed considered environmental concerns in its decision-making process," id., an EIS must "provide full and fair discussion of significant environmental impacts" and must "inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." Id. § 1502.1. Importantly, the NEPA process	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			"shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40 C.F.R. § 1502.2(g) (emphasis added); see also id. § 1502.5 (requiring that NEPA review "shall be prepared early enough *so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made*" (emphases added)). --- 3. In light of the extensive comments AWI has submitted at various stages of this decision-making process, AWI feels it unnecessary to discuss the factual background in depth. Additional relevant facts are incorporated into the discussion throughout.	
			DISCUSSIONA. The SDEIS Process Suffered from Procedural Irregularities That Deprived <u>Commenters of Timely Access to Critical Information</u>. Although AWI appreciates NMFS's initial grant of a 60-day extension of the comment deadline, 87 Fed. Reg. 50319 (Aug. 16, 2022), the agency's subsequent denial of an additional extension to review newly released materials bearing directly on the issues of gray whale abundance and the impacts of the UME is particularly troubling. Shortly before the comment deadline, NMFS published several papers that contain information vital to an accurate assessment of the proposed hunt and its environmental impacts. For example, one paper contained a revised abundance estimate for PCFG gray whales, see Harris et al. (2022),4 while other papers contained a revised ENP gray whale population abundance estimate and new gray whale calf production numbers, see Eguchi et al. (2022).5 Despite the belated release of these studies that NMFS knew were in the process of being finalized during the SDEIS process—indeed, reports concerning the revised ENP gray whale abundance estimates and calf production were posted on NMFS's website a mere seven days before the SDEIS comment deadline—NMFS denied AWI's request for a second,	See response above.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			limited extension to allow it time to review and incorporate the new data into its comments. As a result, AWI's ability—and indeed, that of all stakeholders—to review and address the reports was compromised. NMFS's decision is particularly troubling given the fact that these reports document an ongoing, dramatic decline in ENP gray whale abundance estimates, as well as the lowest number of northbound gray whale calves since counts were initiated in 1994. Such information is directly relevant to the subject matter and analysis contained in the SDEIS. Yet, AWI and other stakeholders were denied sufficient opportunity to review and incorporate the data into their comments.NMFS's failure to provide timely access to the reports is likewise troubling because NMFS issued its SDEIS a mere three months before the updated gray whale abundance report was finalized. See 87 Fed. Reg. 39804; Harris et al. (2022). Rather than wait to ensure that the SDEIS contained the most accurate and updated information available—which NMFS knew was "in prep[aration]" and would be finalized shortly—NMFS once again barreled ahead and issued its SDEIS based on outdated information, compromising the integrity and accuracy of the decision-making process. The agency's failure to disclose such information that goes to the very heart of the decision under review—i.e., whether to waive the MMPA's moratorium and allow a hunt for individuals of the declining ENP gray whale population—deprived interested stakeholders of a sufficient opportunity to review, analyze, and incorporate highly relevant information into their substantive comments. This lack of transparency violates the information disclosure requirements of NEPA and is a major flaw with the SDEIS. --- 4. J. Harris et al., NOAA Fisheries, Recent Trends in the Abundance of Seasonal Gray Whales (Eschrichtius robustus) in the Pacific Northwest, 1996-2020, AFSC Processed Rep. 2022-05 (Sept. 2022).5. Tomoharu Eguchi et al., NOAA Fisheries, Abundance and Migratory Phenology of	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Eastern North Pacific Gray Whales 2021/2022, NOAA Technical Memorandum NMFS-SWFC-668 (Sept. 2022).	
			B. The SDEIS is Woefully Inadequate and Fails to Satisfy the Requirements of NEPA. NEPA requires agencies to ensure that the information they use is "of high quality." 40 C.F.R. § 1500.1(b). Indeed, "[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." Id. The SDEIS fails to meet this requirement. First, despite the fact that two of the SDEIS's preparers were also named authors of the paper reporting the revised ENP gray whale abundance estimates—which again, was not only in the process of being finalized while the SDEIS was being prepared but was released a mere seven days before the SDEIS comment deadline—NMFS inexplicably elected to rely on outdated 2020 abundance estimates in the SDEIS, skewing its analysis. Since 2016, the ENP gray whale population has declined by 38%, and calf production last year was at its lowest since scientists began counting births in 1994. The 2022 abundance estimate now sits at a mere 16,650 whales. Not only is this nearly 4,000 fewer whales than the population estimate relied upon in the SDEIS's analysis, it is also below the abundance estimate when gray whales were delisted under the ESA (i.e., 20,000-21,000 whales). 58 Fed. Reg. 3121, 3125 (January 7, 1993). Given the low calf production and the ongoing UME, this decline may to continue. The PCFG gray whale population has likewise experienced an 18% decline from an estimated high of 257 in 2015 to 212 in 2020 (the most recent year for which a PCFG abundance estimate is available). Although the SDEIS briefly discussed the impacts of setting a "low abundance trigger" on the hunt—i.e., an abundance estimate below which the hunt would not occur—NMFS did not meaningfully examine the impacts of conducting a hunt on	See response above. Footnote 11 was not included in the October 14, 2022, letter. The NEPA analysis discusses and evaluates the training activities that will have environmental impact (e..g., training approaches, training harpoon throws, and vessel operations associated with training activities) in detail and allows for comparison of the alternatives. . In addition, it describes in sufficient detail for the analyses the certification and training of Makah whalers (see, among others, Subsections 2.3.2.2.12, Other Environmental Protection Measures; 3.4.3.1.1, Training and Weapons Improvement; 3.14.1.1, Weapon Safety Regulations and Authorities).

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			a population that is undergoing a dramatic decline. For example, although NMFS dismissed the impacts of non-lethal approaches or strike attempts on individual whales as being "temporary," NMFS did not take a hard look at how those takes will impact whales, both individually and cumulatively with other stressors, including declining food availability, climate change, and pollution. Indeed, given the additional energy expenditures of responses elicited by any take, whether lethal or non-lethal, it is likely that such takes will have a serious adverse impact on malnourished or otherwise compromised individuals.6 Yet, NMFS never examined such effects. Because the SDEIS relied on outdated data despite the availability of updated data that bear directly on the environmental consequences of the action, and further, because the reliance on outdated data skewed the agency's analysis and masked adverse impacts, the SDEIS violates NEPA and its implementing regulations. Relatedly, NMFS failed to examine the impacts of the hunt relative to PBR in light of the revised abundance estimates and negative population trend data. PBR is intended to determine the maximum number of animals that can be removed from a population or stock as a result of human-caused mortalities (not natural mortalities) while allowing the population or stock to reach or maintain its optimum sustainable population (OSP). SDEIS at v. Given the precipitous decline in the ENP and PCFG gray whale populations, NMFS must revisit the other variables used in the calculation of PBR, including Rmax and the recovery factor, to determine whether the variables must also be revised.7 Indeed, for declining populations, the precautionary principle dictates that a more conservative Rmax be used to ensure that human-caused mortalities are not contributing to a population's failure to maintain OSP. Likewise, where a population is in danger of falling below OSP, the recovery factor of 1.0 may not be appropriate. Determining an accurate and biologically justifiable PBR is essential to	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			achieving the MMPA's purposes, and is especially critical where, as here, evidence suggests an increase in human-caused mortalities in a population as a result of, for 6 Villegas-example, ship strikes,8 bycatch,9 and ongoing subsistence harvest.10 NMFS must rigorously examine the direct, indirect, and cumulative impacts of the proposed hunt, including all of the best available data regarding population trends, sources of human-caused mortality, and the impacts of climate change on gray whales. NMFS's failure to conduct such a robust analysis, either in the DEIS or the SDEIS, violates NEPA's hard look requirement. Second, the SDEIS failed to fully examine the impacts of the UME on the ENP and PCFG gray whale populations. Although the causes of the UME have not yet been determined, available evidence suggests that the increased mortality of gray whales is due in part to decreased food availability in the Arctic, which in turn is linked to climate change. The SDEIS dismisses the UME as merely a population fluctuation typical of a boom/bust cycle, but the year-over-year decline in abundance since 2016 is strongly suggestive of a larger trend. NMFS failed to examine this potential. Instead, NMFS remained myopically focused on dismissing the impacts of the proposed hunt, insisting that its cursory assessment of "low-impact triggers" for ENP and PCFG gray whales suffices for an examination of the actual impacts of the proposed hunt on a declining population. In so doing, NMFS ignored an important aspect of the problem, and failed to take the requisite hard look at the effects of its action. NMFS must take a hard look at the impacts of the proposed hunt and its alternatives—direct, indirect, and cumulative—in light of the long-term impacts of the UME and its causes on gray whale abundance. Third, the SDEIS failed to fully examine the direct, indirect, and cumulative impacts of take on ENP, PCFG, and WNP whales. The SDEIS	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			suffers from the same fatal flaw as the Recommended Decision, i.e., it presumes without evidence that the effect of takes by approach or pursuit will have only a temporary effect on WNP whales. However, as previously explained in AWI's comments on the Recommended Decision, vessel approaches to within 100 yards are known to have the potential to cause behavioral disturbances and thus have long been formally considered by NMFS to constitute harassment. Moreover, at the administrative hearing, when asked to describe gray whales' reaction to being approached by research vessels, Dr. Weller admitted not only that many whales do in fact react, but that such reaction "is often related to the behavior of the boat and how it is operated." Tab 102, 10:10-14. Thus, it stands to reason that a gray whale that has been targeted by Tribal hunters and subjected to an approach and pursuit in a hunt scenario may react quite strongly. As a result, NMFS's SDEIS failed to take a hard look at this critical aspect of the proposed hunt, and as such violates NEPA, its implementing regulations, and the APA. NMFS's failure to take a hard look at the impacts of take on gray whales is particularly egregious with respect to the endangered WNP gray whale. The SDEIS erroneously focuses only on the potential of a WNP whale being lethally struck. However, as explained, even so-called "temporary" disturbances can have serious adverse impacts on whales, including energy expenditures, disruption or abandonment of important life history behaviors, and stress, all of which could impact the long-term viability of individuals and even the stock itself. Indeed, Villegas-Amtmann et al. (2017) (Attach. 2) used a female bioenergetics model to predict the consequences of energetic loss in WNP female gray whales. Considering the longer migration distance for WNP gray whales either to Mexico or China, they found that the energy requirements for WNP female gray whales were generally 11-15% higher than those of female ENP gray	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			whales. The modeling output predicted that female WNP "mortality would likely occur at 38-40% annual energetic loss" and that "[l]ong-term yearly energy loss of 30% would result in adult female mortality the first year, followed by lower reproductive rates of survivors." NMFS's SDEIS fails to meaningfully discuss gray whale bioenergetics or analyze the direct, indirect, or cumulative impacts of sub-lethal take on WNP gray whale individuals or on the stock as a whole, thereby minimizing the potential adverse effects of the proposed hunt on the endangered species. As a result, the SDEIS violates NEPA, its implementing regulations, the MMPA, and the APA. Finally, the SDEIS failed to examine all reasonable alternatives. Specifically, the SDEIS failed to examine the mid-range alternative of conducting a hunt without authorizing any training activities on live whales. This alternative would accomplish the purpose and need for the action while also reducing the adverse effects on ENP, PCFG, and WNP gray whales and the marine environment. Yet, NMFS never meaningfully examined such an alternative either in the DEIS or in the SDEIS.11 "The existence of a viable but unexamined alternative renders an [EIS] inadequate." Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 868 (9th Cir. 2004) (quotation omitted). It is particularly troubling here that NMFS failed to consider any alternatives that "might meet the goals of the agency by using different approaches which may reduce the environmental impacts of the agency's action." Soda Mountain Wilderness Council v. Norton, 424 F. Supp. 2d 1241, 1265 (E.D. Cal. 2006). Notably, to our knowledge no other subsistence whale hunt permits "training activities." It is unclear why NMFS has incorporated such training activities into its proposed activity, particularly given the serious adverse impacts of such activities on the affected whales and their	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			constituent stocks. Yet, NMFS never analyzed, either in the DEIS or in the SDEIS, an alternative that would forbid such training activities and allow only the core proposed action, i.e., the hunt. NEPA imposed a clear-cut procedural obligation on NMFS to take a "hard look" at alternatives that would entail less significant impacts on resources affected by the project. Balt. Gas, 462 U.S. at 100. An EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives" and, in particular, "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." 40 C.F.R. § 1502.14. NMFS's objectives must take into account "the views of Congress, expressed . . . in the agency's statutory authorization to act." Citizens Against Burlington, Inc., 938 F.2d at 196; see also Theodore Roosevelt Conservation P'ship, 661 F.3d at 72 (defining "reasonable alternative" to mean one that "is objectively feasible as well as 'reasonable in light of [the agency's] objectives'" (alterations in original) (quoting City of Alexandria v. Slater, 198 F.3d 862, 867 (D.C. Cir. 1999))). With respect to marine mammals, Congress mandated that the management of populations be carried out with the interests of the animals as the *prime consideration*. H.R. REP. NO. 92-707, at 18, 1972 U.C.C.C.A.N. at 4145 (emphasis added). Accordingly, a reasonable range of alternatives must include alternatives that have fewer adverse effects on gray whales. Legally and logically, this includes a mid-range alternative that prohibits training activities. NMFS's failure to examine such an alternative and its impacts violates NEPA, its implementing regulations, and the APA. Cf. Union Neighbors United, Inc. v. Jewell, 831 F.3d 564, 577 (D.C. Cir. 2016) ("Accordingly, because the Service in these circumstances did not consider any other reasonable alternative that would have taken fewer Indiana bats than Buckeye's plan, it failed to consider a reasonable range of alternatives and violated its obligation under NEPA.").	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			---------- 6. Villegas-Amtmann et al. (2015) (Attach. 1), for example, used a bioenergetics model to determine the energy requirements for a two-year reproductive cycle for female gray whales and to predict the consequences of energetic losses under three possible disturbance scenarios. The authors determined that an annual energetic loss of only 4% would prevent a successful gray whale pregnancy. During the birth year, a pregnant gray whales would wean her calf at a lower mass if she experienced a 37% energetic loss. If an adult female gray whale experiences a 30-35% energetic loss, she would lack the energy to become pregnant. Moreover, a 40-42% energetic loss would likely be fatal. 7. For example, although the previous PBR calculation for ENP gray whales used an Rmax value of 6.2, the current precipitous decline in calf production numbers merit a reevaluation of that value. 8. The impact of ship strikes on gray whale may be greater than previously considered. As noted in the SDEIS, "a recent qualitative assessment of the co-occurrence of North Pacific gray whales and vessel traffic found that ship strikes, and related underwater noise may pose a significant risk to gray whales." SDEIS at 39. Recent studies have determined that certain areas present a "high risk" of ship strikes and underwater noise, including the Russian Far East (Kamchatka peninsula and Okhotsk Sea), Bering Sea, Gulf of Alaska, and along the entire west coast of North America. Id. "The study estimated that the number of gray whales killed annually rangewide may be in the tens or perhaps low hundreds, and the risk was greatest during gray whale migration periods when animals are near shore and overlap with coastal shipping routes and fisheries." Id. This is particularly concerning where the 2020 Stock Assessment Report indicated that annual mortality from vessel strikes from 2014-2018 was only 1.8 whales. NMFS	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			must account for the most recent data in human-caused mortality in its analysis of effects of the proposed hunt on gray whales. 9 According to the Washington Department of Fish and Wildlife, "[g]ray whales are especially vulnerable to entanglement because of their use of nearshore coastal waters, where fishing activity is often highest." Chris Sato & Gary J. Wiles, Wash. Dep't of Fish & Wildlife, Periodic Status Review for the Gray Whale 10 (Feb. 2021), available at https://wdfw.wa.gov/sites/default/files/2021-02/gray_whale_psr_final_draft_fwc-ready.pdf. Indeed, "[f]rom 1982 to 2018, gray whales were the most frequently entangled whale species along California, Oregon, and Washington, averaging 6.9 entanglement reports per year, although actual numbers of entanglements are likely much higher than indicated by these reports." Id. 10 According to gray whale kill data provided to the IWC, from 2019 through 2022, Russian indigenous whalers killed an average of 133.33 gray whales each year. See IWC, Aboriginal Subsistence Whaling Catches Since 1985, https://iwc.int/table_aboriginal. 11 In the DEIS, NMFS explains that all alternatives examined encompass training activities, including physical and spiritual training, but fails to specify what the full suite of training activities entail, or what the impacts of those activities on gray whale stocks and their environment will be. DEIS at 2-4, 2-15, 2-22, 3-17, 3-57, 3-175, 3-283. It also repeatedly refers to "practice whale hunt exercises," "whale hunt practice exercises," or "practice exercises," DEIS at 3-163, 3-266, 3-327, 3-332, 3-345, but, again, fails to explain what such practice exercises are or how they may impact gray whales and their environment. Accordingly, NMFS's cursory statements in the DEIS do not substitute for the meaningful analysis in comparative form of all reasonable alternatives that NEPA requires, see 40	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			C.F.R. § 1502.14, particularly where there is an alternative that would meet the purpose and need of the proposed action while better meeting the agency's statutory mandate to protect and conserve marine mammal stocks. While AWI would not support such an alternative, it merits substantive review as required by NEPA.	
			CONCLUSIONAlthough AWI appreciates NMFS's willingness to prepare a supplemental EIS, AWI is extremely disappointed that NMFS is using this opportunity to once again sidestep important issues that matter to AWI, its members, and many American citizens. In doing so, NMFS is failing to follow its legal mandate to protect the marine life in its purview. The proposal to grant the first waiver under the MMPA is highly consequential and requires a rigorous examination of the impacts of the proposal and its alternatives to ensure that any activities authorized comply with the policies and purposes of the MMPA. Unfortunately, the SDEIS falls far short of offering such an analysis. AWI urges NMFS to reconsider the unduly narrow scope of its SDEIS, and to instead analyze all relevant issues that have been raised to the agency at the DEIS stage and in the parallel MMPA process.	Closing comments noted.
502	Romano, Janet	11/03/22	I am submitting this comment letter on the Supplemental Draft Environmental Impact Statement (SDEIS) on Makah whaling. I thank the National Marine Fisheries Service (NMFS) for reopening the comment period to permit additional input on the SDEIS (87 Federal Register 64454, October 25, 2022) although I am disappointed in the abbreviated length of the reopened comment period as they full suite of issues relevant to this decision about whaling by the Makah tribe, particularly in light of the significant decline in both Eastern North Pacific and Pacific Coast Feeding Group gray whales, warrants far more time to permit interested	Introductory comments noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			stakeholders to provide informed comments for consideration by NMFS. My comments are limited to four issues.	
			First, considering the findings contained in the two Eguchi et al. (2022) reports made available on 7 October 2022, much of the analysis in the SDEIS, which was based on an old ENP gray whale abundance estimate, is now out-of-date and invalid. Consequently, NMFS cannot publish a final EIS or final SEIS based on old data and, therefore, must invalidate the current SDEIS and prepare a new analysis.	These reports were made available to the public during the comment period and have been incorporated into the FEIS. While they represent new information, they do not change the relative impacts between the alternatives.
			Second, considering the decline in ENP and PCFG gray whales (noting that for PCFG gray whales the most recent abundance estimate is from 2020), it is imperative that a new abundance estimate be published for WNP gray whales. The current WNP gray whale abundance estimate is from 2016 (see Cooke et al. 2018), three years prior to the beginning on the current Unusual Mortality Event (UME). While it is possible that WNP gray whales have not been adversely impacted by the UME that has likely contributed to substantively to the dramatic decline in ENP gray whales, it is just as likely that WNP gray whales have also experienced a decline as a consequence of the direct and indirect impacts of the UME. Furthermore, given the ongoing Russian-provoked war in Ukraine and the impact that war has had on US-Russian relations, it is not clear what studies are ongoing with WNP gray whales, who is doing that research (including the active collection of photographs for photo-identification purposes), and whether actions are being taken to mitigate threats to WNP gray whales in Russian waters. Considering the repeated reference to WNP gray whales in the SDEIS, disclosure of information about the current status of the population, ongoing research on WNP gray whales, and the impact of the war on WNP data collection and sharing, particularly with NMFS, is essential so that interested stakeholders can take into consideration such information when preparing substantive comments.	The status of WNP gray whales is described in Subsection 3.4.3.2, which considers the best available information. See also Appendix C Responses to Frequent and Substantive Comment #18 -Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			While I expect that those engaged in the study of gray whales throughout the ENP migratory corridor will continue to collect data on the status, biology, and ecology of the whales as well as obtaining photographs for photo-identification purposes, without a concurrent effort in Russia particularly to collect photographs of new and newly recruited WNP gray whales, understanding changing WNP to ENP migration rates becomes impossible. This, in turn, prevents an update analysis of the potential "take" of WNP gray whales if the Makah Tribe is allowed to hunt whales.	
			Third, NMFS must revisit whether PCFG gray whales should be designated as a stock under the MMPA. Considering that a decade has passed since NMFS last meaningfully examined this matter, that new Guidelines for Assessing Marine Mammal Stocks have been published during this period, and the wealth of new studies/reports on PCFG gray whales, failing to engage in a reanalysis of this questions suggests that NMFS is purposefully avoiding the matter to avoid jeopardizing its efforts to allow the Makah to resume whaling. ed Makah whale hunt.	See also Appendix C Responses to Frequent and Substantive Comment #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales.
			Finally, NMFS has failed to provide a credible analysis of the current UME which, I suspect, is primarily a result of the impact of climate change and ocean warming on gray whales and their habitat. While the 2015 Draft Environmental Impact Statement included some discussion of the changes occurring in the Arctic as a consequence of climate change and the SDEIS provides some analysis of the marine heatwaves and their impact on gray whales and their habitat, these analyses are superficial. NMFS continues to ignore the drastic alterations upending the ecology of the Arctic oceans and their food webs in favor of a fanciful argument that the decline and increase in gray whale numbers is natural fluctuation associated with ENP gray whales potentially exceeding their biological carrying capacity. This argument is, at best, frivolous poppycock and, at worse, is an intentional effort by NMFS to ignore the fundamental and extensive changes in Arctic ecology to prevent climate change and ocean warming from upending its	See Appendix C Responses to Frequent and Substantive Comment #14-Cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. We have incorporated additional information on climate change impacts to the Arctic and gray whale prey in Chapters 3 and considered these in the cumulative impacts in Chapter 5.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			decade's long quest to permit the Makah Tribe to resume whaling. If ENP gray whales had exceeded their biological carrying capacity, which is unlikely, such a sudden and drastic decline of over 10,000 whales in six years would not be expected. Instead, as the population increased you would expect a consistent and gradual, not catastrophic, decline in productivity and survival. When a population experiences a dramatic decline in abundance, it is likely more a product of a problem in the ecosystem and, in this case, a problem with the gray whale's food supply. Similarly, in 1999 and 2000, the years of the last UME, this too may have caused by a change in the Arctic ecosystem affecting gray whale prey abundance, composition, availability, and concentration. In that case, either the ecosystem recovered or, more likely, gray whales were able (ironically thanks to ocean warming) to expand their range to the north, west, and east in the Arctic including the Bering, Beaufort, and Chukchi Seas and found abundant sources or prey allowing the population to not only recover but to exceed previous abundance estimates. The same may occur again in the coming years or, it is also possible, that it won't and that the changes to Arctic ecosystems due to ocean warming will worsen causing either a continued decline in gray whale abundance before a potential recovery (albeit limited), a stabilization of the population at approximately the current abundance or at a lower abundance, or a recovery to some unknown population size which will likely be less than the previous estimated in 2016 (26,980). As NMFS is well aware, given that its own scientists or scientists funded with NMFS research funding are conducting ongoing research in the Arctic, the Arctic marine ecology and food webs are being entirely transformed due to ocean larming. What once was a benthic driven ecosystem offering an abundance of benthic invertebrates of great value,	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			including calorically, to gray whales has become and continues to be transformed into a pelagic driven ecosystem where the massive amounts of carbon that used to fall to the seafloor are now being consumed in the water column by pelagic species expanding their ranges as waters in their traditional habitats warm. Less carbon to the benthos, lower concentration and diversity of benthic species, changes in the composition of benthic species to those with lower lipid – and caloric – content meaning a reduction in the quantity and quality of gray whale benthic prey (primarily amphipods) forcing gray whales to increase time spent foraging and to range further in search of benthic and other prey necessary to meet their significant energy needs. Perhaps, as gray whales expand their Arctic range, they will continue to find pockets or patches of quality prey or, depending on the benthic substrate and other oceanographic properties, perhaps the ability to find accessible and high quality prey will diminish as the whales range further north, east, and west. Furthermore, this "borealization" of the Arctic has a number of tentacles some of which may be perceived to benefit gray whales, at least temporarily, while others harm the species. In addition to the transition from a benthic to pelagic ecosystem, some of the other complexities associated with the changing Arctic ecology that NMFS has, thus far, ignored in its assessment of the environmental impacts of Makah whaling include: reduced sea ice and thinner sea ice impacting the amount of under ice algae available to feed the benthos; alterations in underwater currents affected the distribution of different sized substrates impacting the ecology including the distribution and composition of benthic invertebrates; and changes in the timing of phytoplankton (the fundamental driver of marine food webs) with cascading impacts through the food web thereby forcing gray whales to move to survive.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			While ocean warming, under such circumstances, could be considered a benefit to gray whales providing vast new habitat (previously with limited accessibility given the ice pack) for them to use and explore, this is actually a detriment to the species. Indeed, given the impact of ocean warming on Arctic marine food webs, gray whales are not expanding there range only because they can (given the increase in open water as sea ice extent declines) but because they have to in search of prey. As they expand their range, the distance that they then must traverse during their southbound migration increases, the time required to make that journey increases, resulting in a larger proportion of pregnant gray whales giving birth during migration in the open ocean instead of in the protected Mexican birthing lagoons. If born in the open ocean, a gray whale calf if subject to myriad threats including predation by killer whales and sharks as well as increased energy expenditure to survive in cold waters, compete against ocean currents, and to complete the migration thereby potentially reducing calf survival rates. Simply put, ocean warming is depleting the quality and quantity of food for ENP gray whales in their traditional summer feeding areas, necessitating an expansion in their range and distribution to find food, increasing the length of their migration, and subjecting gray whale calves born in the open ocean to a variety of threats. Since climate change is human-caused, these impacts are, likewise, human-caused and are in addition to the other human-caused impacts that have always threatened gray whales including ship strikes, bycatch, ocean noise, contaminants, improper land use practices, as well as the large number of activities that may cause the "take" of gray whales in the form of harassment. In the past, NMFS has largely ignored such impacts claiming that, despite such threats, gray whale numbers were increasing suggesting that the individual and cumulative impacts of such threats, including for ocean warming, were not	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			adversely affecting the ENP gray whale population. Given the dramatic decline in ENP gray whales over the past six years, NMFS can't rely on such wishful thinking any longer and must face the reality that ocean warming, particularly in the Arctic, may be so dramatically altering Arctic marine ecology that even gray whales are suffering the consequences. I concede and, indeed, I hope that ENP gray whale numbers begin to rebound but, based on the increasing number of reports and studies demonstrating just how dramatically and rapidly the Arctic is changing, I fear the worst for the Arctic and all Arctic marine life.	
			While, due to time constraints in preparing this supplemental comment letter, I was unable to provide scientific citations to support the claims summarized above, suffice it to say that the number of reports and studies documenting such changes in the Arctic and how such changes are adversely impacting the Arctic marine food web, including gray whales, is immense and growing. Should NMFS, as it must do, prepare a new SDEIS to ensure its analysis is based on up-to-date gray whale abundance estimates, I will provide a more comprehensive examination of such Arctic issues in my comments on that revised SDEIS. As these Arctic ecosystem changes are, presumably, being examined by the team assembled by NMFS to try to determine the causes of the current UME, NMFS either in collaboration with the UME team or independently should organize a workshop with NMFS and other invited experts to comprehensively discuss and evaluate all of the direct, indirect, and cumulative impacts of ocean warming on the Arctic, marine food webs, and the gray whale. This workshop should be a multi-day event with presentations by relevant researchers while allowing the public to provide comment, ask questions, and to be active participants in the discussion. Alternatively, NMFS should request that the National Academy of Science convene an expert committee to examine all aspects of climate change, ocean warming, and impact on Arctic ecology to better inform NMFS as to the potential	These concluding comments are noted.See Appendix C Responses to Frequent and Substantive Comment #14-Cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			implications, positive or negative, to gray whales from the full suite of impacts of ocean warming on their biology, ecology, behavior, distribution, and migratory movements. Such a workshop or request for an NAS committee review must occur now before NMFS proceeds with any further decision making regarding the requested MMPA waiver and/or NEPA review associated with the proposed Makah whale hunt. Thank you in advance for considering this comment letter.	
503	Hansen, Cindy	11/07/22	Thank you for the opportunity to comment on the Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. I appreciate the effort that went into creating a composite alternative to put forth as the preferred alternative. I am very much in support of honoring tribal treaty rights, and I am sympathetic to the cultural losses all tribes have sustained. I do have some concerns about the hunt as currently proposed, summarized below with my suggestions and recommendations. • I am concerned about a hunt being approved when the species is the midst of an Unusual Mortality Event (UME). According to a recent West Coast Marine Mammal Stranding Network brief and technical memorandums by Eguchi et al. from September 2022, the gray whale population has declined 38% since 2016, and the 2022 calf count was the lowest seen since counts began in 1994. The reports mention that several likely factors have been identified, that research is ongoing, and that continued monitoring will determine when the population stabilizes and begins to recover. It is unknown at this time how long the UME will continue, what the final population numbers will be when it's over, and what the overall impacts will be to the Pacific Coast Feeding Group and Western Gray Whale sub-populations. If the UME is related to the impacts of climate change, it is likely only a matter of time until a similar event happens again, perhaps before the population has completely recovered. I	See also Appendix C Responses to Frequent and Substantive Comment #19-Ongoing UME. See also Appendix C Responses to Frequent and Substantive Comment #21-Managing "Sounders" as a separate population.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			recommend that you take all of this into account in your final decision, and if a hunt is ultimately approved, that the ENP Abundance Threshold is set at c) N=18,000, as described in the DEIS. Further, I suggest that if a hunt is approved, that the start time be contingent upon the recovery of the population to pre-UME numbers. • I request that a section be added to the DEIS incorporating information about the "Sounders" or North Puget Sound gray whales, who do not appear to have been included in the document. The Sounders are a unique group of gray whales that, according to Cascadia Research Collective, originally discovered feeding areas in North Puget Sound during a past Unusual Mortality Event and other times of depleted food resources. Some of them have been returning to Puget Sound since 1990, and with another UME underway, new individuals have come in and joined the Sounders. Not only are the Sounders feeding here together but they are also interacting with one another and may even have established long term bonds. These whales are named, known as individuals, and beloved by thousands of people in Puget Sound and beyond. In normal non-UME years, the Sounders would be arriving in Puget Sound beginning in February or March and the last whales would typically leave by the end of May. During the current UME they are spending more time here on average, and in a few cases have even remained during the winter instead of migrating. As they depart Puget Sound to either continue their migration to the Arctic feeding grounds or join the PCFG, their travels may place them in the hunt area during any of the proposed timings. I ask you to please take this population under consideration in your final decision and make sure there are safeguards in place, perhaps through coordination with researchers and sighting networks, to protect them from a hunt. Gray whales are known and loved by people all along their migration	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			route, from Baja to Alaska, and a hunt, no matter how small the take, is going to cause great emotional distress to many, particularly those who have come to know some of these animals as individuals with unique personalities. I ask you to please be considerate of this and take it into account much as possible. I would like to state again that I am supportive of honoring tribal treaty rights, and I realize that what I am asking may create challenges in accomplishing this. If the Makah are amenable to this, I would be fully supportive of negotiations to compensate them for whales not taken due to some of the safeguards I am suggesting. Thank you for your time and consideration. (Revised from comments previously submitted on August 15, 2022)	
504	PCPW	11/07/22	**Supplemental comments to the Supplemental DEIS 2022, re: Makah whaling**Thank you for this opportunity to submit these comments, to be in addition to our previously submitted ones. In the haste to absorb and prepare reactions to three additional papers "dropped" in the final days of the previous comment period, we had no time to re-prepare important sections of comment. Unfortunately, an extra week will not sufficiently remedy the unfairness of this chaotic public comment situation, created, unnecessarily, by NMFS.The release for comment of this SDEIS has been strange . The SDEIS itself seems to have been completed in an odd haste. There are errors unbecoming of a government publication. **And *holding back* the most important information conceivable , *current ENP population and calf production numbers*, in an *"analysis"* of the ongoing UME is inexplicable. NMFS knew that their SDEIS was outdated on its *release date*, June 30. The public did not know this information existed until the last days of the second comment period!**	See also Appendix C Responses to Frequent and Substantive Comment #16-Amount of time allowed to comment on the DEIS.
			One thing that was immediately apparent was that there was a big problem with sections referring to the PCFG. This SDEIS , beginning on page 29, began referring to "Harris et al. in prep". There were at	ENP gray whales are well studied and, thus, there are new scientific papers published frequently. The ENP, including the PCFG , and WNP stock are also

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			least 18 times that population estimates, graphs, tables and charts with that "in prep." credit were used. This was so inappropriate, that we watched daily for the Harris paper to be quickly released to the public. Little did we know that the release of "Harris, et al. in prep" was almost three months away! Far after the first comment deadline of August 15 ! **The PCFG gray whales are at the heart of our concerns about this hunt**. For NMFS to use, so liberally, an "in prep" document that could not be accessed **in whole** by the commenting public, was astounding. By the end of July, the Harris paper had still not been provided. Over two weeks before the August 15 deadline, AWI submitted a request for an extension of the deadline. By the end of July, the Harris paper had still not been provided. Over two weeks before the August 15 deadline, AWI submitted a request for an extension of the deadline. Under a week before the deadline, NMFS agreed to an extension, with a new deadline of October 14. Little did we know, at the end of August, that the release of the Harris PCFG paper was still almost amonth away! On September 27, NMFS posted that missing paper. By then it was just over two weeks from the October 14 deadline. At the end of August we had become aware of another pending paper that NMFS had not mentioned or quoted from. A paper, by NMFS itself, with **new ENP population estimates**. NMFS did not respond to questions about that paper, posed by PCPW on September 27. Ten days later: ***On Oct. 7, one week before the comment period would end,* NMFS reported that AWI had again requested an extension. In that same email from**	assessed though the annual NMFS SAR process. The SDEIS included the best available information at the time of publication. As mentioned, new population and calf numbers were published during the comment period. These papers were made available to the public as soon as possible, and the comment period was reopened. With respect to the Salish Sea and gray whales, see also Appendix C Responses to Frequent and Substantive Comment #21-Managing "Sounders" as a separate population. See also Appendix C Responses to Frequent and Substantive Comment #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales. See also Appendix C Responses to Frequent and Substantive Comment #16-Amount of time allowed to comment on the DEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Laurie Beale , two papers were attached : the EP abundance report, and a gray whale calf production report for 2022. A*nd the announcement that the October 14 deadline for comments would stand. With one week remaining to incorporate all the vital new information.* **An email from Laurie Beale on October 9 relayed the Makah opposition to an extension, and on October 11, Laurie confirmed that there would be no extension of the Oct. 14 deadline.** In the face of what seemed an extremely unreasonable series of decisions by NMFS, we hastily added to, and subtracted from our comments, trying to assimilate so much new information at the last minute. **All the while wondering**: – Why was NMFS in such a hurry to release the SDEIS at the end of June? **Nothing necessitated that timing, and they knew that important new information was being prepared in house.** – Why would they utilize data from the " Harris, in prep." paper, knowing that there would be valid objections , and that the paper was **far from publication**? In fact, it was too far from publication to be released before the initial comment period ended. – Why did NMFS not acknowledge that the Harris paper's PCFG population estimates were already **two years out of date, and that , like the current ENP numbers, the PCFG numbers are very likely worse now** ? – NMFS **saw no problem using "Harris, et al. in prep.", so why did they not** quote from their own "in house" papers "in prep." : **the latest very low ENP population numbers and the latest calf count numbers, lowest ever recorded ?** – Why was there no **actual "analysis" of the UME**, which was the main reason for this "supplemental" DEIS in the first place? – Why does NMFS continue to stand by the **2015 DEIS**, when **nothing in**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			it has been updated? – Why did NMFS not acknowledge the problems raised by the current tensions with Russia, in relation to access to a current photo ID record of WNP gray whales, and perhaps, the IWC quota share with Russia? **Does NMFS have a plan to reliably access up to date population numbers for the WNP?** **Why didn't NMFS release this SDEIS with timing that would have allowed the inclusion of the Harris paper and the NMFS papers reporting the low, low ENP population numbers and the lowest ever calf count numbers ? NMFS had to know *exactly* what they were eliminating from this SDEIS with their hasty release. Nothing stopped them from awaiting the completion of the three missing reports, thus giving the public the benefit of the full comment period to assess them within the context of an i*nformed* SDEIS .** **Why did NMFS release such an error-plagued, substandard and outdated SDEIS?** **On a first read through, we looked for the report on the unprecedented four year UME, that we expected. Everything known to date. But not even a section title for the UME. We actually thought that it must be coming as a separate document. No. That was it: just a page and a half under the heading "strandings". Those low, low 2022 ENP and 2022 calf numbers, that NMFS had to be well aware were a direct result of the UME, went unmentioned. Old, outdated numbers were used throughout, instead!** **The current population drop in the ENP population was so shocking as to make news around the world, when the paper was released on**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			October 7. And yet the new numbers did not make it into NMFS 'own report. And the PCFG numbers that they did use ,"(Harris et al. in prep)", are two years out of date. When will NMFS obtain new PCFG numbers? 2023? 2024? The ENP population dropped by another 20+% in the last two years. Did the PCFG numbers also drop in the last two years? **This lag in current PCFG information is the very problem noted by the MMC and by ALJ Jordan in his "dimmer switch" suggestion. A suggestion not taken by NMFS. This situation epitomizes the real problem that the public has in believing that NMFS will recognize a problem, and act, before it is too late. If there is an example of NMFS being that alert and that precautionary in their "management" of a marine species, we'd like to hear about it ! Or is this exactly what NMFS' "adaptive management" looks like? Old information requires no action. The honest facts are changing quickly now. There will need to be annual monitoring, and facts about the PCFG population status must always be ascertained by independent scientists.** **So when will NMFS re-calculate all math formulas, models, and guesses that are the underpinnings and rationale in this proposal to kill ENP and PCFG and WNP gray whales? Where are we now in regard to carrying capacity, maximum net productivity levels, optimal sustainable populations, mixing rates, potential biological removals, and thresholds? Will NMFS and the IWC amend their calculations ? If not, then NMFS is operating in an unreal world of "alternative" facts.** **And will there be updated WNP population numbers in the near future? WNP calf numbers ? Is that information even knowable now?**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			How can out of date population numbers be used to protect endangered species when famine stalks the seas? NMFS gives us no information. **It is appalling that the commenting public has had to work overtime, through stop and go comment openings, to comment on such a deficient and deceitful piece of work. "Sins of omission" throughout, make this SDEIS impossible to comment on in a rational way.** **For example: We were initially interested to see that there was, finally, a section titled "Salish Sea". We have argued for years that the inland waters and shorelines of the Strait of Juan de Fuca and beyond, are important parts of the PCFG feeding grounds, particularly the Makah U&A gray whales. They are seen in every month of the year at biological hot spots known to the local whales. Some small hot spots are at river mouths and in bays beyond the "study area" that ends at Sekiu. local people and local whales know where to look. These smaller areas dot the south shore, going far to the east, and are important at certain times of the year, for certain whales. No discussion in the "Salish Sea" section.** **Does NMFS doubt that the feeding methods of the gray whales help maintain and enlarge these near shore "gardens"? These are symbiotic relationships. NMFS must be aware that there are studies of the relationships between the gray whales and the sea ducks of the Salish Sea. There was a beautiful Makah song presented at the ALJ Hearing that spoke of the whale and the little duck. Eliminate these whales at any quota level you come up with, and there will be an eventual, cumulative effect on the Salish Sea ecosystem from the loss of these gray whales. Less and less fertilizing, plowing and reseeding of the**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			benthic flora and fauna by the whales will ripple out to effect the quantity and quality of food available to the fish and others in the water column, and birds on the surface. **There is a lot of life in the near shore and the kelp beds where the gray whales feed (and fertilize). There are many species of young salmon emerging from river mouths and transiting through the near shore looking for food. Most salmon species, and various sea ducks benefiting from the food raised up to the surface by gray whales, are now officially endangered. Does NMFS believe that the gray whales add nothing to their Salish Sea ecosystem? That their loss would not be a loss to the ecosystem? NMFS can admit nothing about how the gray whales enhance the Salish Sea, because they know those gray whales utilizing the Salish Sea will diminish over time. But NMFS also knows that the effects of their diminishment will take years to "see", and that there is no way to allow the Makah hunt without taking out Makah U&A whales.**	
			In 2023 it will be 25 years since 1998, when NMFS opened a whaling season to the Tribe. The agreement (based on a hastily prepared EA) , allowed the Tribe to harvest up to 20 whales every 5 years. (That is not counting struck and lost whales.) And after their kill of a young female gray whale in 1999, the Tribe publicly spoke of needing a larger quota soon.**But even at 20 whales landed every 5 years, between 1998 and 2023 that would mean that at least 100 gray whales could have been killed in the waters of Washington State. NMFS said that 4-5 a year was a sustainable number. Did they do the math? What effects would be apparent by now if the "co-managers" had not been stopped by the 9th Circuit Court? Here's one : *no gray whales to be seen in the Salish Sea.* The "subject"of the Makah's treaty right to whale, whales, is held "in common with all citizens". The 9th Circuit Court's ruling**	See Appendix C Responses to Frequent and Substantive Comment #8-The Treaty of Neah Bay.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			explained that the "in common with all citizens" clause includes and enshrines the right to a 50-50 share for "non consumptive" use by other citizens. Neither party to the "co-tenancy" has the right to destroy the "subject": The "subject" being the only whales the Tribe wants to harvest, and that the other "citizens" can enjoy "non consumptively". The "subject" is the local whales of the PCFG.Is there any doubt that removing 100 gray whales from these waters in the last 20 years would have destroyed the local PCFG population? Amidst the frenzy to kill 5 whales a year, it is likely that the mtDNA testing (that revealed the genetic distinctness of this small group) , never would have been done or been known. And after denying the very existence of "resident whales", NMFS and the Tribe no doubt regret the 9th Circuit's orders to study them, and regret those genetic results that continue to confound hunt planning.	
			An issue raised in the SDEIS that we are very concerned about , is the proposal of a specific quota on female PCFG whales. In the past, there have been hunt plan alternatives that required hunters to only target "known male whales". Long gone is that precautionary concept. NMFS now allows a 50-50 male-female split. Of (16) landed PCFG whales, (8) can be female , every 10 years. NMFS offers no analysis of the potential cumulative effects of this plan (Alt.7) on the Makah U&A gray whales, and the PCFG as a whole.	The action alternatives includes one, Alternative 4, that restricts approaches only to known ENP males.
			A new paper released on October 6, 2022, is a cautionary tale when it comes to "assumptions" about the reproductive "powers" of "reproductive age" females in a stressed and undernourished population of large whales.The paper appears in "Frontiers in Marine Science", and is titled: "*Multi-event modeling of true eproductive states of individual female right whales provides new insight into their decline*", by Joshua Reed, Leslie New, Peter Corkeron , and Robert Harcourt. Their introduction states: *"As population drops, the study of*	The non-lethal impacts on gray whales are evaluated in the analyses (see FEIS Subsection 4.4.3, Evaluation of Alternatives). The Reed et al. paper on the critically endangered North Atlantic right whale (NARW) does not provide new information which would change the conclusions of the analyses. We assume the references in the comments to NPRW are referring to the Reed et al. study on NARWs.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			abundance and population trends of critically endangered North Atlantic right whales has shown results that could well apply to other whale species."We observe the Eastern Pacific gray whales attempting to survive in habitats that are filled with human caused stress , including ship traffic , (and ship strikes) , fishing gear (and entanglements), multi-sourced underwater noise (and trouble hearing prey, predators, and each other). We can also observe the nutritional stresses of climate change, including warming water and diminished prey, likely reflected in the "skinny" whales, the emaciated beached whales, the huge drop in population, and the very few live births of gray whale calves.Many important findings about the effects of sub-lethal stress, poor nutrition, and mortality on the NA right whale females , and the negative effect of that on population growth, could well apply to our gray whales . Some bullet points extracted from this study of female NARWs will follow. Data was collected between 1977 and 2018. **– Reproductive states used in the study were: Up to one year olds were considered "calves" . A female greater than one year, but had no calf yet, was considered a "prebreeder". Once a calf was produced, a female was a "breeder".– Abundance increased until 2010, and was stable until 2013, after which estimated abundance of NARWs decreased.– A decline in females was seen starting in 2014, when there were 185 females.– An annual decline left only 142 females by 2018.– The largest decline was among "breeders" with only 70 alive in 2018.– Female "pre-breeders" plateaued at around 70 between 2011-2018.– Breeding females declined to 51% of the female population by 2018.- "...collapse in fecundity of breeding females and failure of pre-breeders to start breeding are important factors in understanding the current decline in abundance of the NARW**." **"Environmental and anthropogenic stressors have been shown to impede the recovery of right whales by reducing calving rates." (Christiansen et al., 2018, 2020)– "Sub lethal effects of ship strikes,**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			entanglement, and climate driven shifts in prey availability has shortened lifespans and led to "stunting". Individuals born each year since 1981 becoming progressively smaller...the difference now is as much as a meter." "Stunted growth reduces available energy stores,which means less energy to reproduce, less resilience to future entanglement, and increasing risk of death." St unting results in smaller females with "less capacity to gain sufficient condition to calve than larger females...with fewer females (pre-breeders) entering the breeding population."– There has been a decline in calves since 2012. Reproduction is "energetically expensive". Poor body condition of the mother means undernourishment of the offspring. This leads to reduced energy for growth and delayed sexual maturity for the young, with less energy to invest in reproduction, and increases the odds that "prebreeders" will not transition to breeders."In many large mammals, *females appear to be selected to favor their own survival over reproductive events and are likely to only reproduce when in good condition."* (Gaillard and Yoccoz, 2003) " Female right whales are failing to calve despite being well beyond what was the presumed average age of first parturition." (Krause et al. 2007) In the past decade there have been increased years between calves, with females passing age (9)without calves. "*Shifts in age and intervals at first parturition can influence the number of individual breeders recruited, resulting in shifts in abundance."*Other insights from this study of the female North Atlantic right whales include:-"Adult female mortalities (vessel strikes and entanglement in fishing gear) ... contribute to population decline, with few individuals left to contribute new members to the population."(Corkeron et al., 2018)– Less obvious are factors that produce stress, and thereby reduce abundance : industrialized habitats, sub lethal entanglements and ship strikes, and reduced food availability. These factors can cause mortality and a	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			failure to breed. They can also cause stunting. The authors of this study add: *"The stunted growth of the individuals alive nowcan never be reversed."*– Assuming breeding maturity by age can bias projections by assuming a higher reproduction potential for the species.So what does this have to do with the Eastern Pacific gray whales? *We know that the exact same stressors and mortality causes exist for the ENP, along with a few more.*-ENP gray whales must feed in, and travel through, many industrialized habitats, from the birthing lagoons to the arctic.-ENP gray whales run a gauntlet of crab pots, fishing gear, and nets, all along their migration route, and are victims of lethal and sub lethal encounters.-ENP gray whales are subject to ship and boat strikes everywhere they go , in both lethal and sub lethal encounters.-ENP gray whales are subject to long cycles of "food insecurity" that have now greatly reducedthe ENP population , producing "skinny" whales and emaciated whales, dead and barely living.-ENP gray whales are subjected to brutal annual hunts in Chukotka, Russia, that result in many mortalities , and a great deal of sub lethal stress for those who are chased but not struck.- ENP gray whales are experiencing the lowest birth rates ever recorded. Only a tiny fraction of the ENP "breeders" are carrying calves to term, or becoming pregnant at all.What we do not know:-Are ENP "pre-breeders" becoming breeders at "normal" ages ?-Are ENP breeders reproducing at the "normal" intervals? (It used to be every other year or so.)-What percentage of mothers are in "good" / "poor" body condition? Is NMFS checking for "stunting" amongst different age classes?-What is the "normal" percent of successful mothers in the ENP? What is the current estimated percent?-Will orcas expand their predation in the birthing lagoons?- At what population threshold will NMFS restore the ENP to the Endangered Species List?We learn from the NPRW study that stress itself is an energy drain with physical ramifications.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			We know that the ENP , WNP , and PCFG whales feeding on the Washington coast will be subjected to high levels of hunter-induced stress , during the 100's of practice "approaches" and the many "practice harpoon throws", as well as during the actual hunting and killing activities.We know from the NPRW study that this stress will have a cumulative and deleterious effect on all age classes and reproductive conditions of the ENP , PCFG and WNP gray whales. The added stress will have the biggest effects on the females, whether they be calves, pre-breeders, or breeders.What is at stake now is the ability of females to find enough to eat to be physically fit enough to either transition from pre-breeders to breeders, or engage in reproductive events at all, at any age. The ability to consume and conserve energy is primary. Energy is what is needed. Energy from enough food to counteract various energy drains from stress.*What the whales do not need is additional , unnecessary , premeditated human caused stress.What is of primary importance now is the protection of the females of all ages, of all whale groups.It is the job of the daughters, mothers, and grandmothers of the ENP, the WNP, and the PCFG tosurvive and thrive, in order to perpetuate the last remaining gray whale groups on earth. They needless stress, not more. Their fertility depends on it. These torturous plans to mercilessly harass andarbitrarily kill from these groups, male and female, is truly outrageous and indefensible.	
			N**MFS / NOAA and the Marine Mammal Commission need to take a hard look at the times we are living in. It is not just this SDEIS that needs to go back to the drawing board. It is also the mind-set that allows NMFS to believe that they can support both the survival of the PCFG and the killing of the PCFG. The MMC needs to do some soul-searching as well. Is this the time, are these the whales, that should receive your blessing for this harsh treatment? It is not the Tribe suffering from "food insecurity". It is the gray whales. Where is any**	See FEIS section 1.5, Public Involvement. See also Appendix C Responses to Frequent and Substantive Comment #16-Amount of time allowed to comment on the DEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			empathy or compassion from the Tribe? It is not their culture at risk of extinction, it is the three, unique cultures of the three gray whale groups. **The origin story of NMFS support for Makah whaling includes making agreements with the Tribe that were based on a misconception by one government lawyer: that the Treaty of Neah Bay took precedence over the MMPA. Everything has flowed from that, and there has never been a "clean slate" look at the matter since. The taint remains on every decision since. The 9th Circuit Court called NMFS' actions "arbitrary, capricious, and outside of the law." We don't think that the Court would look kindly on this latest move by NMFS. An SDEIS purportedly about the UME, but shamelessly lacking in the current UME facts that they had in their possession!** **The comment period chaos has reflected the lack of planning. The plan should have been simple: release an SDEIS that contains all the latest and most pertinent population information, and extrapolate some meaningful analysis about how new facts intersect with their hunt alternatives. And then give the public a reasonable length of time to comment on it.** **That is not what happened. NMFS did not take a sincere, searching, realistic look, utilizing the best available science, at potential hazards to groups of whales or groups of people, posed by the hunt or the UME. Neither did they make a reasoned analysis addressing those concerns.** **The undue haste in which this SDEIS was released can only be interpreted as catering to the Tribe's continual press for speed above**	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			accuracy. Meaningful, honest analysis has been, for whatever reason, sacrificed. **We do consider it a waste of time and energy to make further comment on this SDEIS. It must be "retired" from active duty. It must be re-thought, re-written, re-released for re-comment. Speaking for the Peninsula Citizens for the Protection of Whales, we feel insulted and abused by the stress that has accompanied the release and subsequent chaotic comment periods connected to this bizarre document.** **Nevertheless, thank you for reviewing these comments along with those already submitted. You have our comments to the 2015 DEIS as well. I'm sure that we all wish the gray whales well this migration and calving season, and hope there are signs of better days for them all, and an end to this terrible UME.**	
505	Anderson, Will	11/07/22	PLEASE DISREGARD TWO PREVIOUS SUBMISSIONS: The first was unfinished and short, submitted a minute after midnight, October 14, 2022; the second, more complete but still unfinished, was submitted October 15, 2022. Thank you.Green Vegans/The New Human Ecology submits the following comments on behalf of its supporters in response to the 2022 Supplemental Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales.**Introduction**We thank the National Marine Fisheries Service for reopening the comment period that allows us to comment on a very complex SDEIS and ecosystems that are changing in known and unknown ways not ever seen in human history. Green Vegans acknowledges the complexity all parties face in grasping the enormity of what humans have ignited and the fates of species and outcomes in the near and distant years ahead.In our comments, we will include papers that support our assertion that in the current context of a growing climate crisis,	Introductory comments noted. See Appendix C Responses to Frequent and Substantive Comment #9-Ongoing UME.We have incorporated information from Gulland et al. (2022) into Chapters 3 and 5.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			none of us can continue doing business as usual as if the near- and long-term climate future was a new reality for agencies as well. Responding to NEPA requires it, in our opinion. We ask NMFS to consider Re "management" needs in the face of the climate crisis. See. Gulland, F. M., Baker, J. D., Howe, M., LaBrecque, E., Leach, L., Moore, S. E., Reeves, R. R., & Thomas, P. O. (2022). A review of climate change effects on marine mammals in United States waters: Past predictions, observed impacts, current research and conservation imperatives. Climate Change Ecology, 3, 100054. https://doi.org/10.1016/j.ecochg.2022.100054 *More rapid and dynamic implementation of marine mammal management measures is required to address unexpected climate change-induced impacts in a timely fashion. Finally, novel evidence-based conservation interventions should be deployed to complement more traditional marine mammal management and recovery measures.*We ask NMFS to update and weigh the overriding factor of climate change objectively. While modeling sometimes acts as if the future of temperate, subarctic, and arctic ecosystems can be described with reasonable certainty, they cannot do so, and they do not control the variables and gaps in research. It is for those and many other reasons, that the SDEIS must have the absolute latest research and use of the precautionary principle. Waivers, NEPA documents, and the implementation of their Alternatives during the UME should not be approved for long periods of time, if ever. We feel this paper should be a guiding light the next time NMFS feels the need to prematurely publish a NEPA SDEIS and, as importantly, end the practice of proposing the issuance of waivers and the like lasting a decade. It's not enough to say the agency will adjust if new information comes to light when there is the UME and the cascading growth of the climate crisis impacting all species and ecosystems: Re "management" needs in the face of the climate crisis. See, Gulland, F. M., Baker, J. D., Howe, M., LaBrecque, E., Leach, L., Moore, S. E., Reeves, R. R., & Thomas, P. O.	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			(2022). A review of climate change effects on marine mammals in United States waters: Past predictions, observed impacts, current research and conservation imperatives. Climate Change Ecology, 3, 100054. https://doi.org/10.1016/j.ecochg.2022.100054 *More rapid and dynamic implementation of marine mammal management measures is required to address unexpected climate change-induced impacts in a timely fashion. Finally, novel evidence-based conservation interventions should be deployed to complement more traditional marine mammal management and recovery measures.*Though there is a widespread assumption that climate change in the arctic will "benefit" gray whales, these assumptions are dependent on endless variables in arctic ecosystems. Nitrogen added and denitrification in ecosystems, how benthic prey will respond to decreased algal "fallout" with reduced sea ice cover, and gray whales being able to replace benthic sources nutrition with pelagic species successfully. The staggering number of variables behind the assumed benefit are beyond this commenter's ability to decipher. But it took only two marine heatwaves to impact the marine ecosystems that gray whales need severely. From the SDEIS, *The MHW in the northeastern Pacific from 2013 to 2015, referred to as the "Blob," was the largest recorded MHW (Frölicher & Laufkötter 2018). During that event, the West Coast of North America experienced increased marine layer stratification, decreased nutrient fluxes (due to decreases in upwelling), and the deepening of the nutricline (Cavole et al. 2016). Of shore ocean temperatures reached as high as 4 degrees Celsius above the climatological mean (Leising et al. 2015). A Blob-like event developed in the northeastern Pacific Ocean again in the summer and fall of 2019. It was the second largest MHW event in terms of area and was one of the top five largest MHWs recorded within the last 40 years in the region (Northwest Fisheries Science Center 2019).to coincide with sub-arctic seabird colony collapses and the freefall decline of three species of ice seals to indicate how the climate crisis can*	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			upend those assumptions. Then, we have predictions based on assumptions of human success and failure to avoid and unleash the best and worst possible climate change impacts.We see the MMPA and NEPA requiring a far more precautionary approach and decision from NMFS. Green Vegans finds the SDEIS to be incomplete and fatally outdated. Its omissions and publication before critical information is known during the continuing Unusual Mortality Event (UME) ongoing since 2019 undermines and invalidates much of the SDEIS. The ongoing UME is longer than previous events and is set in the context of the worsening climate crisis that humans have never experienced. See, Greenhouse gas concentrations are at their highest levels in 2 million years. (What Is Climate Change? | United Nations).NMFS should have waited until the gray whale counts, calf mortality, and poor body condition of ENP gray whales reversed and recovered. Unlike past UMEs, with the rapidly changing climate drivers affecting ecosystems, there is far less certain whether the "adaptable gray whales" and their distinct population units will revolver as they have in the past. Globally, we and all gray whales, along with all life, have not experienced it; again, it was 2 million years ago. Added to this is NMFS readily publishing the SDEIS while neglecting to declare the Pacific Coast Feeding Group (PCFG) a separate population unit. That neglect and inaction have lasted over a decade. Despite the recently available NMFS technical memoranda and processed reports, the data they rely upon is outdated. The SDEIS doesn't Include updated data critical to the assessment of direct and indirect environmental impacts and/or to provide a credible foundation for the conclusions made for all Alternatives (except "No Action"), including the composite Alternative 7 since they all rely on much of the same outdated data. We will add, for NMFS' consideration, published papers we have found. What remains is that, at least for ENP gray whales, any new DEIS or SDEIS will be insufficient until the UME has passed and gray whale populations have recovered.Green Vegans/The	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			New Human Ecology is limited in human and financial resources and unable to get past the paywalls. We sometimes have to rely on abstracts, and for that, we are doing our best to comment accurately. Green Vegans was unable to tease out whether the SDEIS corrects/updates all essential information in the 2015 DEIS, information that impacts the assumptions, data used, and Alternatives that are key to meeting the requirements of NEPA, MMPA, and ESA, as well as public understanding of the issues. We request that a review of both the 2015 DEIS and the SDEIS is done to recheck and answer this question. Skipping between the two documents was maddening and was a reason we needed more time.**Our conclusion and our request are that NMFS publishes a new DEIS after we all know how much or little gray whales will recover, and the reason(s) for this UME that may go beyond food/prey availability. By that, we mean to replace the entirety of the 2015 DEIS and incorporate updated data that meets the requirements of NEPA, the Marine Mammal Protection Act, and the Endangered Species Act. We all wish the turn-around time won't be hampered by another pandemic. Given what we have, we support only Alternative 1, "No Action." OUR COMMENTS** will be structured as follows: The Glossary; Comments by page; Global issues; Additional subjects we decided to list separately (noise/ship strikes), and our concluding remarks. Please Note 1) We use the actual document page numbers, not that of document readers; and 2) Please assume our comments are meant to apply to the entire document and, by inference, the 2015 DEIS if not addressed in the SDEIS.	
			Glossary Page i - Glossary. The glossary reflects the overall lack of specificity in the SDEIS. We will address some of them in more detail later on, but these need to be added, at a minimum: Approach; Harpoon; Harpoon Attempts; JSI Estimator; Rifle Shots, Sounders, and Hunt Area.	The glossary has been updated to include definitions of approach and unsuccessful harpoon attempts. See FEIS Table 4-1 for the hunt area under each of the action alternativess.
			We contest the definition of "Strike" in detail. Strike - Page 10 - 2.1.6 Limits etc. THIS APPLIES TO ALL PAGES and Alternatives of the	Both the DEIS and SDEIS define strike to be "As defined by the July 2012 Schedule to the

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			SDEIS and 2015 DEIS. "No more than 16 PCFG whales may be struck over the 10-year waiver period...." (SDEIS) This appears to be a critical flaw in both documents for several reasons: The 2015 DEIS stated: *Consistent with the IWC Schedule, the Tribe defines "strike" in their request as "any blow or blows delivered to a whale by a harpoon, rifle, or other weapon which may result in death to a whale, including harpoon blows if the harpoon is embedded in the whale, and rifle shots that hit a whale." The IWC Schedule defines "strike" as meaning "to penetrate with a weapon used for whaling." The WCA implementing regulations define "strike" as "hitting a whale with a harpoon, lance, or explosive device" (50 CFR §230.2). Subsection 916k of the WCA provides that regulations of the IWC are "effective with respect to all persons and vessels subject to the jurisdiction of the United States." For purposes of analyzing the Tribe's request, we therefore interpret the WCA definition of "strike" to be consistent with the IWC Schedule.* The SDEIS defines "strike" - *As defined by the July 2012 Schedule to the [ICRW], strike means to penetrate with a weapon used for whaling.* That appears contrary to the DEIS, above. Does the IWC elsewhere support the Maka definition in writing, where a strike is counted only if it will result in the death of a whale and it has to be "embedded" in a whale? Our enabling domestic WCA describes only hitting a whale, as NMFS concludes. It seems the Makah definition is invalid and must be changed to the WCA definition. The WCA definitions are too open to interpretation when they claim to be equal in impacts on gray whales (GWs). As currently stated, "striking" a whale can result in minor to major wounds. Allocating 18 and 12 strike allowances (physically hitting a whale with a weapon), page 12, (winter/spring and summer fall) can be all misses but could result in serious injuries and invalidates the SDEIS/DEIS category counts and allocations among gray whale groups exposed to the Makah hunt.	International Convention for the Regulation of Whaling, strike means to penetrate with a weapon used for whaling." This is applied consistently throughout the documents to analyze the alternatives If a waiver is granted, the hunt regulations would include a definition of strike.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			We believe it is essential that NMFS include photos, properties and dimensions of all weapons proposed (including darting gun and shoulder gun). If the toggle head has to penetrate 6 inches into the whale to hold, for example, we need to know this to weigh the harm of the resulting injury if it falls out. That is critical to understanding whether it is reasonable not to count it as a strike and the type of would it is likely to create. An example of our concern and reason for believing our request should be agreed to is in part exampled in the 1999 hunt. The type of potential wounds must be considered throughout. To do that, we need exact descriptions with measurements and photos for reviewers to consider. NMFS could help by searching for the latest literature that describes the after effects of tags. See our section on Wounds. For instance, p. 1 - 37 of the DEIS - Whale hunting resumed on May 15, 1999, day three, near Father and Son Rock, Ozette Island, and the Bodeltehs (Gosho 1999), south of the RNA (NMFS 1999) and within 2 miles (3 km) of shore. ...Around 11:00 a.m., the whalers sighted a whale and threw a harpoon, which was assumed to contact the whale because the wooden harpoon holder was split, and the float disappeared underwater for a short time (Gosho 1999; NMFS 1999). The strike did not appear to penetrate or embed in the animal because the harpoon head was intact and clean, the throw was parallel to the animal (rather than perpendicular), and the float resurfaced (Gosho 1999; NMFS 1999). Because the harpoon did not embed in the whale and did not appear to cause serious injury, it did not meet the definition of a strike under the 1998 Gray Whale Management Plan (Gosho 1999; NMFS 1999). Under that plan, a strike counted only if the harpoon embedded in the whale and if it might have resulted in death or serious injury. https://media.fisheries.noaa.gov/dam-migration/2015-makah-deis-508.pdf	Subsection 3.15.3.5, Hunt Methods, of the DEIS and FEIS include a description of the weapons associated with the hunt. We disagree that photographs are needed in order to conduct a sufficient analysis and comparison of the action alternatives. A definition of unsuccessful harpoon attempts was added to the FEIS glossary.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			Elsewhere, it was noted the harpoon shaft split, and the floats were underwater for a bit. Adding more confusion, at least to this reviewer, the SDEIS uses "harpoon attempts' with Table 4-11 serving as the example. This is not defined in the glossaries of the DEIS/SDEIS. Green Vegans assumes this is a weapon launched as attempted but does not contact the whale. This and related terms should be included in the glossary and made more clear to reviewers. Further, the delay in getting the ID of affected whales, including "unsuccessful harpoon attempts," can easily result in exceeding allowances allocated in mixing proportions.	
			Comments by page Page 5 - The last line, "In 2021 the Scientific Committee reviewed the... UME... and concluded it fell within the testing parameters for the SLA (Givens and Weller 2021). As I recall, the Committee used data from 2020. Please address whether the IWC Scientific Committee has been and still is using old data the NMFS should not be used to substantiate the content of the SDEIS. We are offering many documents in our comments in the hope they will be useful and improve the SDEIS.	Subsection 3.4.3.3.3, ENP Abundance and Trends-IWC Implementation Review of ENP Gray Whales, describes the recent Implementation Review process completed by the IWC SC in 2020. The SC reviewed more recent information in 2023, including updated abundance estimates and stranding data, and determined that the SLA and Makah Management Plan are robus to the current UME as well as future mortality events.
			Page 9 - THIS APPLIES TO ALL PAGES of the SDEIS and 2015 DEIS - 2.1.1 Location of the Hunt. Throughout the SDEIS and DEIS, the hunt area is described only generally as occurring in the Makah U&A. As the MUA extends up to 40 miles from the Makah shorelines, we would hope that the proposed hunting area of expected effort was more clear. It seems reasonable to think hunting within two miles of shore will increase and decrease the likelihood of hunting specific populations of PCFG and, perhaps, WNP whales. There was only one reference in the SDEIS to the "proposed hunt area." Further, there is no map we can find of any hunt area. We couldn't find a map for a shore or offshore hunt. Table 2-A, describe the hunt area as an open-ended U&A west of Bonilla-Tatoosh line; no whale may be struck within 200 yards (183 m) of Tatoosh Island	The hunt area under each alternative is described in Table 4-1.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			or White Rock during the month of May. After a long search, we found mention of 3.1 miles in the context of a past hunt and one note of an offshore hunt five miles from shore on page 4-90 of the 2015 DEIS. Please clarify this important element.	
			We would like to know the estimated likelihood of Makah hunt "allocations" spread between ENP, WNP, OR-SVI, and PCFG whales. We have included a map plotted with the actions taken by the Makah in the May 1999 hunt including the kill. I believe the coordinates were from: Gosho, M. E. 1999. (Report of the NMFS observer monitoring the Makah gray whale spring hunt in 1999. Unpublished NMFS-NMML Report). I can no longer find it.	It is unclear what the commenter means by "allocations." Section 4.4 of the FEIS analyzes the impacts of the hunt on the ENP and WNP gray whales stocks as well as the PCFG and gray whales using the OR-SVI or Makah U&A areas.We note the map plotting the 1999 hunt.
			Page 10 & 11 at 2.1.7 AND 4.1.6.6 Low Abundance Thresholds - An approach is defined here " as causing a hunting or training vessel to be within 100 yards of a gray whale." We oppose any approaches and hunting to WNP whales at any time, including the proposed November 1 through June 30 season for all action alternatives. A new paper, SC/68D/CMP/09 Gray whale (Eschrichtius robustus) migratory movements between the western North Pacific and the Mexican breeding grounds: 2022 Update S. Martínez-Aguilar, et al. In part, M*ovements between the WNP and ENP represents 12.6% of gray whales identified of Sakhalin Island and Kamchatka, and the 0.4% of the gray whales identified in the breeding lagoons of Baja California peninsula Mexico. From the 48 gray whales that have migrated between WNP and Mexico, 16 of them have migrate to Mexico at least twice in dif erent years (range from 2 to 5 migrations). ... During the last 23 years, 18 female whales from the Western Pacific have been seen with a calf in the breeding grounds in Mexico, and they represent an important proportion of the reproductive capacity of the WNP population (Table 2).* https://www.sanignaciograywhales.org/wp-content/uploads/2022/05/SC_68D_CMP_09-Mart%C3%ADnez-et-al-	Comments on approaches to WNP gray whale are noted. See also Appendix C Responses to Frequent and Substantive Comment #18-Maintenance of a WNP photo-ID catalog in light of changing U.S.-Russia relations.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			movements-west-east.pdf) However, it appears not all WNP ID photos are directly available to many researchers (pers comm) outside of Russia. Note the catalogs of WNP whales cited in the above study stopped in 2016 (under Methods). That is a problem as it leaves ENP researchers unable to do their own photo comparisons. Given S. Martínez-Aguilar, et al. found two new WNP whales in 2022, and the missing Sakhalin Island and Kamchatka Peninsula photo IDs, the SDEIS appears uninformed as to the number of WNP GWs that may be inadvertently struck or displaced by the proposed Alternatives. Further, we are unable to get the refined location and behavior of three tagged WNP GWs, two of whom are shown in Fig.1 as migrating along or through the MUA. We ask NMFS to get the tagging data as transmitted to determine when, where, how direct or indirect while in the MUA, and how long the two WNPs were there. (Mate Bruce R. et al. 2015 Critically endangered western gray whales migrate to the eastern North PacificBiol. Lett.112015007120150071 https://royalsocietypublishing.org/author/Mate%2C+Bruce+R) That study was done in 2010/11. They were fairly young and were fast swimmers overall. However, we are aware of no data for WNP females with calves who won't be swimming that fast, and perhaps resting or eating along the U.S. coastline, including the MUA. We already know the locations of WNPs off of SVI Weller DW, Klimek A, Bradford AL, Calambokidis J and others (2012) Movements of gray whales between the western and eastern North Pacific. Endang Species Res 18:193-199. https://doi.org/10.3354/esr00447). While the Makah and observers will certainly do their best not to strike	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			WNP calves, it can be difficult to be certain. The SDEIS Glossary defines, C*alf (whale) = As defined by regulations Implementing the Whaling Convention Act, a calf is any whale less than 1-year old or having milk in its stomach.* Yes, skin color and any number of clues may be apparent, but this commenter witnessed on-water several Makah approaches and the difficulty of making that last-minute decision to strike or not from such a low position to the surface of the water in the Hummingbird. Observers may not have time to make determinations with a whale surfacing close to the whaling canoe. Given calves can be 9.2 meters (30 feet) at the end of the first year of life (Selina Agbayani, Sarah M E Fortune, Andrew W Trites, Growth and development of North Pacific gray whales (Eschrichtius robustus), Journal of Mammalogy, Volume 101, Issue 3, 22 May 2020, Pages 742–754, https://doi.org/10.1093/jmammal/gyaa028), we ask NMFS to calculate the expected size of a WNP calf at whatever timeframe in the MUA for which the Makah may be given an Incidental Take Permit. Aside from an unlikely attempt to strike, as stated, estimated calf size at possible time of arrival when making approaches at 100 yards and closing. There is no precaution excessive in protecting the WNPs, and this will apply to ENPs. Green Vegans plotted the approximate distance from the location cited in Weller to Tatoosh Island/Cape Flattery (a clearly known location). One can add a range of distances to locations likely to be impacted in the MUA using Google maps: 1. RUS-U.S. 002 / CRC 0817 M 94-95, 97, 99-01, 04-09 02 May 2004 48°41.41'N 124°58.06'W = Total distance: 22.54 mi (36.28 km) 2. RUS-U.S. 032 / CRC 1045 1 M 97-98, 01-05, 07-10 25 April 2008 48°53.81'N 125°24.54'W = Total distance: 46.18 mi (74.32 km) 3. RUS-U.S. 035 / CRC 0809 2 M 95, 97, 98-07, 09-10 02 May 2004	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			48°41.41'N 124°58.06'W = Total distance: 21.50 mi (34.61 km) 4. RUS-U.S. 078 / CRC 0825 U 97, 99, 02-04, 06-10 02 May 2004 48°41.41'N 124°58.06'W = Total distance: 22.85 mi (36.78 km) 5. RUS-U.S. 119 / CRC 1040 3 F 03, 10 25 April 2008 48°44.01'N 125°07.70'W = Total distance: 28.96 mi (46.61 km) 6. RUS-U.S. 135 / CRC 1042 4 F 04 25 April 2008 48°44.01'N 125°07.70'W = Total distance: 29.57 mi (47.60 km) However, this dated data examples how little we know about how many WNP GWs transit or otherwise use the MUA. We assume it impacts the fundamental calculations of mixing and the potential to strike one or more WNP gray whales. We believe (Moore and Weller, 2019) is too outdated to use to calculate the odds of striking WNP gray whales. Published in 2019, the data will not reflect the steep decline in ENP gray whale populations. We assume that fewer ENP gray whales as a ratio to known and unknown numbers of WNP gray whales are lower considerably. We do not have the statistical expertise to describe the result; only the possibility of the risk of striking/injuring WNPs is now higher with fewer ENP gray whales present.	
			Page 11 - Identifying the whales affected by the hunt. This applies to all of the SDEIS and 2015 DEIS if NMFS will be relying on this point. NMFS unrealistically states it will somehow document in a timely manner the ID of every whale the Makah impact. That stretches credibility. Insinuating they will have the ID in time to avoid exceeding the allocations for the various groups of whales should be explained. How is NMFS going to keep up when Alternative 7 allows 353 approaches while identifying the whale approached? Green Vegans suggests NMFS contracts with independent researchers, if any, who have proven ability to do this and are skilled at the identification catalogs and using the software to "quickly"	If a waiver is approved, hunt regulations would require that photo-comparisons be made after a whale is encountered or killed. We have assurances from researchers familiar with the WNP and PCFG catalogs that matches to those catalogs could be achieved in a matter of hours or at most a few days. Furthermore, the permitting process allows NMFS to limit the number of strikes, training harpoon throws, and approaches within the permit period should NMFS deem it appropriate, for example if the limits

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			find matches. We do not understand how NMFS intends to apply the SDEIS, tracking impacts, ID whales, and all the rest of the hunt criteria proposed by Alternatives 2 - 7 by documenting the affected whales. The implementation of the SDEIS/Waiver/Incidental Take Permit, if granted, depends on this one function. Please give details and discuss why NMFS creates approach and strike scenarios on a relatively small sample size of Makah hunt activity.	on striking PCFG whales or PCFG females are likely to be met within that permit period.
			Page 34 - "The Makah U&A abundance estimates increased from 18 animals in 1996 to 119 animals in 2020." Good to know, but that and the statements in that paragraph say nothing of the impacts imposed on the MUA and the ongoing UME. If we missed that information, please direct us in your response.	We disagree. The analysis in the SDEIS augments the information in the 2015 DEIS and incorporates Alternative 7. We have compiled the information in the DEIS and SDEIS, and updated as appropriate, within the FEIS making it more accessible to the reader. The impacts to WNP whales are evaluated under each of the action alternatives. The SDEIS and FEIS consider the need for an incidental take authorization. For example, section 2.3.7.1.1 of the FEIS, which is on Alternative 7notes that "in order to receive a permit for a winter/spring hunt, the Tribe must also obtain an Incidental Take Authorization (ITA) under the MMPA for WNP whales." If a waiver is granted and an ITA is needed, there would be additional opportunities for public comment.
			Page 60 at 4.1.6 Alternative - Of the three thresholds proposed, we are already below 7c, and with near certainty, the UME will soon/has already triggered 7b. [Eguchi, Tomoharu; Lang, Aimée R.; Weller, David W.Title (2022) Eastern North Pacific gray whale calf production 1994-2022] using older data that includes a crashing calf count of 216.7. 7a is a nonstarter as	The recommendation that the threshold of 11,000 is a nonstarter is relative to the implementing regulations if a waiver is granted. It does not inform the analysis of the alternatives which, for Alternative 7 include a

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			a reduction to 11,000 gray whales will likely result in petitions to re-list under the ESA. For the purposes of the SDEIS, presumably, the three thresholds already stop the Makah hunt unless we are missing something.	range of low abundance thresholds and a subalternative with no abundance threshold.
			Page 63 - Potential number killed. The number killed is stated to be dependent on abundance estimates of the PCFG and ENP whales and the best available estimates for WMPs. There should be a requirement that those abundance estimates use data aged less than one calendar year during the UME.	The comment on the abundance estimate and the recommendation, if a waiver is granted, for a requirement in the regulations to specify the "age" of the abundance data are noted. The comments do not provide any information to inform the analysis of alternatives under NEPA.
			Page 64 - Potential Number of unsuccessful harpoon attempts and approaches. As an environmental impact statement, why is the allowed number of approaches and “harpoon attempts” calculated on how the Makah have hunted in the past instead of its impact on the whales and ecosystems frequented by the three groups cited? NMFS must recalculate approaches and not propose a maximum of 353/142 of them (Page 65) based on Makah practicing and attempting kills. As NOAA/NMFS is aware – since they concede to this point in the SDEIS, the behavior of gray whales during the migratory season and during the summer/fall period can be very different with gray whales during the winter season “making them more vulnerable to a successful strike.” SDEIS at 64. Despite admitting that whales encountered during the summer/fall season may be more susceptible to lethal strikes, inexplicably, NOAA/NMFS continues to rely on the 6:1 ratio for its impact assessment versus developing an estimate that may be more applicable to a hunt during the summer/fall season. At a minimum, please review seasonal differences to ensure that the behavior of gray whales during the different seasons is sufficiently considered and allowed stikes and approaches to be re-evaluated.	The NEPA analysis considers a range of alternatives which have different potential numbers of unsuccessful harpoon attempts and approaches. The impacts of these alternatives on the whales and ecosystems described are assessed and compared. As described in the section cited, we acknowledge that the ratio could be lower during summer/fall hunts given likely differences in behaviors. Nevertheless, we use the observed ratio of 6:1 fas that represents the best information available based on experience from the 1999 and 2000 hunts. We are not aware of, nor has the commenter provided, any data to inform a different ratio.
			Page 65 - Including darting guns and shoulder guns (grenades) into the DEIS/SDEIS seems arbitrary and capricious. They add other considerations that would need further clarification and review than	Section 3.4.3.1.1-Review of Hunting Methods in the DEIS and FEIS describes the basis for including alternative hunting methods such as grenades. While

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			offered. Safety is different, training, noise, cost, increases in strikes lost that create larger wounds, damaged meat and other parts the Makah wish to have, and the inappropriateness of scale. These are not bowhead whales. The SDEIS inadequately addresses these concerns. Please delete darting guns and shoulder guns (grenades) unless the Makah have made that intention known so it can be stated for public understanding of the impacts. We address wounds in this context elsewhere.	it is likely the Makah would use a rifle in any hunt, we have analyzed these alternative weapons for the reasons described.
			Page 87 - Second sentence. As we commented before on approaches, NMFS is c*alculating as many as 48 rifle shots ...annually* based on past Makah hunting efforts. We believe the SDEIS should first consider environmental impacts and safety and then do a recalculation of rifle shot allowances. Shooting at whales on the water is an uncommon skill beset with the unexpected. Please recalculate a reasonable, allowable number of shots except in an emergency for safety based on objective standards for dispatching whales. We do not know where you would find that, except don't use the whaling defacto use of smaller weapons on WNP gray whales.	Subsection 4.1.5.5, Potential Number of Shots Fired or Grenade Explosions, in the DEIS provides the basis for the estimates of potential shorts fired or grenade explosions. We believe using past hunt data is the best available information.
			Page 96 - Natural mortality. "Strandings. As of June 3, 2022, 578 gray whales. The ACS/LA Gray Whale Census of 2021-22 runs a bit longer, so it is no surprise that their number of strandings is higher at 606, with the difference coming from 2022. NMFS source of 2022 strandings, 76, is Eguchi et al. (October 2022). Green Vegans does not know if or how much this impacts the statistical assumptions in the DEIS/SDEIS, but we ask it to be reviewed.	The stranding data has been updated in the FEIS and considered in the impact assessment.
			Page 96 - Last paragraph. ...only two UME whales have been identified to date as PCFG animals. Our response is we request this be checked with the most recent papers available for body condition data on PCFGs. We believe this study that establishes a baseline for PCFGs is at https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.3094, which is not included in the SDEIS.	We have confirmed with researchers working on the UME that this statement is accurate. The study cited assessed the body condition of ENP gray whales on foraging ground from 2016–2018.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			GLOBAL COMMENTS - other threats and considerations inadequately addressed in the rushed publishing of the SDEIS- The literature cited in the 2015 DEIS are, of course, often outdated, as is the SDEIS. NEPA and the MMPA require the best information available in NMFS' decision-making. The Pandemic contributed to that delay and dated data, perhaps. For whatever reason(s), knowing the long-standing annual counts of migrating gray whales is critical. The ACS/LA GRAY WHALE CENSUS AND BEHAVIOR PROJECT: 2021-2022 (www.acs-la.org) runs longer and includes both northbound and southbound migrating gray whales, while NMFS conducts northbound counts over a shorter timeframe.	We have considered the literature included in the letter as described below and incorporated it into the FEIS, as appropriate.
			- Both efforts reflect the ongoing UME. We ask NMFS to include all three counts as soon as they are available and withdraw the NEPA DEIS/SDEIS effort until the UME is resolved, as there seems to be no way forward until the UME has ended and gray whales have recovered. Unfortunately, both the DEIS and SDEIS give too little weight to the 2019-to-present UME is longer than the previous two UMEs cited. Both documents fail to consider this UME will easily be unique as it is likely to be driven in large part by the impacts of global warming, and all the geophysical changes, for better or worse in different areas, is different this time. The ongoing climatic conditions are extreme and have a destructive inertia that will last for millennia (https://www.ipcc.ch/report/ar6/wg2/).	See Appendix C Responses to Frequent and Substantive Comments #19-Ongoing UME. See also Section 3.4, Affected Environment-Gray Whales, and Section 4.4, Environmental Consequences-Gray Whales, of the FEIS.
			- New feeding opportunities may be created if gray whale prey can adapt quickly enough to be abundant and timely for gray whale use. The heretofore benthic prey was the mainstay for gray whales. Many questions remain about the caloric content of available pelagic and benthic prey species as ecosystems undergo rapid change. An example is Kędra and Grebmeier, 2020. Ecology of Arctic Shelf and Deep Ocean Benthos, https://onlinelibrary.wiley.com/doi/abs/10.1002/9781118846582.ch12.The	We have updated the FEIS to include recent literature (e.g. Stewart et al. 2023) on ecosystem impacts and climate change.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			monumental changes are best guesses and models cannot reliably the outcome of factors like human societal stability.	
			- A paper on prey and whale distribution not in the SDEIS is Moore, S. E., Clarke, J. T., Okkonen, S. R., Grebmeier, J. M., Berchok, C. L., & Stafford, K. M. (2022). Changes in gray whale phenology and distribution related to prey variability and ocean biophysics in the northern Bering and eastern Chukchi seas. PLOS ONE, 17(4), e0265934. https://doi.org/10.1371/journal.pone.0265934 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0265934	Moore et al. (2022) has been considered in the FEIS.
			- On a more local scale important to the PCGG is Port Orford OR prey availability and GW foraging. Data 2018 - 2020 See whale quality v quantity. Also, Gray whale foraging ecology in the quality and quantity of prey available to PCFG gray whales may be associated with ongoing declines in kelp forests along the US west coast triggered by a marine heatwave that occurred from 2013−2015 (Rogers-Bennett & Catton 2019, Starko et al. 2019). While the effects of kelp declines on zooplankton, particularly mysids, are unknown, reduced kelp habitat frequently causes altered community species composition (Sanford et al. 2019) and lasting ecological impacts (Rogers- Bennett & Catton 2019). Indeed, we noted a sharp decline in kelp abundance across years in the study area, particularly in the TC site (L. Torres pers. obs.), which may influence the zooplankton community given the significant relationship we documented between zooplankton abundance and kelp habitats. https://www.int-res.com/articles/meps_oa/m695p189.pdf	Sanford et al. (2019) and Hildebrand et al. (2022) have been considered in the FEIS. The other papers cited do not provie additional information that would inform the impacts analysis. The impacts of marine heatwaves, including on kelp forests, are discussed in Subsection 3.3.3.2.1, Physical Features and Processes- Dynamic Proccesses and Variability, of the FEIS.
			- There are UMEs for other species in the Arctic as well, including three species of ice seals whose benthic food sources are in decline (https://www.fisheries.noaa.gov/alaska/marine-life-istress/2018-2022-ice-seal-unusual-mortality-event-alaska) indicating the challenges for many species.	We agree that there are challenges for many species, and those stressors relevant to the proposed action are considered in section 5 of the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			- Emphasizing earlier points with the same papers, given the ongoing UME, NMFS may be minimizing the impacts of the Makah hunt that can be tolerated because the newest research is not included.	See responses above.
			-Green Vegans believes the usefulness of the SDEIS requires more discussion on the forces that drive site fidelity so often cited in papers. They include: [Site fidelity and social indicators along Vancouver Island]: Burnham, R.E.; Duffus, D.A. A Multi-Dimensional Examination of Foraging Habitat Use by Gray Whales Using Long Time-Series and Acoustics Data. Animals 2022, 12, 2735. https://doi.org/10.3390/ani12202735 https://www.mdpi.com/2076-2615/12/20/2735Filatova, O.A., Fedutin, I.D., Pridorozhnaya, T.P. et al. Bottom-feeding gray whales Eschrichtius robustus demonstrate a finer scale of site fidelity than pelagic-feeding humpback whales Megaptera novaeangliae on an Arctic feeding ground. Polar Biol 45, 1013–1021 (2022). https://doi.org/10.1007/s00300-022-03048-x	Burnham et al. (2022) and Filatova (2022) have been considered in the FEIS.
			- Another subject we feel essential to all ENPs is the contribution of resiliency distinct populations and their feeding areas. Examples: Torres, L. G., Bird, C. N., Christiansen, F., Bejder, L., Lemos, L., Urban R, J., Swartz, S., Willoughby, A., Hewitt, J., & Bierlich, K. (2021). Range-Wide Comparison of Gray Whale Body Condition Reveals Contrasting Sub-Population Health Characteristics and Vulnerability to Environmental Change. Frontiers in Marine Science. https://doi.org/10.3389/fmars.2022.867258 Blanchard, A. L., Demchenko, N. L., Aerts, L. A. M., Yazvenko, S. B., Ivin, V. V., & Shcherbakov, I. (2022b). Benthic studies adjacent to Sakhalin Island, Russia, 2015b I: benthic biomass and community structure in the nearshore gray whale feeding area. Environmental Monitoring and Assessment, 194, 194. https://doi.org/10.1007/s10661-022-10017-8 The results of these studies provide valuable input to larger bio-energetic	Torres et al. (2022) has been considered in the FEIS.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			frameworks that predict how different levels of acoustic disturbance could affect foraging efficiency and ultimately vital rates, such as reproductive success and survival (McHuron et al., 2021; Pirotta et al., 2018, 2021; Schwarz et al., 2022b).	
			- Overall, there is objective evidence about how ENP gray whales migrate to the sub- and arctic feed along the way:Gelippi, M., Caraveo-Patiño, J., Gauger, M.F.W. et al. Isotopic composition of the eastern gray whale epidermis indicates contribution of prey outside Arctic feeding grounds. Sci Rep 12, 7055 (2022). https://doi.org/10.1038/s41598-022-10780-1 https://www.nature.com/articles/s41598-022-10780-1	Gelippi et al. (2022) has been considered in the FEIS.
			- Again, research has shown that the PCFG is not immune to environmental stressors like the current UME: Body condition of gray whales (Eschrichtius robustus) feeding on the Pacific Coast reflects local and basinwide environmental drivers and biological parameters https://journal.iwc.int/index.php/jcrm/article/view/223 (Of the known condition scores, 50% (359 total) represented good body condition, 37% (266 total) represented fair body condition and 13% (94 total) represented poor body condition. [over 18 years]). The SDEIS should employ more caution and wait to see how the UME plays out and provides new data. Further, if the PCFG suffers fewer losses from the UME, then that is a strong indicator that NMFS must finally declare the PCFG a separate management unit. See also page 27, second paragraph, last line citing Calambokidis and Perez (2017b).	Chapter 5 of the NEPA analysis considers impacts of environmental stressors on ENP gray whales, including PCFG gray whales. Comments related to the UME and waiting for new data as well as comments on the considerations are noted. See Appendix C Responses to Frequent and Substantive Comments #5-Stock status of the Pacific Coast Feeding Group (PCFG) of ENP gray whales.
			- Importantly, and a missed opportunity so far, the SDEIS is missing data that could be gathered using the longitude and latitude recorded from various recent studies on gray whales that could be plotted in a meta-analysis to create a far more defined understanding of where identified gray whales are spatially and temporarily, be plotted for habitat use and	We acknowledge the requet to conduct a meta-analysis to better understand gray whale distribution. The FEIS uses the best available information on distribution and abundance (see FEIS section 3.4.3, Existing Conditions).

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			movements, and perhaps in which "group" they belong. For instance, this study measured two types of steroids by biopsy. https://cascadiaresearch.org/publications/melica_etal_2022/ They have the longitude and latitude of gray whales that could be plotted and are associated with identified whales. We ask NMFS to contract for this meta-study. The DEIS/SDEIS needs refined data for proposed nearshore and offshore hunts and to allocate impacts accurately using refined data to more clearly anticipate which whales are vulnerable to impact given Makah and all human activities.	
			Western North Pacific Whales - no harm is acceptable to this endangered species. They must not be granted an incidental take permit, and hunting periods should preclude WNP gray whales from being in harm's way during the summer feeding season.	See Appendix C Responses to Frequent and Substantive Comments #12- Risks to WNP gray whales. The SDEIS and FEIS consider the need for an incidental take authorization. For example, Subsection 2.3.7.1.1 of the FEIS, notes that under Alternative 7, "in order to receive a permit for a winter/spring hunt, the Tribe must also obtain an Incidental Take Authorization (ITA) under the MMPA for WNP whales." If a waiver is granted and an ITA is needed, there would be additional opportunities for public comment.
			What is the REAL scope of baleen whale social organization?We, humans, tend to decide early on in our collective ignorance that we understand the lives of other species and then reckless act to their painful detriment: Tyack, P.L. (2022). Social Organization of Baleen Whales. In: Clark, C.W., Garland, E.C. (eds) Ethology and Behavioral Ecology of Mysticetes . Ethology and Behavioral Ecology of Marine Mammals. Springer, Cham. https://doi.org/10.1007/978-3-030-98449-6_7 This means that whales may be able to maintain contact over much greater ranges than are usually assessed by human observers—they may form long-range	FEIS Subsection 3.4.3.1, General Life History and Biology, describes, among other things, ENP and WNP gray whale population structure. The information provided by the commenter does not change the impact analysis under the alternatives.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			"heards" in addition to shorter range "herds." The social organization of whales during the breeding season is structured in part by songs—acoustic reproductive advertisement displays. The potential scale of "heards" is indicated by the ability of scientists to track one singing blue whale for 43 days as it swam > 1700 km. Scientists will start to develop a fuller understanding of the social organization of baleen whales when they apply methods that can make observations and test hypotheses over the temporal and spatial scales at which baleen whales move and communicate. We, humans, tend to decide early on in our collective ignorance that we understand the lives of other species and then reckless act to their painful detriment: Tyack, P.L. (2022). Social Organization of Baleen Whales. In: Clark, C.W., Garland, E.C. (eds) Ethology and BehavioralEcology of Mysticetes . Ethology and Behavioral Ecology of Marine Mammals. Springer, Cham. https://doi.org/10.1007/978-3-030-98449-6_7 *This means that whales may be able to maintain contact over much greater ranges than are usually assessed by human observers—they may form long-range "heards" in addition to shorter range "herds." The social organization of whales during the breeding season is structured in part by songs—acoustic reproductive advertisement displays. The potential scale of "heards" is indicated by the ability of scientists to track one singing blue whale for 43 days as it swam > 1700 km. Scientists will start to develop a fuller understanding of the social organization of baleen whales when they apply methods that can make observations and test hypotheses over the temporal and spatial scales at which baleen whales move and communicate.*	
			Toxic paralytic poisoning in the gray whales' arctic prey Lefebvre, K. A., Fachon, E., Bowers, E. K., Kimmel, D. G., Snyder, J. A., Stimmelmayr, R., Grebmeier, J. M., Kibler, S., Ransom Hardison, D., Anderson, D. M., Kulis, D., Murphy, J., Gann, J. C., Cooper, D., Eisner, L. B., Duffy-Anderson, J. T., Sheffield, G., Pickart, R. S., & Siddon, E. (2022). *Paralytic shellfish toxins in Alaskan Arctic food webs during the*	Subsection 3.4.3.1.1, Harmful Algal Blooms, of the DEIS and FEIS describes harmful algae blooms and marine mammals.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			anomalously warm ocean conditions of 2019 and estimated toxin doses to Pacific walruses and bowhead whales. Harmful Algae, 114, 102205. https://doi.org/10.1016/j.hal.2022.102205 This study reports Paralytic Shellfish Toxin (PST) concentrations quantified in Arctic food web samples that include phytoplankton, zooplankton, benthic clams, benthic worms, and pelagic fish collected throughout summer 2019 during anomalously warm ocean conditions. PSTs (saxitoxin equivalents, STX eq.) were detected in all trophic levels with concentrations above the seafood safety regulatory limit (80 µg STX eq. 100 g−1) in benthic clams collected offshore on the continental shelf in the Beaufort, Chukchi, and Bering Seas.	
			Specific to WNP gray whales Foraging & Habitat & Noise & Site Fidelity & Prey Bröker KC, Gailey G, Tyurneva OY, Yakovlev YM, Sychenko O, Dupont JM, Vertyankin VV, Shevtsov E, Drozdov KA (2020) Site-fidelity and spatial movements of western North Pacific gray whales on their summer range off Sakhalin, Russia. PLoS ONE 15:e0236649. https://doi.org/10.1371/journal.pone.0236649Important data on WNP prey (**also cites less than 200 pop**) Declining biomass in the Sakhalin Island feeding areas reflects broader ecological and climatic changes in the Sea of Okhotsk and is of concern for western gray whale population success (Blanchard et al., 2019; IUCN, 2019). https://link.springer.com/article/10.1007/s10661-022-10017-8Gailey, G., Zykov, M., Sychenko, O. et al. Gray whale density during seismic surveys near their Sakhalin feeding ground. Environ Monit Assess 194 (Suppl 1), 739 (2022). https://doi.org/10.1007/s10661-022-10025-8 https://link.springer.com/article/10.1007/s10661-022-10025-8 (**not in SDEIS**)A dated paper on Western grays vs ENP. Need to find newer. There are a number of topics discussed here aside from Behavioral response studies on western gray whales found that gray whales significantly changed their movement, respiration, abundance, and	FEIS Subsection 3.4.3.1, General Life History and Biology, describes, among other things, ENP and WNP gray whale population structure and Subsection 3.4.3.2, Western North Pacific (WNP) Gray Whales, describes WNP distribution, migration, and movements. We have considered Gailey et al.(2020) in the FEIS. The other papers cited do not provie additional information that would inform the impacts analysis. Non-lethal impacts are dicussed under the action alterantives in Chapter 4 (e.g., see section 4.4.2.1-Change in Abundance and Viability of the ENP Gray Whale Stock)

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			distribution despite employing mitigation approaches to minimize acoustic exposure levels (Gailey et al., 2007; Weller et al., 2002b; Yazvenko et al., 2007). https://link.springer.com/article/10.1007/s10661-022-10023-w	
			Orca predation - updated for your consideration Data is a little dated, but this 2022 paper cites **Orca predation** Willoughby, A.L., Stimmelmayr, R., Brower, A.A. et al. Gray whale (Eschrichtius robustus) and killer whale (Orcinus orca) co-occurrence in the eastern Chukchi Sea, 2009–2019: evidence from gray whale carcasses observed during aerial surveys. Polar Biol 45, 737–748 (2022). https://doi.org/10.1007/s00300-022-03015-6 https://link.springer.com/article/10.1007/s00300-022-03015-6	Willoughby et al. (2022) is considered in the FEIS. See also FEIS Subsection 3.4.3.1.6,Natural Mortality, and 5.1.3.8, Natural Mortality.
			SoundersThis group of gray whales demonstrates multi-year fidelity to areas around the San Juan Islands in the Salish Sea (Puget Sound). The main attraction is prey. Their numbers are increasing, as is often the length of time they remain before continuing the migration north. But they are lumped into the ENP population they eventually join. Green Vegans believes they should be a separate management unit due to their value to the ecosystem, whale-watching businesses, and research. We see no indications of mitigation efforts to avoid these whales who may pass through the Makah U&A as they transit into and out of the Strait of Juan de Fuca in the proposed hunt area of the MUA. The Strait is protected but not beyond its western entrance. Due to the well-defined habitat use, we believe the DEIS/SDEIS must designate them off-limits and impose mitigation criteria to prevent their exposure to hunting.	Appendix C Responses to Frequent and Substantive Comments #21-Managing Sounders as a separate population.
			Vessel Strikes Oldach, E., Killeen, H., Shukla, P., Brauer, E., Carter, N., Fields, J., Thomsen, A., Cooper, C., Mellinger, L., Wang, K., Hendrickson, C., Neumann, A., Bøving, P. S., & Fangue, N. (2022). Managed and unmanaged whale mortality in the California Current Ecosystem. Marine Policy, 140, 105039. https://doi.org/10.1016/j.marpol.2022.105039 *For*	Chapter 5 considers the cumulative impacts, including impacts on gray whales, from a range of stressors. This includes vessel strikes and entanglements and the likelihood that they will continue/increase in the foreseeable future.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			example, whale entanglement in fishing gear within the CCE has increasingly affected blue, gray, and humpback whales over the past decade [118]. Vessel strikes also cause significant mortality. Based on recorded events, vessel strike has particularly affected endangered fin and humpback whales [62] and non-endangered gray whales [163]. Recorded instances of entanglement and vessel strike represent a small percentage of the number of events taking place [146]; together, entanglement in fishing gear and strikes from vessels have been identified as key factors inhibiting the recovery of CCE whales [19], [71], [89] Silber GK, Weller DW, Reeves RR, Adams JD, Moore TJ (2021) Co-occurrence of gray whales and vessel traffic in the North Pacific Ocean. Endang Species Res 44:177-201. https://doi.org/10.3354/esr01093 ***The number of gray whales killed by ship strikes each year may be in the tens, or perhaps the low hundreds.*** *Additional analyses, including quantitative assessments, are warranted to further clarify the risk of vessel strikes to gray whales. From PDF of same paper - Calves that follow their mother in their first migration were likely to return to the same site in the years after weaning. This suggests a maternal aspect to the use of foraging areas.*	Silber et al (2021) is considered in the FEIS.
			Changes to ecosystems used by ENP and WNP gray whales *Strong reference to Western Pacific arctic.* Frey, K.E., J. Clement Kinney, L.V. Stock, and R. Osinski. 2022. Observations of declining primary productivity in the western Bering Strait. Oceanography, https://doi.org/10.5670/oceanog.2022.123. The observations of change in the western Bering Strait reported here provide an important example of the heterogeneity of ecosystem responses to climate change, where primary productivity does not always increase with declines in sea ice cover. Moreover, it is important to consider how environmental changes such as sea ice decline can have vital impacts on ecosystem functioning not only	The FEIS has been updated to include recent literature on ecosystem changes and impacts on gray whales. For example, see incorporation of Stewart et al. (2023); FEIS sections 3.4.3.1.1, ENP Status, Carrying Capacity, and Related Estimates; 5.1.3.0, Climate Change and Ocean Acidification; and 5.1, Gray-Whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			locally but also through resulting impacts on nutrient delivery downstream along a conveyor belt system of ocean currents.ENP Gray Whales.C. M. Payne, G. L. Dijken, K. R. Arrigo, North-South Differences in Under-Ice Primary Production in the Chukchi Sea From 1988 to 2018, Journal of Geophysical Research: Oceans, 10.1029/2022JC018431, 127, 7, (2022). As sea ice has thinned and retreated, phytoplankton blooms have changed in the Arctic Ocean. In the Chukchi Sea, large phytoplankton blooms have shifted earlier in the year and are even generated when the ocean is covered in sea ice, a period previously assumed to be too light-limited to allow for blooms. We use a 1-D model to understand how changes in phytoplankton productivity could influence the nitrogen (N) cycle in the northern Chukchi Sea. We found that increasing under-ice blooms (UIB) have led to increases in the export of particles to the sediments, which has subsequently led to an increase in both N recycling (nitrification) and N loss (denitrification) in the sediments. The increases in N loss in the region would likely negatively affect downstream ecosystems, where there could be less N available. We also investigated how a change in N supply to the region might affect phytoplankton blooms and the N cycle. We found that 30% of all added N was lost through denitrification, which would also diminish the N available downstream of the Chukchi Sea. By increasing the export of particles to the seafloor, UIBs can markedly alter the N cycle both in the Chukchi Sea and in downstream waters.	
			Noise Aerts, L. A., Jenkerson, M. R., Nechayuk, V. E., Gailey, G., Racca, R., Blanchard, A. L., et al. (2022). Seismic surveys near gray whale feeding areas off Sakhalin Island, Russia: assessing impact and mitigation effectiveness. Environmental Monitoring and Assessment, 194. https://doi.org/10.1007/s10661-022-10016-9	Aerts et al. (2022) is considered in the FEIS (see 3.4.3.6.5, Offshore Activities and Underwater Noise.)
			WoundsThe third paper has the most to offer. I was trying to back up my request NMFS change the way it counts as a strike, determining harm to	Each of the action alternatives includes limits on struck and lost whales. We believe that this

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			any skin penetration. As part of that, I ask for a complete description with photos of all possible whaling geat including the Makah hand-held harpoon and .50 caliber gun, as well as the darting and darting gun that would use penthrite grenades on these gray whales that might be used for the duration of the proposed waiver. Our request is for our understanding of the types of wounds these weapons would create in struck-and-lost scenarios.Moore MJ, der Hoop Jv, Barco SG, Costidis AM, Gulland FM, Jepson PD, Moore KT, Raverty S, McLellan WA. Criteria and case definitions for serious injury and death of pinnipeds and cetaceans caused by anthropogenic trauma. Dis Aquat Organ. 2013 Apr 11;103(3):229-64. doi: 10.3354/dao02566. PMID: 23574708. https://www.int-res.com/articles/dao_oa/d103p229.pdfTagging responses wounds- https://fwcs.oregonstate.edu/sites/agscid7/files/best_2015_mms12168.pdf Norman, Stephanie & Flynn, Kiirsten & Gulland, Frances & Paz, La & Douglas, Annie & Calambokidis, John & Gendron, Diane. (2017). Assessment of wound healing of tagged gray (Eschrichtius robustus) and blue (Balaenoptera musculus) whales in the eastern North Pacific using long-term series of photographs. Marine Mammal Science. 34. 10.1111/mms.12443. https://www.researchgate.net/figure/Percentage-of-wounds-associated-with-satellite-tagged-gray-and-blue -whales-at-any-point_fig5_319464348 OR file:///C:/Users/conta/Downloads/Norman_et_al-2017-Marine_Mammal_Science.pdf *Tag siteappearance and healing characteristics were evaluated by two reviewers and a time series evaluated by five veterinarians from photographs during 995 postdeployment encounters with 34 gray and 63 blue whales tagged in the North Pacific. Blue whale resightings were less frequent, but spanned a longer time period due to earlier tag deployments than the more frequent gray whale follow-up observations. Swelling occurred in 74% of reencountered gray whales, with the highest frequency 6 mo*	information is sufficient to provide a comparative analysis and that an analysis of wounds from tagging studies is not necessary.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			postdeployment. Swellings were common in blue whales with early tag designs but rare with current models. 1 Corresponding author (e-mail: stephanie@marine-med.com). 1 Depressions occurred in 82% of gray and 71% of blue whales. This study demonstrates the value of follow-up studies of tagged animals and systematic scoring of photographs to quantitatively compare tag response. AND*Changes in coloration of the epidermis at or immediately adjacent to the tag site were observed for some of the whales. Gray whales appeared to have more reactive skin based on the degree of epidermal color change. At least 39 blue (70%) and 33 gray (97%) whales experienced at least a mild degree of skin discoloration at or near the tag site. The mean length of time to resolution of discoloration was 4.4 yr in blue whales. Mean time could not be calculated for gray whales as the progression of color change was still ongoing at the last encounter.*AND *Each veterinarian was asked to review the images and subjectively answer the following question, based on the entire collective series of photographs for each whale: "To what degree does the evidence presented in this animal's set of tagging and posttagging photographs indicate a risk to the long-term health of this individual?" Responses were on a 5-point scale with 1 "Unlikely," 2 "Somewhat Likely," 3 "50-50 Likelihood," 4 "Likely," and 5 "Highly Likely."*AND**Veterinary Assessments** *In general, subjective scoring among the veterinarians agreed on whether some whales were at elevated potential health risk. However, there was often disagreement on the magnitude of that elevated potential risk using our subjective scoring levels (five levels from Unlikely to Highly Likely). Only 10% of the scores for either species was thought to have 50% Likelihood or greater potential health risk (Fig. 9). Dif erences between blue and gray whales were apparent, however, in the distribution of the scores for the Unlikely or Somewhat Unlikely categories (Fig. 9). In 56% of gray whales, the scores indicated that there was a Somewhat Likely potential risk to the animal's long-term health, whereas thatwas only 9%*	

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			for blue whales. Though 85% of blue whales scores were judged as Unlikely potential risk, three whales (5%) were assessed as having the highest subjective risk (Highly Likely), primarily as a result of these being three blue whales with large swellings of longer duration (discussed below). In two blue whale tagging events (CRC IDs 1573 and 2208), with External tags, the high mean veterinary scores suggested a Likely risk (scores of 4 and 4.4 out of 5, respectively) to the animals' long-term health based on the photographic evidence (see next section for details on these two animals). Scoring of tag wound healing in these animals revealed an External tag that resulted in high-grade swelling and medium-grade depression formation. Comparisons between wound scoring and veterinary assessment scoring revealed that animals with greater severity scores were those the veterinarians tended to be more concerned about as revealed by their higher scores...On 12 occasions (n = 9; 32.1% of gray and n = 3; 5.4% of blue whale tagging events) physical scoring of tag wound healing was assigned a high-grade score for swelling and/or depression; however, the corresponding veterinary scoring of risk was ≤50–50 Likelihood risk to long-term health of the individual, particularly if the wound progressed toward resolution as evidenced by smooth edges, absence of any swelling or medium to largesized depressions, and lack of discharge or soft tissue protrusion. And*In general, wounds tended to go through a progression, in which some developed swelling that usually resolved, but in a few cases persisted for several years. Based on the two whales with the largest, most persistent swelling, broken tag parts left in animals (from the earlier tag designs) appear to have the greatest visible long-term consequences until they are expelled.*	
			Humaneness Addressed on page 3-16, in the 2015 DEIS and not updated in the SDEIS. We believe the definition of "humane" must be updated in the SDEIS. Gray whales wintering along the West Coast, particularly in calving	Appendix C Responses to Frequent and Substantive Comments #1-Potential for a hunt to cause pain or suffering to whales.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			lagoons, are naive to humans in boats acting violently toward them. This reviewer has witnessed these "friendly whales" initiate intimate contact and often present their newborn, vulnerable calves to tourists for physical contact countless times in Upper Magdalena Bay over several months and three years. In 1999, I assisted Dr. Toni Frohoff in organizing a gray whale watch trip from Neah Bay. It was free; the Makah were invited, though few came. It was not long before a gray whale swam up to the sizeable whale watch vessel, where we all got a great up close look created by the approach of this whale. Adults and children alike were thrilled. This was just a few hundred yards east of the entrance of the harbor at Neah Bay. Humaneness is the DEIS/SDEIS referencing time to death, minimizing pain. There is no way to humanely kill a whale except with an accurate high-caliber bullet to the brain case. That won't happen in the proposed Makah hunt. That sorry, painful suffering definition of "humane" was a product of the MMPA and IWC to compromise with whale killers. We believe NMFS must add that truth to the DEIS/SDEIS. NEPA and the MMPA require accurate, factual descriptions of the impacts, even when unpleasant. We don't have words for what happens when a naive gray whale who has been touched by tourists in calving lagoons approaches a boat or trusts a canoe and then is harpooned and shot multiple times. That lasted eight minutes in 1999. The SDEIS must correct that using the science that defines sentience and suffering. There is no other way to measure the impacts of the proposed Makah Tribe Request to Hunt Gray Whales.	
			Human Ecology is our approach to the self-defeating harms that are wrecking the living systems of Earth we all have a part in creating. We	This closing comment is noted.

Document ID NOAA-NMFS-2012-0104-	Name	Date Received	Comment	Response
			advocate an intentional human ecology across cultures, tailored to cultures as the only comprehensive approach that can work to have any possibility of regenerating ecosystems to the extent possible, as kindly as possible. That is how we approach the SDEIS. Feel free to understand more about Green Vegans/The New Human Ecology that goes way beyond veganism.	

Appendix E

Responses to Comments on the 2015 Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales

NMFS West Coast Region's Draft Responses to Comments on the 2015 Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales

November 2019

Introduction

On March 13, 2015, we – the West Coast Region of the National Marine Fisheries Service (NMFS) – released a Draft Environmental Impact Statement (DEIS), pursuant to the National Environmental Policy Act (NEPA), concerning the Makah Indian Tribe's February 2005 request to resume limited hunting of eastern North Pacific (ENP) gray whales for ceremonial and subsistence purposes. We made the DEIS available for public review for 90 days (80 FR 13373, March 13 2015) and, in response to several stakeholder requests, later extended that initial public comment period by an additional 50 days (80 FR 30676, May 29, 2015). We also held two public meetings on the DEIS on April 27 (Seattle, WA) and April 29 (Port Angeles, WA) (80 FR 14912, March 20, 2015).

We received more than 57,000 comments on the 2015 DEIS, by mail, fax, email, and submissions to www.regulations.gov (Docket ID: NOAA-NMFS-2012-0104). Over 99% of comments were submitted as form letters. Individual commenters included state and federal entities, tribal governments, and both nonprofit organizations and interested individuals from the United States and around the world.

The NMFS West Coast Region has prepared two documents providing the Region's initial responses to the comments we received. Final responses to these comments will be prepared by NMFS when a final EIS regarding this proposed action is issued. In this document we provide responses to all of the comments raised (excluding duplicate form-letter comments as practicable). A separate document includes our draft responses to 17 topics frequently raised by commenters; where appropriate we cite to that separate document in our responses below. Also, in the table below we have parsed the content of comment letters (see Commenter Code) into multiple rows (see Sort #) when a separate response was warranted. All of the comments contained in this table are available for viewing in their original form at the regulations.gov docket noted above.

Sort #	Commenter Code	Comment	Response
1	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	July 31, 2015 Dear Mr. Stone: On behalf of the Animal Welfare Institute, Cetacean Society International, International Marine Mammal Project of Earth Island Institute, Origami Whales Project, Whale and Dolphin Conservation, and the Whaleman Foundation (hereafter "Coalition"), I submit the following comments on the Draft Environmental Impact Statement (DEIS) on the Makah Tribe Request to Hunt Gray Whales (80 Federal Register 14,912 (March 20, 2015)). The Coalition notes with appreciation the decision by the National Marine Fisheries Service ("NMFS") to extend the deadline for public comments on this important issue (80 Federal Register 30,676 (May 29, 2015)). However, the Coalition concludes that NMFS cannot issue the requested MMPA waiver to the Makah Tribe, for reasons detailed below. The Animal Welfare Institute (AWI) is one of the nation's oldest animal advocacy organizations. Since its founding in 1951, AWI has sought to alleviate the suffering inflicted on animals by people. AWI and the Society for Animal Protection Legislation (AWI's legislative companion organization until a 2004 merger), played a role in the passage of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), among other key environmental and animal protection statutes. AWI staff members attend meetings of the International Whaling Commission (IWC) to preserve the ban on commercial whaling, and we work to protect all marine life against the proliferation of human-generated ocean noise, including that from active sonar and seismic air guns. For decades, AWI has been opposed to the Makah Tribe resuming its hunt of gray whales, and for the reasons stated herein, we remain strongly opposed to this day. Other Coalition organizations have also been engaged in campaigns to protect marine mammals, many regularly attend IWC meetings, and all strongly oppose any resumption of whaling by the Makah Tribe. It is troubling that, after two lawsuits, several environmental analyses, and decades of controversy that NMFS continues to endeavor to permit the Makah Tribe to resume the hunting of gray whales after a nearly 90-year hiatus in whaling. Indeed, with the exception of a single whale killed "legally" in 1999 and a second illegal kill in 2007, the Makah Tribe has not engaged in whaling since the 1920s. Even that date may not accurately reflect when the Makah largely ceased whaling which, based on evidence provided in past Makah needs statements, started to wane in the middle of the 19th century.	We note the issues raised in this introduction and provide responses to the points as they are raised in detail in the body of the comment letter.

Sort #	Commenter Code	Comment	Response
		Despite this significant gap in whaling and without any apparent concern for international whaling standards or federal law, NMFS continues to commit valuable time and financial resources to this issue, seemingly because of a treaty right that may have been abrogated and its federal trust responsibility to the Makah Tribe. Furthermore, other overarching concerns with the proposed hunt include the potential conservation implications to Eastern North Pacific (ENP), including Pacific Coast Feeding Group (PCFG), and Western North Pacific (WNP) gray whales by adding intentional take to the litany of threats to these animals. This is especially true for PCFG and WNP gray whales that, at present, number only a total of approximately 209 and 140 animals, respectively, with even smaller numbers in the PCFG regions considered in the DEIS (e.g., the Oregon-Southern Vancouver Island (OR-SVI) and Makah Usual and Accustomed hunting grounds (Makah U&A)). For the larger ENP population of gray whales, considering the significant changes occurring in the Arctic due to climate change and the unknown consequences of such ecosystem-wide alterations on gray whales, now is not the time to allow the Makah to hunt whales. Such threats, of course, are not limited to the Arctic, as the gray whale has one of the longest migrations of any species on the globe and, throughout that journey, they face an increasing barrage of both anthropogenic and natural threats. Adding to such threats by authorizing a hunt is biologically reckless and unwise. Combine these threats with the hunt's risk to public safety and the basic fact that the chances of an instantaneous death of a swimming gray whale hunted from a moving boat on a rolling ocean are nil, particularly with the cold harpoon proposed by the Makah Tribe, and the evidence against granting the MMPA waiver and authorizing a hunt is insurmountable. Based on these and other facts and as explained in detail throughout this comment letter, such efforts, including the current National Environmental Policy Act (NEPA) decision-making process, must end, the Tribe's MMPA waiver application must be denied, the United States must advise the International Whaling Commission (IWC) that its 2012 Aboriginal Subsistence Whaling (ASW) quota for gray whales is no longer valid, and it must cease attempting to secure the IWC's allocation of ASW quotas for the Makah Tribe. For these and other reasons articulated in this letter, the Coalition strongly supports Alternative 1: the No Action Alternative. This is the only alternative that would comply with both international convention standards and US law. It also represents the most precautionary approach available which, in	

Sort #	Commenter Code	Comment	Response
		this case, is mandatory considering the critically endangered status of WNP gray whales, the small numbers of PCFG gray whales, and the myriad (and increasing) threats to ENP gray whales (and to the WNP and PCFG whales) throughout their range. This is not to suggest that the Makah Tribe cannot "use" gray whales, but such use must not involve the intentional lethal take of a single whale. Indeed, as described in this comment letter, there are alternatives NMFS failed to adequately consider in the DEIS that would substantially benefit all Makah tribal members while also facilitating the "use" of gray whales in a humane, non- lethal manner that would create jobs, generate revenue, attract tourists to Neah Bay, and provide a platform for the Makah to promote and celebrate their history, culture, and traditions. While the Coalition strongly opposes whaling by the Makah Tribe, it does respect the Makah's whaling culture, traditions, and history. Contrary to claims made by the Tribe, however, no compelling evidence has been offered in the DEIS or elsewhere to prove that the Makah Tribe needs to kill whales to sustain its culture, to enhance its efforts at cultural revitalization, or to continue to engage in the ceremonies, rituals, dances, or songs celebrating its whaling heritage. For that matter, the DEIS contains evidence to suggest that such traditions have not been continually practiced as the Makah Tribe or its representatives have consistently claimed. Nevertheless, to the extent the tribe, including individual tribal families, need to engage in such traditions, even if they have only recently been resurrected, the annual Makah Days celebration provides the perfect venue for the Makah Tribe to embrace its cultural and historical links to whaling through dance, song, and ceremonies without any need to kill a whale. Similarly, throughout the year, whether whaling traditions are family-specific, secret, or available to celebrate with the entire tribe and/or non-tribal members, there is no reason why these traditions cannot be practiced at family or community events without requiring the resumption of whaling. Ultimately, however, the Coalition's overarching concern is for the welfare of the whales – as well as the humans – who would or could be adversely impacted as a result of the proposed hunt. More specifically, it is concerned about: the impact of the hunt on gray whales, including WNP and PCFG gray whales; the hunt's legality; the cruelty inherent to whaling; public safety; the precedent that would be set if the hunt proceeds; and cumulative (and increasing) anthropogenic impacts to gray whales and their habitat. While the Coalition commends NMFS for its 2008 decision to terminate a previous NEPA decision-making process based on new scientific information	

Sort #	Commenter Code	Comment	Response
		relevant to PCFG and WNP whales that became available, the present DEIS is replete with deficiencies. In general, those deficiencies include the failure to: • Demonstrate how allowing the Makah to hunt whales is consistent with US law and international convention standards relevant to ASW; • Consider a reasonable and feasible range of alternatives; • Fully disclose all relevant information and provide a clear, consistent, and accurate analysis of the environmental consequences of the no action alternative and action alternatives on, among other variables, gray whales, tourism, economics, the social environment, and public health; • Accurately assess the precedential effects of granting an MMPA waiver to the Tribe; • Define or provide meaningful, quantifiable, and measurable impact thresholds to permit the public to distinguish between the direct and indirect impacts of the no action and action alternatives; • Adequately evaluate the cumulative impacts of the analyzed alternatives in regard to other past, present, and reasonably foreseeable actions undertaken by federal, state/provincial, municipal, or private parties. Furthermore, before proceeding with this decision-making process, it is imperative that NMFS render a determination as to whether PCFG whales constitute a population stock under the MMPA. Given the implications of such a determination to gray whales and the Makah Tribe's hunt proposal, continuing to delay this determination is improper. Even if making this determination requires additional scientific study of PCFG whales, this should be undertaken expeditiously so that a stock determination can be made as a prerequisite for the continuation of the present planning process.	
2	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	There are two fundamental legal arguments that demonstrate why the MMPA waiver cannot be granted. These arguments are addressed below. **<u>NMFS cannot issue a MMPA waiver to the Makah Tribe:</u>** The MMPA sets forth general criteria to use in determining if a waiver to the MMPA's take prohibitions should be granted. Specifically, the Secretary, in consideration of the "distribution, abundance, breeding habits, and times and lines of migratory movements of such marine mammals" is authorized to determine "when, to what extent, if at all, and by what means it is compatible with this chapter to" issue a waiver to allow the taking of a marine mammal. 16 U.S.C. § 1371(a)(3)(A). In addition, the Secretary "must be assured that the taking of such marine mammals is in accord with sound principles of resource	Please see the response to frequent comment # 6 regarding the need for waiver of the take moratorium for WNP and/or PCFG whales. The purpose of the DEIS is to analyze potential impacts of alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA, not to explore or resolve legal debates.

Sort #	Commenter Code	Comment	Response
		protection and conservation as provided in the purposes and policies of this chapter." Id. To be compatible with the MMPA and in accord with sound principles of resource protection and conservation, such a finding must ensure, at a minimum, that the marine mammals in question are not "permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part and, consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population."[1] Id. at § 1361(2). If NMFS grants an MMPA waiver, it also must promulgate regulations to govern the number, location, and manner of the permitted take as well as permits to formally authorize the take. In promulgating such regulations, the Secretary is allowed to consider all factors that may affect the extent to which such animals may be taken. This includes existing and future levels of marine mammal species and population stocks, international treaty and agreement obligations, and marine ecosystem and related environmental considerations, 16 U.S.C. § 103(b)(1-3), but does not require it to consider any treaty obligations with Native American tribes. Based on the best available scientific evidence, including the myriad studies cited in the DEIS, it is not possible for NMFS to make the required determination for ENP gray whales. In this case, however, the decision to be made is not limited to ENP gray whales, despite the fact that the Makah's waiver application covers that particular population of gray whales. Because the MMPA's waiver language is applicable to "marine mammals" and is not limited to species or population stocks, since ENP, PCFG, and WNP gray whales can all share a common range (both geographically and temporally), and given that it is impossible to distinguish between ENP, PCFG, and WNP gray whales by observation alone, any MMPA waiver determination for ENP gray whales also must be made for WNP and PCFG whales. Indeed, it would be illogical and illegal for NMFS to issue an MMPA waiver to the Makah Tribe to allow the take, including lethal take, of ENP gray whales if by doing so it would cause WNP or PCFG gray whales to "cease to be a significant functioning element in the ecosystem of which they are a part" or if it could diminish WNP or PCFG gray whales below their "optimum sustainable population." This dilemma is similar to that addressed in Kokechik Fishermen's Ass'n v. Secretary of Commerce (839 F.2d 795 (D.C. Cir. 1988)), where the court ruled the issuance of an incidental take permit by NMFS was deemed to be "contrary to the requirements of the MMPA in that it allowed incidental taking of various species of protected marine	

Sort #	Commenter Code	Comment	Response
		mammals without first ascertaining as to each such species whether or not the population of that species was at the OSP level." For the WNP gray whales, the current population estimate is 140 animals. Although the International Union for Conservation of Nature (IUCN) designates this subpopulation's demographic trend as increasing (Reilly et al. 2008), it remains classified as critically endangered. While our knowledge of this population of gray whales is increasing, much remains unknown, including a complete understanding of migratory patterns. Based on tagging data, DNA analysis from biopsy samples, and photographic identification, 27 WNP gray whales (19 percent of the entire known population) have migrated from Russia, across the Bering Sea, and to the west coast of the United States and Mexico over the past several years. While all 27 WNP gray whales returned to Russia in the spring/summer, it is not known whether they bred with any ENP gray whales, whether any ENP gray whales have migrated to Russia, the total number of WNP gray whales that have emigrated to the ENP range, and whether any WNP whales have remained with the ENP gray whales in the Arctic or within the PCFG. More importantly, in regard to the MMPA waiver criteria, the carrying capacity of the WNP habitat has not been determined and, consequently, the population's OSP is unknown. According to Punt (2015) the WNP population (which he separates into an Asian and Sakhalin stocks) is approximately 10 percent of their carrying capacities. Consequently, notwithstanding the ongoing need for more information about the migratory patterns and reproductive habits of WNP gray whales, without knowledge of carrying capacity or OSP, the Secretary cannot ensure that the issuance of a waiver to the Makah Tribe to permit the take of ENP gray whales will not diminish WNP gray whales below their OSP. Indeed, as mentioned repeatedly in the DEIS, while Moore and Weller (2013) report that there is only a seven percent chance for a single WNP gray whale being struck by the Makah over six years (under the Makah Tribe's proposal), it cautions that "loss of a single whale, particularly if it were a reproductive female, would be a conservation concern." Moreover, if Moore and Weller underestimated the risk to WNP gray whales from a Makah whale hunt, then the adverse conservation implications of a Makah hunt would be more severe. Similarly, for PCFG whales, no one has determined the carrying capacity for these whales within the PCFG region or any of its sub-regions and, therefore, its OSP is also unknown. This was confirmed by Punt and Moore (2013), who determined "it was not possible to draw a definitive conclusion as to whether the	

Sort #	Commenter Code	Comment	Response
		PCFG is within OSP." DEIS at 3-156. More recently, Punt (2015) found the PCFG "sub-stock" is approximately at 50 percent of its carrying capacity. Even if NMFS determines that it need not consider PCFG whales in making a waiver decision for ENP whales (since PCFG whales have not yet been designated a stock), since NMFS has itself reported that the PCFG may qualify as a stock in the future and considering the precautionary principle, for the purpose of the waiver determination, NMFS should treat the PCFG gray whales as a stock. Based on the foregoing analysis, and recognizing that with the exception of a handful of PCFG whales that may be known to Makah tribal biologists or other officials based on easily distinguishable markings, it is impossible to differentiate WNP, ENP, and PCFG gray whales through observation alone within the Makah U&A, NMFS must select the no action alternative. Alternatively, if NMFS does allow this process to proceed, the Secretary must not issue the requested waiver at this time. In the future, after further research begins to elucidate answers to many of the remaining questions about stock structure, demographics, reproductive characteristics, genetics, migratory patterns, and behaviors, this waiver request could be revisited but, at present, the waiver application must be denied. [1] Optimum sustainable population or OSP is defined as "the number of animals which will result in the maximumproductivity of the population or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem in which they form a constituent element." 16 U.S.C. §§ 1362(9) and 3-51/52. NMFS further defines this term in regulations implementing the MMPA to mean "a population size which falls within a range from the population level of a given species or stock which is the largest supportable within the ecosystem to the population level that results in the maximum net productivity level." 50 CFR § 216.3 and DEIS at 3-51/52.	
3	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**The current NEPA process is invalid and must be terminated because the Makah Tribe cannot qualify for an ASW quota:** The DEIS designates a purpose and need for action for both the Makah Tribe and NMFS. For the Makah Tribe, its purpose is "to resume its traditional hunting of gray whales under its treaty right" while its need "is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions." DEIS at 1-27. For NMFS, its purpose is "to implement the laws and treaties that apply to the Tribe's request, including the Treaty of Neah Bay, MMPA, and WCA," while its need is "to implement its federal	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe. Regardless of whether the Tribe qualifies for an ASW quota, we disagree with the commenter's assertion that our description of the purpose and need is invalid because it precludes selecting the No-Action Alternative. A No-action alternative

Sort #	Commenter Code	Comment	Response
		trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay." Id. The Coalition does not dispute that the Treaty of Neah Bay includes language recognizing the Makah Tribe's whaling right, but, as explained below, this treaty language may have been abrogated by the passage of the MMPA and the Makah Tribe cannot qualify for an ASW quota under the Whaling Convention Act (WCA) or IWC standards and, therefore, is not able to engage in whaling. Given that the United States recognizes the legal authority of the IWC to regulate whaling, including ASW, if the Makah Tribe cannot qualify for an ASW quota (as is made clear below), then the United States should not request a quota, no quota should be approved, and, no quota can be allocated to the Makah. Therefore, as explained previously, since the Makah Tribe cannot satisfy the "continuing traditional dependence on whaling and the use of whales" language in the definition of "aboriginal subsistence whaling" and cannot demonstrate either a subsistence or nutritional need for whales or their products, it does not satisfy the basic criteria to obtain an IWC-approved quota (and any previously approved quotas should not be considered valid). Since the Makah Tribe not qualify for an ASW quota from the IWC, its purpose and need (and the purpose and need proffered by NMFS) cannot be met without violating US law or an international treaty and are, therefore, invalid. In turn, without a legitimate purpose and need, the DEIS is unnecessary and the current decision-making process should be terminated. If NMFS must select an alternative that satisfies its own or the Makah Tribe's purpose and need (additional discussion of this issue is below), then the overall outcome of this NEPA process has been predetermined in that the Makah will be granted a waiver and will be allowed to kill whales because that is the only option available given the purpose and need statements. Under this scenario, the only question is when, where, how, and how many whales the Makah Tribe will be allowed to kill. Consequently, any interested stakeholder that supports the no action alternative, regardless of the quality or substantive content of their comments, is wasting its time because NMFS will claim that it cannot select the No Action Alternative since it would not meet its or the Makah Tribe's purpose and need. Not only is there nothing in the NEPA statute or its implementing regulations that support this approach, but this effectively undermines the intent of NEPA and the importance of public participation in the NEPA process. Consequently, to ensure that the decision-making process is meaningful for everyone, NMFS must eliminate the Makah Tribe's stated purpose and need for action and restate its purpose and need so that the no action alternative is a	carries equal weight as a viable option for final alternative selection by the decision-maker, as supported by CEQ regulations, regardless of consistency with a purpose and need statement. If a No-action alternative is the alternative that the agency believes would fulfill its statutory mission and responsibilities, it can be selected by the agency decision-maker (in other words, the proposed action can be withdrawn causing the No-action alternative to stand). Moreover, the formulation of NMFS' purpose and need is not materially different from the commenter's proposed rephrasing. The DEIS states that the purpose for agency action is "to implement the laws and treaties that apply to the Tribe's request" and the need for agency action is to meet its trust responsibility and comply with the requirements of the MMPA and WCA. The commenter does not explain how the suggested rephrasing is materially different from what is in the DEIS. Finally, inclusion of an applicant's purpose and need may be appropriate where, as here, it aids in the formulation of a full range of alternatives and does not elevate the applicant's purpose and need above the agencies'.

Sort #	Commenter Code	Comment	Response
		legally viable option at the conclusion of this process. In regard to the Makah Tribe's purpose and need, it is irrelevant what the Makah want, since this DEIS is being used by NMFS to assist in its decision-making process. Indeed, it is unusual for any DEIS to include dual purposes and needs – one set from the applicant and one set from the agency. For NMFS, if it were to restate its purpose to be "to determine if the Makah Tribe's interest in resuming whaling under the Treaty of Neah Bay qualifies for a waiver of the moratorium on the take of marine mammals under the Marine Mammal Protection Act and is consistent with other federal laws," and its purpose to be "to determine if the Makah Tribe's whaling proposal is consistent with all federal laws," then the no action alternative is relevant. If this were the purpose and need stated in the DEIS, NMFS could decide that despite the treaty language, whaling by the Makah Tribe is not consistent with the MMPA, WCA, or other relevant federal laws and that, therefore, a waiver would not be granted, and thereby the No Action Alternative would be a legally viable selection.	
4	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**Marine Mammal Protection Act** The MMPA (16 U.S.C. 1361 et seq.) is the nation's preeminent law for the protection of marine mammals. In passing this law, Congress found that "certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities." Id. at § 1361(1). In addition, Congress determined that "such species and population stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part, and, consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population." Id. at § 1361(2) (see also DEIS at 1-13, 1-18). Congress further found that "marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and … they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine	This background description of the MMPA is noted.

Sort #	Commenter Code	Comment	Response
		ecosystem." Id. at § 1361(6). The goal is to "obtain an optimum sustainable population ("OSP") keeping in mind the carrying capacity of the habitat." Id. To achieve such conservation objectives, the MMPA established a moratorium on the take of marine mammals. Under the MMPA, a marine mammal is defined as "any mammal which (A) is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia and Cetacea), or (B) primarily inhabits the marine environment (such as the polar bear); and, … includes any part of any such marine mammal, including its raw, dressed, or dyed fur or skin." Id. at § 1362(6). The law defines "take" to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Id. at § 1362(13). Take, under some circumstances, can be allowed under the MMPA if the requisite permits are obtained from the agency. In allowing take, the drafters of the MMPA "endeavored to build… a conservative bias" in favor of marine mammals. H.R. REP. NO. 92-707, at 24 (1971), reprinted in U.S.C.C.A.N. 4144, 4148. In every case, the burden is placed upon those seeking permits to show that the taking should be allowed and will not work to the disadvantage of the species or stock of animals involved. If that burden is not carried-- and it is by no means a light burden-- the permit may not be issued. The effect of this set of requirements is to insist that the management of the animal populations be carried out with the interests of the animals as the prime consideration. H.R. REP. NO. 92-707 at 18, reprinted in U.S.C.C.A.N. 4144, 4151. When NMFS issues a permit, it needs to satisfy the criteria of section 104 and be consistent with MMPA purposes, as demonstrated by the applicant. MMPA § 1374(d)(3). A permit must also comply with regulations promulgated under section 103, be "consistent with the purposes and policies" of the MMPA, and "not be to the disadvantage of those species and stocks." Id. § 1373(a). A permit will disadvantage a marine mammal stock and cannot be issued if it causes it to fall below OSP or include takes from a stock already below OSP.[9] One of the exceptions to the moratorium against the take of marine mammals is for "any Indian, Aleut, or Eskimo who resides in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean if such taking … (is) (1) … for subsistence purposes; or (is) (2) … done for purposes of creating and selling authentic native articles of handicrafts and clothing; and (3) in each case, is not accomplished in a wasteful manner. 16 U.S.C. § 1371(b)(1-3).	

Sort #	Commenter Code	Comment	Response
		[9] See Committee for Humane Legislation, Inc. v. Richardson, 414 F. Supp. 297, 302 (D.D.C. 1976), aff'd, 540 F.2d 1141 (D.C. Cir. 1976); see also, Kokechik Fishermen's Ass'n v. Secretary of Commerce, 839 F.2d 795 (D.C. Cir. 1988).	
5	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	1. Abrogation of the Makah Tribe's treat right to whale: Considering the MMPA's broad moratorium on take and the fact that Congress did not include the Makah Tribe or any other United States coastal tribe with a history of whaling or, as is the case for the Makah, a treaty right explicitly recognizing the tribe's whaling right, the MMPA exception language is ample and indisputable evidence that the Makah's treaty right was abrogated by the MMPA. Supreme Court precedent supports this position.[10] Indeed, given the significance of the MMPA, the myriad interests[11] engaged in lobbying for or against the legislation, and the vast number of politicians, aides, and experts involved in both drafting the bill and in achieving its adoption, it is inconceivable that no one, particularly the Makah Tribe, advised Congress of the tribe's treaty language or of its tradition of whaling. Alternatively, if such communications never occurred, this demonstrates that no one, particularly the Makah Tribe, cared enough or was sufficiently concerned about its treaty language to bring it to the attention of Congress at that time. Abrogation of said treaty language is, therefore, inferred as a result of Congress not being asked to recognize or preserve the Makah's interest in whaling when promulgating the MMPA. While the abrogation claim was raised in both Metcalf v. Daley (214 F.3d 1135 (9th Cir. 2000)) and Anderson v. Evans (314 F.3d 1006 (9th Cir. 2002) (rehearing en banc denied and opinion amended 350 F.3d 815 (9th Cir. 2003)), the courts have not ruled on that claim. Consequently, while it is inevitable that a court will eventually have to render a decision on the abrogation claim, NMFS should have, but failed to, discuss the issue in the DEIS. NMFS is well aware of this argument and, therefore, in its summary of the relevant laws applicable to Makah whaling, should have explained the relevant case law on treaty abrogation and made clear the reasons why it believes the MMPA did not abrogate the Makah's treaty language regarding whaling. It should include such a discussion in a revised analysis. [10] See U.S. v. Dion, 476 U.S. 734 (1986), which held that the Bald and Golden Eagle Protection Act abrogated the rights of the members of the Yankton Sioux Tribe under the 1858 treaty to hunt bald or golden eagles on the Yankton Reservation.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		[11] These interests included Native American Tribes and organizations, states, industry, and non-governmental organizations.	
6	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	2. The Makah MMPA waiver application: In this case, because of the MMPA's moratorium on take of marine mammals, the Makah Tribe is seeking a waiver to that prohibition as directed by the court in Anderson v. Evans. While the Makah Tribe does not agree with the ruling in Anderson and believes that its "treaty right" trumps the MMPA, it elected to pursue a waiver. In its 2005 application, the Makah include several elements or provisions that warrant additional scrutiny or are worth noting for the purpose of this comment letter. Treaty of Neah Bay: While the Makah attempt to address the specific criteria contained in the MMPA, which must be met to obtain a waiver (discussed in more detail below), it also relies on its "treaty right" to justify a waiver. Yet the Treaty is not the end all, be all; rather, it is limited by the MMPA. The Treaty of Neah Bay was one of the Stevens Treaties, negotiated by Isaac Stevens, the Governor of Washington Territory, with leaders of the Northwest Tribes that occupied what is now the State of Washington. These treaties guaranteed signatory tribes "the right of taking fish at usual and accustomed grounds and stations … in common with all citizens of the Territory." The Treaty of Neah Bay explicitly references whaling: "the right of taking fish and of whaling or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States." See Treaty of Neah Bay at Article 4. In its repeated references to the treaty language in the DEIS, NMFS fails to include the "in common with" language. While the courts have interpreted that language, the layperson who may read the treaty will likely be confused by this language, which suggests the Makah Tribe can only engage in whaling if other United States citizens are also able to engage in the same activity. In 1855 that was the case, but today, US citizens are prohibited from intentionally killing any marine mammals. NMFS needs to provide additional discussion of judicial interpretations of this treaty language to ensure that all stakeholders have a common understanding of the meaning of the "in common with" language and, more broadly, the limitations inherent to the Makah's treaty right. The Coalition provides its understanding of the treaty language and the limitations on the treaty here.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		Generally, the courts have interpreted the phrase "in common with" to establish "a cotenancy, in which neither party may 'permit the subject matter of [the treaty] to be destroyed.'" Anderson v. Evans, 314 F.3d 1006 (9th Cir. 2002) (quoting United States v. Washington, 520 F.2d 676, 685 (9th Cir. 1975)). See also United States v. Washington, 761 F.2d 1404, 1408 (9th Cir.1985) (recognizing that "in common with" has been interpreted to give rise to cotenancy- type relationships). The treaties guarantee tribes the right to harvest an equal portion of the available resource, not just an equal opportunity to do so with non-Indians. Washington v. Washington State Commercial Passenger Fishing Vessel Ass'n, 443 U.S. 658, 679 (1979) (holding that the Stevens treaties guarantee tribes the "right to take a share of each run of fish that passes through tribal fishing areas"). That right is subject to federal and state regulation, provided that the regulation is nondiscriminatory. See Puyallup Tribe v. Dept. of Game of Wash., 391 U.S. 392, 398 (1968). The treaties do not guarantee an absolute right to fish or hunt; a state may limit the total treaty and non-treaty fish catch, for example, if regulation becomes necessary for the preservation of the species, is tailored to the conservation of that species, and is nondiscriminatory in its treatment of the Indians. See Puyallup Tribe, Inc. v. Dept. of Game of State of Wash., 433 U.S. 165, 176 (1977) (holding that state fishing regulation applies on-reservation because "[t]he police power of the State is adequate to prevent the steelhead from following the fate of the passenger pigeon"); United States v. Oregon, 657 F.2d 1009, 1016–1017 (1981) (affirming a total ban on tribal harvest of spring chinook salmon). Because tribal treaty rights to hunt and fish can be regulated for the preservation of a resource, the question is not what the treaty guarantees, but rather what the applicable statute/regulation requires and whether it is non-discriminatory. The Anderson court accordingly found the MMPA applied to the Makah because the Makah can be regulated "in common with all citizens."	
7	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Limitations and legal implications of the MMPA waiver request:</u> The waiver request is limited to ENP gray whales only. It does not cover WNP gray whales, nor would it cover PCFG whales if NMFS determined – as it should – that PCFG whales should be designated as a separate stock (an issue that is further discussed below). Since the waiver, if issued, would not cover WNP gray whales, this raises questions about the legal implications for the Makah if it were to take a WNP gray whale. It is worth noting here that different provisions	Please see the response to frequent comment # 5 regarding the stock status of PCFG whales and frequent comment # 6 regarding the need for waiver of the take moratorium for WNP and/or PCFG whales.

Sort #	Commenter Code	Comment	Response
		of the MMPA are applicable to "marine mammals" while others are applicable to marine mammal "species" or "population stocks." For example, the moratorium, waiver, take prohibitions, and permit language apply broadly to "marine mammals," (see 16 U.S.C. 1371(a); Id. at 1371(a)(3)(A); Id. at 1372; Id. at 1374), while the MMPA sections on depleted species and issuance of regulations refer to marine mammal "species" or "population stocks" (see Id. at 1362(1)(A); Id. at 1373). These differences may have implications for the Makah's MMPA waiver request. While the likelihood of the Makah actually striking and killing a WNP gray whale may be remote according to NMFS (citing to Moore and Weller 2013), since take under the MMPA is broadly defined to include "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal," if allowed to whale, the Makah may take a WNP gray whale. Moreover, the MMPA's moratorium covers all takes, regardless of the likelihood of such take. Consequently, absent a separate waiver or any other legal authorization permitting the take of an endangered WNP gray whale, the Makah Tribe will be subject to prosecution under the ESA and MMPA. The MMPA does provide for the incidental take of marine mammals listed under the Endangered Species Act through the acquisition of an "incidental harassment authorization" (IHA) or a "letter of authorization" (LOA) (for incidental take). If the Makah are granted a waiver to the MMPA and NMFS then determines that any "take" of WNP gray whale is incidental to the Makah's whaling operations, then the Makah would have to obtain an IHA or LOA. In this case, given that the duration of any waiver, if granted, would be valid for at least 10 years (see Alternative 6) and since the Makah would likely take and could potentially seriously injure or kill a WNP gray whale, more than one LOA would be applicable. NMFS provides no explanation as to the legal implications of the Makah's waiver request being limited to ENP gray whales, nor does it discuss the applicability, or lack thereof, of its incidental take standards to the Makah Tribe's whaling plans. In order to obtain such an authorization, a request must be made by the applicant (in this case the Makah Tribe), NMFS must evaluate the impacts of the application pursuant to NEPA, it must publish a notice seeking public comment on the requested authorization, and then must decide whether the authorization should be granted under the relevant criteria contained in the MMPA. Since the existing DEIS does not address the issuance of any such authorization, the authorization process either must be pursued separately from	

Sort #	Commenter Code	Comment	Response
		the current DEIS decision-making process (presumably with a decision on a "letter of authorization" made prior to the completion of the present NEPA process) or NMFS must explain why the incidental harassment provisions of the MMPA are not applicable in this case. Conversely, if the Makah Tribe is granted a waiver to hunt ENP whales and NMFS determines that any take, including serious injury or killing of a WNP whale, constitutes intentional take (since the purpose of the hunt is to kill a whale and because ENP, PCFG, or WNP whales cannot be distinguished by observation alone), then the issuance of a waiver will permit illegal take in violation of the MMPA's moratorium. If such take is considered to be intentional, the only way it can be permitted is if the Makah's waiver application is amended to include WNP gray whales.	
8	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Lack of accurate and complete analysis of impacts on Pacific Coast Feeding Group whales within the Oregon-Southern Vancouver Island region:</u> The Makah Tribe has requested, consistent with the recommendation in Calambokidis et al. (2004), that the primary area of emphasis for the impact of its proposed whale hunt on the PCFG of ENP gray whales be restricted to the OR-SVI region of the PCFG range. The OR-SVI region is larger than the Makah U&A but smaller than the full seasonal range of PCFG whales, which is from Northern California to Southeast Alaska. NMFS has included in the DEIS analysis of the impact of the Makah's proposed hunt (Alternative 2) and the other action alternatives (Alternatives 3-6) on PCFG whales within the OR-SVI region but, as discussed in more detail below, its analysis of the impacts on PCFG whales in the OR-SVI region is deficient. Moreover, despite the Makah Tribe's request to focus the analysis on OR-SVI PCFG gray whales and the Anderson court's emphasis on the need to consider impacts in the local area (e.g., the Makah U&A), NMFS's analysis of Alternatives 3-6 calculated the PBR level using the larger PCFG population estimate instead of using the estimates for the OR-SVI and Makah U&A regions.	The DEIS includes an alternative (Alternative 2) that bases management measures on abundance of gray whales in the OR-SVI survey areas, as proposed by the Tribe, thus this option is captured. The remaining action alternatives base management measures on abundance of gray whales in the entire PCFG. All alternatives are analyzed with respect to their impacts on gray whales at the scale of both the OR-SVI and the Makah U&A (see Subsection 4.4.2.4, Change in Abundance of Gray Whales in the Makah U&A and OR-SVI Areas). Analysis at the scale of the Makah U&A comports with the court's direction in *Anderson v. Evans*.
9	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Additional limited waiver request:</u> Embedded within the Makah Tribe's request for a waiver of the MMPA's prohibition on taking marine mammals is a second request for "a limited waiver from the MMPA's prohibition on the sale of marine mammal products for the purpose of selling such traditional handicrafts." Makah Waiver Application at 3. No additional information about this second waiver request, including any explanation as to scope of the "limited waiver," is contained in the waiver	The DEIS examines the alternatives of either no sale of handicrafts (Alternative 1) or the sale of handicrafts (Alternatives 2-6) and provides relevant information and analyses. During public scoping, no commenters, including this

Sort #	Commenter Code	Comment	Response
		application or in the DEIS. Since this additional waiver request clearly applies to the Tribe's interest in the sale of authentic native handicrafts manufactured from the non-edible byproducts of killed gray whales, it is imperative that additional information about this second waiver request and its implications be made available so that the public has a chance, as the law requires, to participate in the decision-making process inherent to the second waiver request.	commenter, offered suggestions for additional alternatives regarding the making and sale of handicrafts, nor does the commenter suggest what type of additional information is missing from the DEIS. Although the commenter characterizes this as a "second waiver request," this request was included in the Tribe's original 2005 request and was not made separately.
10	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	3. NMFS must determine if PCFG whales are a separate stock under the MMPA: Although the prohibition on taking contained in the MMPA is for "marine mammals," 16 U.S.C. 1372, the authorization of take is restricted to marine mammal "species" and "population stocks" 16 U.S.C. 1373. The MMPA defines the term "population stock" or "stock" as "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature." Unlike the Endangered Species Act, which permits the listing of "Distinct Population Segments," the MMPA does not provide protections for anything other than species or population stocks. PCFG gray whales are not currently designated as a population stock or stock. The IWC's Scientific Committee, however, has determined that it is "plausible that the PCFG may be a demographically distinct feeding group,"[12] DEIS at 1-5, 3-157, while NMFS repeatedly reports in the DEIS that the PCFG "seems to be a distinct feeding aggregation and may warrant consideration as a distinct stock in the future" Id. If the PCFG were designated as a stock, this would have significant implications for the PCFG and the Makah Tribe's whaling proposal. Among other things, a stock designation would permit the PCFG to be potentially designated as "depleted" under the MMPA if the current population size was below the optimum sustainable population (OSP) size (which has historically been interpreted by NMFS as 60 percent of the stock's carrying capacity). If designated as "depleted," the Secretary would be barred from issuing any permit to allow take. While this bar could be overcome with an MMPA waiver, if the PCFG were designated as a stock, the current Makah waiver application would not cover PCFG whales. Instead, as explained above for WNP whales, the Makah could be prosecuted under the MMPA for illegally taking (intentionally or incidentally) a	The comment presumes that NMFS has not made a decision on the status of the PCFG. This is not the case. Pursuant to public and scientific peer review and the SAR process NMFS recognizes the PCFG as a "feeding aggregation" and does not recognize the PCFG as a stock. Please see the response to frequent comment #5 regarding stock status of the PCFG. Regarding the need for additional decision-making in the event the PCFG is designated a population stock in the future, please see the response to frequent comment #7. We note that the Tribe's proposed action contained protective measures aimed at avoiding local depletion of PCFG whales, and the action alternatives in the DEIS similarly contain such measures.

Sort #	Commenter Code	Comment	Response
		PCFG whale. The Makah would have to seek an LOA to permit incidental harassment and take, including serious injury and mortality, or it would have to amend its waiver application to include PCFG whales. Considering the implications of the decision on whether PCFG whales are a stock, NMFS must suspend the current decision-making process and make a stock determination before continuing with the current analysis. Indeed, since the DEIS must provide the substantive evidence to support any decision made under the MMPA, NMFS must make a stock determination for PCFG whales as part of this decision-making process.[13] If NMFS determines, after providing an opportunity for public participation, that PCFG whales are a stock, this development would likely require a reassessment of the Makah's waiver request and, at a minimum, preparation of a supplemental DEIS. Conversely, it would be nonsensical to complete this MMPA waiver and NEPA process and then to conclude that the PCFG is a stock, as that could then require a full reevaluation of previous decisions with implications to the Makah Tribe, other interested stakeholders, and the gray whales. The best available scientific information provides ample support for the designation of PCFG whales as a stock. While neither the MMPA nor its implementing regulations provide direction on how to determine if a group of marine mammals of the same species constitute a stock, NMFS has guidelines that it utilizes to make such determinations. To determine if a group of marine mammals represent a stock, NMFS relies on its Guidelines for Assessing Marine Mammal Stocks (NMFS 2005 or GAMMS II). The original guidelines were developed in June 1994 and were finalized in 1995 to aid NMFS in preparing Stock Assessment Reports (SAR). Immediately thereafter minor revisions to the guidelines were proposed and a new version of the guidelines was published in 1997. NMFS (2005) represents the current version of the guidelines. However, based on a workshop held in 2011 to review the guidelines (referred to below as the GAMMS III workshop), NMFS published a Federal Register notice in 2012 soliciting public comment on proposed amendments to the guidelines. To date, NMFS has not finalized those amendments which, for the purpose of this analysis, will be referred to as GAMMS III Revisions 2011.[14] The MMPA defines "population stock" as "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement that interbreed when mature." NMFS (2005). In interpreting this definition, NMFS considers the objectives of the MMPA, including maintaining the health and	

Sort #	Commenter Code	Comment	Response
		stability of the marine ecosystem and that "…species and population stocks of marine mammals…should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part, and consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population." Id. In the 2005 GAMMS report, a stock is deemed a management unit if it constitutes a "demographically isolated biological population." NMFS has interpreted this concept to be synonymous with "demographically independent biological population" in subsequent applications of the guidelines since the "demographically independent" better reflects the intent of both the MMPA and those who prepared the GAMMS II report.[15] Furthermore in Weller et al. (2013), the use of demographic independence in defining a stock was articulated as follows: The GAMMS III workshop recommended revising the SAR guidelines to reflect that the intent of the GAMMS II guidelines (NMFS 2005) was to base stock identification on demographic independence as noted in Eagle et al. (2008) and proposed that the term demographic isolation be replaced with "demographic independence" as follows: (1) "For the purposes of management under the MMPA, a stock is recognized as being a management unit that identifies a demographically independent biological population." (2) "Demographic independence means that the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than immigration or emigration (external dynamics). Thus, the exchange of individuals between population stocks is not great enough to prevent the depletion of one of the populations as a result of increased mortality or lower birth rates." In other words, the participants at the GAMMS III workshop viewed this as a semantic issue where the term demographic independence is a better description for the current GAMMS guidelines definition than is the term demographic isolation. Further, Weller et al. (2013) explained that: "This interpretation of "isolation" differs substantively from how it is used within the GAMMS guidelines definition above, wherein allowance is made for some level of exchange of individuals between stocks. The TF (Task Force) concurred that in spite of using the term "isolation," the actual definitions under the current GAMMS guidelines … are more consistent with MMPA objectives to	

Sort #	Commenter Code	Comment	Response
		protect population stocks than with the objective of protecting just subspecies and species. Given that the draft GAMMS guideline revisions from the GAMMS III workshop have not yet been formally approved, the TF agreed to use the current GAMMS guidelines definition (NMFS 2005) for the purposes of their discussions and deliberations but noted that the actual definition used in the two versions (for demographic isolation and demographic independence) is essentially the same in that neither implies true "isolation" within the context of the MMPA. Consequently, for the purpose of defining a stock, NMFS uses the concept of "demographic independence" instead of "demographic isolation." Simply stated, the definition of "demographic independence" is a situation where "the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than immigration or emigration (external dynamics)." GAMMS Revisions 2011. A variety of information can be used to identify a stock. This can include information about the prospective stocks such as: distribution and movements; population trends; differences in morphology, life history, genetics, parasites, and oceanographic habitats; and contaminant and natural isotope loads. (NMFS 2005). A comparison of population trends of the same species occupying different areas can also be used to assess potential stock status, since different trends would suggest that the stocks are not "strongly linked demographically." Id. Similarly, morphological or genetic differences in animals from different regions are evidence that these populations are demographically independent. In examining recruitment dynamics in a prospective stock, a failure to detect differences in immigration or emigration rates does not mean that a population is not demographically independent. In some cases, while dispersal rates may be sufficient to "homogenize morphological or genetic differences detectable between putative populations," they may not be sufficient to deliver enough recruits from an unexploited source to an adjacent exploited sink population which could cause the sink population to no longer be a functioning element of its ecosystem. Id. [12] As explained in the DEIS, "although the IWC has not formally identified the PCFG as a stock, the Scientific Committee (IWC 2012a) noted that its implementation review of eastern North Pacific gray whales (with an emphasis on the PCFG) was "based on treating PCFG as a separate management stock" (which may not be equivalent to a stock as defined under the MMPA)." DEIS at 1-5.	

Sort #	Commenter Code	Comment	Response
		[13] At a minimum, if NMFS makes a preliminary determination to issue an MMPA waiver to the Makah Tribe it must make a stock determination for PCFG whales before the administrative law judge hearing in order to meet the requirements of the MMPA. [14] The revisions are available at http://www.nmfs.noaa.gov/pr/pdfs/sars/gamms3_appendix4.pdf [15] Pers. comm. with Shannon Bettridge, NOAA/NMFS (July 29, 2015)	
11	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	As an example, NMFS (2005) notes that it is common to have human-caused mortality restricted to a portion of a species' range. Depending on the magnitude of such concentrated mortality, it could lead to population fragmentation, a reduction in range, or even the loss of undetected populations. This would only be mitigated by high immigration rates from adjacent areas. If such immigration rates are unknown or are insufficient to mitigate the level of mortality, the affected group of whales may not remain a functioning element of its ecosystem or it may diminish below OSP. If there is inadequate information about stock structure and fisheries mortality is greater than a PBR calculated from the abundance just within the oceanographic region where the human- caused mortality occurs, managers should seriously consider dividing a species into stocks within designated and defensible management units. Id. Such management units could be designated in "distinct oceanographic regions, semi-isolated habitat areas, and areas of higher density of the species that are separated by relatively lower density areas." Id. Such areas have often been found to represent true biological stocks where sufficient information is available or when such evidence is known. Notably, in trans-boundary situations, if a stock's range spans international boundaries or the boundary of the US Exclusive Economic Zone (EEZ), an international management agreement for the species is recommended. Until such an agreement is adopted, if a stock is migratory, the fraction of time in US waters should be noted, and the PBR for US fisheries should be apportioned from the total PBR based on this fraction.[16] [16] This raises a question as to whether, in calculating a PBR for the OR-SVI PCFG whales that PBR should be lowered based on the proportion of OR-SVI gray whales in Canada.	Please see the response to frequent comment # 5 regarding the stock status of the PCFG. NMFS' consideration of the issue was also subject to review through the SAR process by the SRG and public review and comment. We consider the SAR process as the appropriate mechanism for designating population stocks of marine mammals under the MMPA and will continue to rely on that process for consideration of the best available scientific information. We consider the SAR as the appropriate process to provide advice on calculating a PBR for the PCFG. We agree with the comment that our consideration of a gray whale hunt should take into account the fact that the PCFG spends time outside of U.S. waters and experiences human-caused mortality beyond the mortality in U.S. waters and will take this into account in future decision-making.
12	Schubert (Animal Welfare Institute)_Le	In regard to PCFG gray whales, compelling evidence exists that there is a genetic substructure within the ENP population (DEIS at 3-59, 3-94). For example Lang et al. (2011), based on samples taken from PCFG gray whales and ENP gray whales on the northern feeding grounds, demonstrated small but statistically	Comments noted. Please also see the response to frequent comment # 5 regarding the stock status of the PCFG and review of the information

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	significant mitochondrial DNA differences demonstrating site fidelity to the southern feeding area. DEIS at 3-60. Although no significant differences in microsatellites (from nuclear DNA) were seen between whales from the different areas, Lang et al. concluded that these results indicate "that structure is present among gray whales using different feeding areas, matrilineal fidelity plays a role in creating such structure, and individuals from different feeding areas may interbreed." Id. In a more recently published paper, Lang et al. (2014; Attachment 2) states that their "findings support recognition of the PCFG of gray whales as demographically independent based on the significant differences in mtDNA between the PCFG and whales feeding further north."[17] Frasier et al. (2011) also concluded that PCFG gray whales likely mate with ENP whales but their findings that there were significant differences in mtDNA haplotype distribution and in estimates of long-term effective population size between PCFG and ENP whales were a result "of maternally directed site fidelity of whales to different feeding grounds." DEIS at 3-125 (see also Lang et al. 2011). The existing data appears to be equivocal on the recruitment mechanism for PCFG whales. Studies that have found significant differences in mtDNA haplotype frequencies between PCFG whales and whales sampled in the northern areas suggest that the "use of some feeding areas is being influenced by internal recruitment (matrilineal fidelity)." DEIS at 3-127, 3-130. However, Ramarkrishnan et al. (2001), based on an analysis of samples collected from whales within the PCFG range found that the genetic diversity and number of mtDNA haplotypes "were greater than expected if recruitment into PCFG were exclusively internal," DEIS at 3-124, suggesting that there may be some external recruitment into the PCFG gray whale population via immigration. DEIS at 3-127. As explained in GAMMS II, however, a lack of conclusive evidence as to the immigration or emigration rates or mechanisms does not disqualify a feeding aggregation of whales from being designated as a stock. Based on this and other evidence, a 2012 NMFS task force concluded that there "remains a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the PCFG." DEIS at 3-129. Evidence in favor of demographic independence includes the fact that PCFG gray whales are the "only feeding group that does not rely on dynamics of a subarctic ecosystem" and that "this uniqueness may provide important flexibility to the species as a whole given potential challenges in a changing sub-arctic ecosystem." Id.	presented in this comment through the SAR process. Regarding Punt (2015), we have reviewed this information and contacted the author and concluded nothing in that report will likely change the conclusions in the SAR. Punt (2015) will be considered in the next SAR if relevant.

Sort #	Commenter Code	Comment	Response
		Other supporting evidence includes the persistent return of individual whales to specific feeding areas which "strongly suggests that site fidelity is key to maintaining gray whales as a functioning element of this ecosystem," (DEIS at 3-129), and that data documenting "internal calf recruitment … may actually be an underestimate because of survey limitations." DEIS at 130. For those who question whether PCFG whales exhibit demographic independence, they point to evidence demonstrating ongoing external recruitment into the PCFG, although it is conceded that there is "considerable uncertainty as to whether external recruitment exceeds internal recruitment." DEIS at 3-130. In addition, they claim that genetic analyses using mtDNA and nuclear DNA have not shown a significant difference between the PCFG and larger ENP population when, in fact, mtDNA analyses have demonstrated such differences. While nuclear DNA analyses have not revealed similar results, this does not disqualify a group of whale from being designated as a stock. External recruitment of ENP whales migrating through the PCFG range is also used to question a stock determination even though the mere fact that such external recruitment may occur does not disqualify PCFG whales from being designated a stock. Indeed, as noted in NMFS (2005), if the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than of immigration or emigration (external dynamics), the group can qualify for a stock designation. Other evidence that supports the designation of the PCFG as a stock includes: • Since Punt (2015; Attachment 3) determined that PCFG population is at 50 percent of its carrying capacity and given that NMFS reports that at current rates of recruitment, PCFG abundance trends appear to be flat, DEIS at 4-100, 4-84, if external recruitment was the primary mechanism for PCFG whales then population numbers should be increasing. This could suggest that internal recruitment is a more important mechanism for maintaining PCFG numbers and, therefore, would support a stock designation. In addition, if PCFG gray whales were designated as a stock then, at 50 percent of carrying capacity, they would not be at OSP and any intentional take by the Makah would be prohibited. • If the Makah are allowed to whale, particularly under Alternative 2, the killing of up to six ENP gray whales (which may include PCFG whales) each year would constitute the largest source of reported human-caused mortality for gray whales in US waters. As it is not clear that such concentrated mortality (i.e., in	

Sort #	Commenter Code	Comment	Response
		the Makah U&A) would be replaced or how such recruitment is likely to occur, the PCFG gray whales in these smaller regions may no longer be a functioning element in the ecosystem, which would violate the MMPA. Furthermore, for the Makah U&A, the potential mortality of gray whales, including PCFG whales, could be well above the PBR for this region. • The potential for PCFG whales to be a buffer for the species against adverse impacts attributable to climate change in the Arctic cannot be ignored in making this determination. Given that the evidence demonstrates maternally-driven recruitment into the PCFG and noting the high site-fidelity of some PCFG whales to particular regions, simply assuming that ENP whales will fill PCFG vacant niches is risky given the potential importance of PCFG whales. Moreover, if the PCFG represents an ecological/population buffer against the impact of climate change induced changes in the Arctic, then the removal of any PCFG may prevent full development of the buffer. NMFS should err on the side of caution to designate PCFG as a stock to provide protection and to ensure that they continue to serve their role as a functioning element of the ecosystem as required by the MMPA. • While the apparent stability of the PCFG population is a concern if it is well under K, the stability of this feeding aggregation is nonetheless noteworthy and suggests that the aggregation is exploiting important habitat and should be protected because it may be in the early stages of speciation or developing more complex population structure. Given this evidence and the critical importance of a stock determination for PCFG gray whales in light of the Makah Tribe's proposed hunt, NMFS has to make this determination before continuing with the current decision-making process. [17] Furthermore, Lang et al. (2014) notes that "although uncertainty remains, our results indicate that it is plausible that the PCFG represents a demographically independent group and suggest that caution should be used when evaluating the potential impacts of the proposed Makah harvest on this group of animals."	
13	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	4. The use of .50 or larger caliber rifles to kill gray whales does not comply with the MMPA's humane take standards: Even if a waiver is granted to the Makah Tribe, this only exempts the tribe from the prohibition against taking marine mammals under the MMPA. Other provisions of the MMPA, including the requirement to issue regulations and permits to govern the taking of gray whales, would be applicable. Any regulations proscribed must set forth the manner of take that will be allowed,	Comments noted. Please see the response to frequent comment # 1 regarding humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		while the requisite permits must specify the location and manner in which marine mammals may be taken. In addition, the Secretary must determine that the manner of take is humane. The MMPA defines the term "humane," in the context of taking a marine mammal, to mean the "method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved." 16 U.S.C. § 1362(4). Additional information about this standard is included in the Act's legislative history which provides that: 'Humane' in the context of taking marine mammals means the method of taking which involves the least possible amount of pain and suffering which can be inflicted upon the animals involved. It is not a simple concept and involves factors such as minimizing trauma to groups of highly intelligent, social animals such as whales and porpoises where the taking of any member may be distressing to the group. In many cases, where an animal may not be taken humanely the bill will prevent that animal from being taken at all. H.R. REP. NO. 92-707 (1971), reprinted in U.S.C.C.A.N. 4144, 4154. NMFS references the MMPA's "humane" mandate throughout the DEIS. This is particularly relevant in regard to the Makah's proposal to kill gray whales considering the increasing public concern for the suffering of animals, including those who are hunted, the ongoing consideration of cetacean welfare within the IWC, and since the gray whale illegally harpooned (four times) and shot (16 times) by rogue Makah whalers in 2007 took at least 11 hours to die. In its waiver application, the Makah have proposed to use a .50 caliber rifle as the primary killing weapon after a gray whale is struck and penetrated by a steel toggle-point harpoon. The Makah used a .577 caliber rifle in the 1999 hunt and a same rifle along with smaller caliber weapons during the 2007 illegal hunt. Both weapons have been deemed to be adequate to kill gray whales, DEIS at 2-30, 3-169, 3-364 citing (Ingling 1999, Beattie 2001, and Graves et al. 2004). In their analyses of these two weapons, however these experts only compared the two larger caliber rifles against each other and against smaller caliber weapons; they did not test them against explosive grenades containing black powder or penthrite. One of the experts (Dr. Ingling) cited by NMFS in the DEIS suggested the .577 rifle may be preferable because it is lighter, has a 3-shot magazine, and it is quieter. NMFS, however, notes that gun manufacturers have improved the .50 caliber rifle to meet or exceed the alleged benefits of the .577 rifle. NMFS, therefore, concluded, "we consider the Tribe's proposed .50 caliber rifle, with its readily available supply of ammunition, the weapon that Makah hunters would most likely use." DEIS at 3-170. As reported in the DEIS, the whale harpooned and	

Sort #	Commenter Code	Comment	Response
		shot in 1999 took a total of eight minutes to die from the initial harpoon strike to no evidence of life. DEIS at 1-38, 4-76. Both NMFS and the Makah seem to suggest that this is sufficiently "humane" and opine that, with experience, the time to death will decline if the Makah are allowed to kill gray whales. However, whether a kill with a high caliber rifle takes five or eight minutes or longer, that death is not instantaneous or near instantaneous and does not meet the "least possible degree of pain and suffering" standard under the MMPA particularly when less cruel killing methods are available. Furthermore, to use a single event (or a sample size of one) to determine if high caliber rifles are "humane" killing weapons or that the time to death will decrease with more experience is entirely inappropriate since, if the Makah had killed more whales in 1999 or in 2007, the time to death for those whales could have been longer. Although NMFS appears to be prematurely satisfied that the .50 caliber rifle can "humanely" kill a gray whale, it did expand the analysis in the DEIS to consider the potential use of black powder and penthrite explosive grenades. Such grenades could either be delivered using a darting gun or a shoulder gun. A darting gun consists of a barrel to hold the explosive projectile which is attached to the wooden shaft equipped with a toggle point harpoon. DEIS at 2-13. A shoulder gun is like a rifle but designed to fire explosive grenades. For the Makah, just as they propose to use a rifle as the primary killing weapon after a harpoon has penetrated a whale, explosive grenades would be used in the same manner. A primary killing method is required in any gray whale hunt since a steel toggle-point harpoon, even if it is delivered in a perfect strike to the most sensitive part of the whale's body, will not kill the animal. DEIS at 3-167. The evidence contained in the DEIS, taken from a number of studies or reports from whaling activities in Alaska, Russia, Greenland, and Norway, provide compelling data demonstrating that explosive grenades containing penthrite are the least cruel existing method for killing such large whales and should be the only method NMFS permits the Makah Tribe to use if it, wrongly, grants the waiver application and prevails in any subsequent judicial proceedings. The Alaskan Eskimos utilize explosive grenades as both their primary and secondary killing weapons. DEIS at 3-164. These grenades are delivered using hand thrown darting guns or a shoulder gun. The grenades either contain black powder or penthrite, although penthrite is preferred because black powder can taint the taste of whale meat. Id. After the grenade penetrates the whale's body, it detonates and kills via shock waves and tearing of tissues, hemorrhage, and/or	

Sort #	Commenter Code	Comment	Response
		damage to internal organs caused by shrapnel. DEIS at 3-167. According to NMFS, a whale can respond to being struck with a grenade by death, insensibility, and stunning as well as diving, thrashing, and ramming boats. Id. (citing Knudsen and Øen 2003, Øen 1995, and Bockstoce 1986). Such actions, however, are generally short in duration since penthrite results in the rapid death of a whale in most instances. Evidence of this is contained in the DEIS and includes: • Øen (2006) noted that the instantaneous death rate in Norwegian minke whale hunts in which penthrite grenades were employed had increased from 17 percent from 1981 to 1983 to 80 percent in 2000 to 2002 due primarily to improved grenades and training. Overall, 95.5 percent of whales are killed with the first strike by a penthrite grenade. DEIS at 3-171. • In a study of the killing efficiency of black powder and penthrite grenades used in the Alaskan bowhead hunt, Øen (1995) reported that seven of the eight whales struck with penthrite grenade(s) died from the first grenade thrown while the eighth whale required three grenades before he/she died. In addition, the results demonstrated a reduced time to death for whales struck with penthrite versus black powder grenades. In 1988, seven of the eight bowhead whales struck with penthrite grenades were landed (one died but was lost) and five of the whales (63 percent) died instantaneously or in less than 5 minutes, DEIS at 3-172, 3-176. • In 2010, eight bowhead whales struck with penthrite grenades and five were landed after instantaneous or near instantaneous kills. DEIS at 3-174 (citing IWC 2011d). Of the remaining whales, one was lost under the ice, one sank after being killed, and in one whale the grenade did not explode and the whale was lost. Id. • In the 2011 bowhead whale hunt, of the 38 whales landed, 26 whales were reported as instantaneous or near instantaneous kills including all but three of those taken using penthrite grenades. Id. • In 2011, the then Chairperson of the AEWC reported that penthrite grenades "can reduce the time to death for a bowhead whale to four seconds," this being the length of time on the grenade's fuse." DEIS at 3-173, 3-177. • Øen (2015; Attachment 4) reported the time to death data collected during the Icelandic fin whale hunt in 2014 revealed that "84% of the whales had died instantly." In that hunt, "the whales were killed with 90 mm Kongsberg harpoon canons and Whale Grenade-99 modified with 100 g of pressed penthrite as	

Sort #	Commenter Code	Comment	Response
		explosive. Grenade detonation in the thorax (chest), in or at the thoracic spine, neck or brain resulted in 100% instant death." Notably, bowhead whales are larger than gray whales and, consequently, it is expected that, if a hunt were permitted, penthrite grenades would more rapidly kill gray whales. Nevertheless, despite this and other evidence contained in the DEIS demonstrating that penthrite grenades are a less cruel killing method compared to rifles, NMFS still claims that it is "uncertain what the average time to death would be for gray whales killed in a Makah gray whale hunt using explosive projectiles as the striking and killing weapons" although it then concedes that "it is possible that average time to death would be lower than with the alternate method (toggle- point harpoon and rifle) because the striking weapon has the potential to quickly kill the whale or render it insensible." DEIS at 4-77. The DEIS also notes that, at an IWC workshop on Whale Killing Methods held in 2003, the United Kingdom presented a paper indicating that whales could experience stress as a result of being pursued which, in turn, can result in stress-related symptoms such as impaired immune defense, reduced fecundity, a failure to grow, and potentially succumb to "exertional myopathy." DEIS at 3-166. NMFS, in response, reported that exertional myopathy has not been reported in gray whales and that "there are no data at present to evaluate what level of activity would be required to induce this in gray whales." Id. What NMFS fails to disclose is what efforts have been made by its own scientists or others to examine whether pursuit results in stress related complications, including exertional myopathy. Just because exertional myopathy has not been reported in gray whales, doesn't mean that the risk is not real. Finally, while the method of killing whales is directly relevant to "humane" concerns associated with the hunt, the efficiency of the hunt is also a critical consideration. Since struck and lost whales could be whales that are injured and suffering, a less efficient hunt will result in greater cruelty than a highly efficient hunt. The hunting proposal submitted by the Makah Tribe (Alternative 2) is the least efficient of all the action alternatives at 57 percent. DEIS at 4-78. The other action alternatives, according to NMFS, have predicted hunt efficiencies of 67 percent (Alternative 3), 100 percent (Alternative 4), 80 percent (Alternative 5), and 100 percent (Alternative 6). DEIS at 4-78/4-79. Given the foregoing evidence and recognizing that the MMPA requires NMFS to mandate the most "humane" method for taking marine mammals, if NMFS wrongly elects to grant the Tribe's waiver application, it must require the	

Sort #	Commenter Code	Comment	Response
		use of explosive grenades containing penthrite as the primary as well as secondary killing method for gray whales. The fact that such grenades and the darting or shoulder guns used to fire the grenades into a whale are expensive is immaterial in this case. The MMPA does not allow cost to be considered in determining the most "humane" method available to kill a marine mammal. Conversely, allowing the Makah to kill gray whales with either the .50 caliber or .577 caliber rifles would violate the "humane" requirement contained in the Act.	
14	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, although significant concerns about public safety in regard to the use of these powerful rifles are addressed elsewhere in this comment letter, requiring the use of penthrite grenades would substantially reduce risks to public safety, as the grenades, due to their weight, have a significantly smaller range than a bullet (i.e., a grenade certainly could not travel as far as 5 miles like a bullet fired from a .50 caliber rifle).	Comment noted.
15	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**Endangered Species Act** The Endangered Species Act is the nation's preeminent law protecting federally listed threatened and endangered species and their habitats. Its purpose is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions" identified in the ESA. ESA Section 2(b). Furthermore, Congressionally-designated policy requires that "all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." Id. at Section 2(c). Section 7 of the Act mandates that "each federal agency … in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." ESA Section 7(a)(2). To facilitate compliance with the consultation process, "each Federal agency shall … request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action." Id. at Section 7(c)(1). If the "Secretary advises, based on the best scientific and commercial data available, that such species may be present, such agency shall conduct a biological assessment for the purpose of identifying any	This background description of the ESA is noted. Section 3.3.3.2, Biological Resources, describes the listed fish species in the project area and associated critical habitat designations, as well as fish species designated as overfished under the Magnuson Act and areas designated as essential fish habitat. We will consider including costs of consultation under the Endangered Species Act in a final EIS. Section 7 of the ESA does not provide for public participation in the consultation process. The public will have an opportunity to participate in further proceedings under the MMPA, in particular the permitting process. Information developed during the NEPA analysis may inform a

Sort #	Commenter Code	Comment	Response
		endangered species or threatened species which is likely to be affected by such action" Id. As indicated in the DEIS, there are 14 federally listed endangered (nine species) or threatened (five species) in or near the Project Area. NMFS does not identify any species proposed to be listed under the ESA that may exist in or near the Project Area, although it does identify the sea otter (Washington stock) as a species considered to be endangered by the State of Washington. DEIS at 3-206. Based on a review of information about state and federally protected species maintained by the Washington Department of Fish and Wildlife (accessible at http://wdfw.wa.gov/conservation/endangered/All/), it appears that there may be other federally protected species, particularly fish, including a number of stocks of salmon, that may live in or near the Project Area that were not identified in the DEIS. NMFS also fails to indicate if critical habitat has been designated for any federally protected species other than the Southern Resident killer whales in the Project Area. NMFS must disclose all federally listed threatened and endangered species in the Project Area and provide analysis of how the proposed hunt may affect those species and their habitat, particularly any critical habitat designated for the species. As NMFS has apparently failed to disclose all relevant information about ESA-protected species in the DEIS, this constitutes a violation of NEPA. Furthermore, NMFS provides no discussion of the ESA consultation requirements and its efforts to satisfy that mandate. There is no reference to any discussion with its own protected species division or with the USFWS regarding federally protected species in the Project Area. Nor does NMFS report whether it is preparing a biological assessment, if said assessment is completed, and/or if it has initiated or concluded its own internal consultation process or the consultation requirement with the USFWS for protected species under its jurisdiction. NMFS must provide assurance that it has complied or is complying with the ESA. Ideally, NMFS should provide the public with an opportunity to participate in the consultation process but, at a minimum it must disclose that it has or is engaged in consultation and, if completed, share the results.	subsequent ESA analysis. It would be premature to begin the process of an ESA section 7 consultation on a waiver and regulations under the MMPA, given the many steps remaining in the MMPA regulatory process before an action is selected.
16	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**National Environmental Policy Act** NEPA is the basic national charter for protection of the environment. 42 U.S.C. § 4321 et seq. It requires that "environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR § 1500.1(b). Said information "must be of high quality" and subject to "accurate scientific analysis." Id. Ultimately, a NEPA analysis and	This background description of NEPA is noted.

Sort #	Commenter Code	Comment	Response
		decision-making process is "intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." Id. at § 1500.1(c). An Environmental Impact Statement (EIS) as required under NEPA "shall provide full and fair discussion of significant environmental impact and shall inform decisionmakers and the public of the reasonable alternative which would avoid or minimize adverse impacts or enhance the quality of the human environment." Id. at § 1502.1. Impacts, in the context of NEPA, are synonymous with "effects." NEPA requires agencies to evaluate the direct, indirect, and cumulative impacts or effects of the proposal or any alternatives. Any alternatives included in a NEPA document must be reasonable, include reasonable alternatives not within the jurisdiction of the lead agencies, must include a no- action alternative, id. at § 1502.14(a)(c) and (d), and can also include alternatives that may require legislation to implement. DEIS at 2-2 citing 46 Federal Register 18027(2b). Qualitatively, reasonable alternatives include those alternatives that are practicable or feasible from a technical and economic standpoint and that use common sense, rather than being simply desirable from the standpoint of the applicant. DEIS at 2-2. The agency is required to "rigorously explore and objectively evaluate all reasonable alternatives" Id. at § 1502.14(a) and, for those alternatives considered but eliminated from detailed study, must discuss the reasons for eliminating alternatives from substantive analysis. Id. Council on Environmental Quality (CEQ) regulations implementing NEPA – with which all agencies must comply – do not define "reasonable alternative" but explains that "reasonable alternatives to proposed actions will avoid or minimize adverse effects of these actions upon the quality of the human environment." 40 CFR § 1500.2(e). However, the National Oceanic and Atmospheric Administration's NEPA Handbook states "reasonable alternatives are those that may be feasibly carried out based on technical, economic, environmental and other factors, and meet the purpose and need for the proposed action (citing 40 CFR § 1502.14)." See NOAA NEPA Handbook at 5.4.4.1. This latter requirement – that a reasonable alternative meets the purpose and need for the proposed action – is not reflected in the NEPA statutory language or in the CEQ's NEPA regulations, including at § 1502.14, and consequently, may not be lawful. Indeed, as explained in more detail below, if a federal agency on its own behalf or when acting on behalf of a third party can dictate a particular outcome of a NEPA process by crafting its purpose and need	

Sort #	Commenter Code	Comment	Response
		to achieve that outcome – which is precisely what has been done here – it makes a mockery of the entire NEPA process.	
17	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In most cases, the agency should identify the "agency's preferred alternative or alternatives" unless another law prohibits the identification of a preferred alternative. 40 CFR § 1502.14(e). As explained in the NOAA NEPA Handbook, a "proposed action" and a "preferred alternative" are sometimes synonymous, while in other cases, a "proposed action" reflects a more general objective while the preferred alternative describes how the objective will be achieved. NOAA NEPA Handbook at 5.4.4. For NMFS, as stated in NAO 216-6: Environmental Review Procedures for Implementing the National Environmental Policy Act, if it does not have a preferred alternative, it "must provide a range of alternatives or other indication of the alternatives most likely to be selected, thus informing the public of the likely final action and its environmental consequences" so that "the public is … able to more effectively focus its comments." NAO 216- 6 at 5.04(a)3. NMFS has not provided such an explanation in the DEIS.	As the commenter notes, identification of a preferred alternative in the DEIS is not required. The DEIS includes the Tribe's proposed action (Alternative 2) but does not include an agency preferred alternative because at the time of the DEIS NMFS did not have a preferred alternative. This is consistent with CEQ regulations at 40 CFR 1502.14 (e) and 40 questions 4(b). The DEIS provides a range of alternatives, as required by NAO 216-6 A.
18	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The identification of alternatives (including any proposed action), description of the affected environment, and the analysis of environmental consequences are considered the "heart of the environmental impact statement." 40 CFR § 1502.14. An agency is required to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and provide a clear basis for choice among options by the decisionmaker and the public." Id.	This background description of NEPA regulations is noted.
19	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In addition, an EIS must include a discussion of "any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented." Id. at § 1502.16. The DEIS does not include a discussion of any of these required elements.	These introductory comment are noted; specific responses are provided below.
20	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>1. NMFS has failed to provide a reasonable range of alternatives in the DEIS</u>: The DEIS evaluates the environmental impact of six alternatives. Unfortunately, these alternatives do not comply with NEPA requirements to consider all reasonable and feasible alternatives. Additional alternatives, as described below, should have been evaluated in the DEIS. Two of these alternatives, both of which the Coalition would fully support, were not evaluated	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		at all in the DEIS or were considered and rejected. The first is a non-lethal use alternative whereby NMFS, other federal agencies, and even non-governmental organizations would collaborate with the Makah Tribe to establish marine animal (including whales) watching operations in Neah Bay. Such operations could incorporate the use of the traditional canoes for coastal animal watching excursions or employ motorized vessels to permit coastal and offshore excursions. Properly trained Makah tribal members could act as vessel captains, operators, paddlers, and naturalists on such vessels while the actual operation would be fully owned and operated by members of the Makah Tribe. Considering, as described in the DEIS, the significant marine diversity and aesthetic beauty found in Northwest Washington, including in the Makah U&A, and the current lack of any marine wildlife viewing operations in the Neah Bay area, such an alternative would provide a unique opportunity for visitors to Neah Bay. In addition to creating paid employment on the Makah reservation, if properly marketed, such operations would increase visitation to Neah Bay, which would likely translate into increased revenue for the tribe and individual business owners for accommodations, food, services, and miscellaneous purchases. Unlike existing whale and other marine wildlife viewing operations in Washington or the Vancouver area, the Makah Tribe could use its programs to introduce visitors to its history, culture, and traditions (including its traditions related to whaling), which would then be reinforced if visitors also toured the Makah Cultural and Research Center (Museum). If this alternative were evaluated and ultimately selected, the Makah Tribe would not give up its treaty right to whale but, rather, would agree to suspend its pursuit of an MMPA waiver and its resumption of whaling. While this alternative would not permit the Makah Tribe to kill whales, the Tribe could still use products from any drift/stranded or entangled whales that died and practice all of its traditions related to whaling. It could also, consistent with NMFS whale-watching regulations, interact with gray and other whale species in a non-lethal manner that would create jobs, increase visitation to the refuge, increase revenues, and provide an educational value for tourists. A second reasonable alternative involves providing compensation to the Makah Tribe in exchange for its agreement to suspend its pursuit of an MMPA waiver and cease its efforts to resume whaling. A version of this alternative was considered in the DEIS but rejected (DEIS at 2-30/2-31). This alternative would not involve only financial compensation to the Tribe but, could also include the transfer of land, provision of equipment/supplies needed by the Tribe, federal	

Sort #	Commenter Code	Comment	Response
		grants to address known needs of the Tribe and/or individual tribal members, and/or increase the allocation of fishing quotas consistent with conservation needs, along with a federal funding package the Makah could use to address the many needs in Neah Bay. Some of those needs are referenced in the DEIS and include the development of the Makah Tribe's marine program and its harbor at Neah Bay, an upgraded marine fuel float, creating a deep harbor entry area, and a cruise ship facility. DEIS at 3-22. Other potential uses of such federal assistance or funds, which would provide even greater benefits for more reservation residents and are also identified in the DEIS, are: expanding the reservation's forested land base, studying the feasibility of a marine fish hatchery; diversifying the Makah Tribe's fishing industry (particularly the whiting fishery); constructing a visitor center along with an associated ocean front cabin resort and motel, a boardwalk, a wellness/medical center, senior citizens apartments, housing for medical clinic workers, baseball fields, trails for tsunami escape corridors, walking paths, and a new Makah tribal council office; conducting road improvements; developing a new clean water source for the reservation, revitalizing the downtown area, expanding the Shi-Shi Trail, and upgrading the tribal communications network; developing wind energy generation units on the reservation; and facilitating improvements in the tribe's value-added seafood processing capacity. DEIS at 3-23. If this alternative were selected, the Makah Tribe would retain its treaty right to whale but would agree to suspend pursuit of whaling for a set period of time (e.g., 25 years). This alternative is similar to the agreement reached by the Nuu-chah-nulth, a First Nations group that resides on Vancouver Island, with the Canadian government (see DEIS at 1-28). The benefits of such an alternative would be recognized by every tribal member who resides in Neah Bay and could be used to improve the quality of life on the reservation by improving urgent care capabilities, expanding existing medical facilities, enhancing the care of tribal elders, expanding and strengthening tribal substance abuse programs, improving housing standards, and meeting other urgent and critical needs in Neah Bay. NMFS rejected this compensation alternative because it claimed that any of the activities under this alternative would be speculative and would involve uncertain negotiations between the Makah Tribe and other government and non-governmental entities. DEIS at 2-30. This is simply not accurate since, if such an alternative were selected, then once the negotiations on a compensation	

Sort #	Commenter Code	Comment	Response
		package began, specific components of such a package would be identified and articulated.	
21	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS will also likely claim, as it already has for the second suggested alternative, that these alternatives cannot be selected as they do not satisfy the purpose and need for either the Makah Tribe or NMFS. As explained above, however, this claim is not consistent with NEPA. Even if it were, as also noted above, NMFS must restate its purpose and need (and delete the Makah Tribe's purpose and need) to ensure the NEPA decision-making process is legitimate (i.e., by ensuring the No Action Alternative is a viable alternative that can be selected at the conclusion of the NEPA decision-making process).	We disagree with the commenter's position that we must eliminate the Makah Tribe's stated purpose and need for action and that by including it we preclude selecting the No-Action Alternative. CEQ's NEPA guidance (December 2007) notes that "One key aspect of a draft EIS is the statement of the underlying purpose and need. Agencies draft a "Purpose and Need" statement to describe what they are trying to achieve by proposing an action. The purpose and need statement explains to the reader why an agency action is necessary, and serves as the basis for identifying the reasonable alternatives that meet the purpose and need." DEIS Section 1 (Purpose and need) describes the necessity for agency action and our consideration of prospective action alternatives. Moreover, a No-action alternative carries equal weight as a viable option for final alternative selection by the decision-maker, as supported by CEQ regulations, regardless of consistency with a purpose and need statement. If the No-action Alternative is the alternative that the agency concludes would fulfill its statutory mission and responsibilities, it can be selected by the agency decision-maker (in other words, the proposed action can be

Sort #	Commenter Code	Comment	Response
			withdrawn causing the No-action Alternative to stand).
22	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Another alternative that should have been evaluated would combine many of the most conservative elements of the existing action alternatives. In this case, such an alternative would permit whaling during a split season (i.e., three weeks in December and May), all whaling would be required to occur at least five miles offshore, maximum annual take would be limited to one whale (and no more than 6 over six years), a limit of a single struck and lost whale (with any lost whale counted as a PCFG whales), a limit on the take of PCFG whales to be 10 percent of the OR-SVI PBR (.23),[18] with no carryover of any unused limit, and expiration of the MMPA waiver and any associated regulations and permits after ten, three, and three years, respectively. In addition, the Makah Tribe would be required to use penthrite grenades as its primary killing weapon. Such an alternative would allow the Makah to take a limited number of whales during time periods when the risk to WNP gray whales would be reduced. It would also provide increased protection to PCFG whales that occur within the OR-SVI area (the area that the Makah Tribe identified as the recommended region for analysis) by imposing a restrictive take limit which, if a PCFG whale were killed, would require a hiatus in the hunt for as many as four years. In addition, because the hunt would take place well offshore and would require the use of penthrite grenades, it would result in more rapid death to struck whales and would reduce threats to public safety. The expiration of the permits, regulations, and waiver would ensure that NMFS revisits its decision with some frequency in order to make any adjustments as dictated by scientific evidence and social concerns (i.e., adaptive management). While the Coalition would not support this alternative, it should have been evaluated since it combines many of the most conservative collections of elements from the other action alternatives, which would permit the Makah Tribe to engage in ASW but would limit the impact of any hunt to ENP, PCFG, and WNP gray whales and be more humane. [18] Section 118 of the MMPA sets a goal of reducing incidental mortality of marine mammals in commercial fisheries to "insignificant levels approaching a zero mortality and serious injury rate." 16 U.S.C. § 1387, DEIS at 2-21. NMFS considers this goal as being met when commercial fisheries result in a mortality rate of marine mammals that is 10 percent or less of PBR. Id.	We evaluated these elements under the various alternatives in the DEIS. NEPA does not require that we combine the most conservative elements into a single alternative, nor does it preclude us from selecting a preferred alternative in a Final EIS that incorporates elements from different alternatives. The purpose of NEPA is to illuminate relevant effects of alternative actions to inform decision-making. When a proposed action includes numerous elements, as is the case here, the alternatives do not need to include every possible combination. What matters is that the decision-maker can discern the relevant effects of the various elements.

Sort #	Commenter Code	Comment	Response
23	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	2. NMFS has failed to disclose all relevant information and to provide a clear and accurate analysis of the environmental consequences of the no action and action alternatives: The affected environment and environmental consequences sections of the DEIS provide the heart of the analysis. The former is intended to fully document the characteristics of the affected environment, while the latter considers the impacts on that environment of the alternatives evaluated in the DEIS. Because of the linkages between these sections of the DEIS, they will be considered together here. Analysis is not provided of each of the environmental variables (e.g., water quality, public services) contained in the DEIS. This is not to suggest these variables are not important but only that the Coalition does not have substantive concerns with the relevant analyses contained in the DEIS, unlike the variables discussed below. Prior to discussing the categories of environmental consequences where the Coalition has substantive concerns, there are broader issues relevant to the content of the affected environment and environmental consequences sections of the DEIS. NEPA requires federal agencies to disclose all relevant information in an EIS. Here, the DEIS does not satisfy this important standard, as critical information has not been disclosed. Where NMFS has failed to fully disclose all relevant information in any of the categories of environmental consequences evaluated in the DEIS, a discussion of the missing information and its relevance to analysis of environmental impacts is included below. In some cases, NMFS has claimed relevant information is not available. While the Coalition questions the legitimacy of many of these claims, that analysis is also incorporated below.	These introductory comment are noted; specific responses are provided below.
24	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The CEQ NEPA implementing regulations explicitly address how federal agencies are to deal with incomplete or unavailable information. For incomplete information that is "essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 CFR § 1502.22(a). For information that cannot be obtained "because the overall costs of obtaining it are exorbitant or the means to obtain it are not known," the agency must provide, in the DEIS: "1) a statement that such information is incomplete or unavailable; 2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; 3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impact on the human environment, and 4) the agency's evaluation of such	This introductory comment is noted. Subsequent responses address this commenter's specific claims of incomplete or unavailable information. To the extent a statement regarding such information is necessary and was not provided in the DEIS, we will provide such a statement in a final EIS.

Sort #	Commenter Code	Comment	Response
		impact based upon theoretical approaches or research methods generally accepted in the scientific community." Id. at § 1502.22(b)(1-4). NMFS has failed to provide the required statement for information that it deems to be unavailable for analysis in the DEIS.	
25	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	3. NMFS has failed to define the impact levels used in the DEIS: The DEIS is also missing critical information relevant to the impact levels relied on in the analysis of environmental consequences. Impact thresholds for the purpose of this discussion are the terms used to identify the physical or temporal severity and/or the geographic scope of the environmental impacts caused by action alternatives. Throughout the DEIS, NMFS uses terms such as "negligible," "minor," "small," "temporary," "short-term," "no appreciable effect," "improbable," "localized," and other terms to describe its assessment of such impacts. NMFS "interprets" "negligible" in the DEIS to mean "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR § 216.103)," DEIS at 2-21, but it fails to provide a definition for any of the other impact level terms used in in the document. The definition of "negligible" cited above is relevant to NMFS's analysis of incidental take of marine mammals by United States citizens engaged in specific activities (other than commercial fishing) within a specified geographic range. Id. It is not clear if NMFS is applying this same definition in the context of its analysis of the environmental impacts of the Makah Tribe's proposed whale hunt in the DEIS. If not, then NMFS has not provided a definition of "negligible" in the DEIS. If so, its use of this definition raises additional questions since, as NMFS notes in the DEIS, "in practice, we consider an incidental take that does not exceed 10 percent of PBR to have a negligible impact" DEIS at 2-21 (citing 64 Fed. Reg. 28,800, May 27, 1999). Since, in the present context, the take of gray whales may be intentional and, at least for PCFG gray whales under several alternatives, the level of take will be at or in excess of PBR, it would not appear that the use of this term is appropriate. Furthermore, some claims of a "negligible" impact in the DEIS have nothing to do with impacts to a species or population stock, further suggesting that the definition of "negligible" in the DEIS is not relevant to the use of "negligible" in evaluating the environmental consequences of the proposed Makah hunt.	The discussion of impacts throughout the DEIS uses descriptive terms such as those cited in the comment to qualitatively describe impacts. Table 4-15 summarizes and compares the impacts of the alternatives on each resource, as required by NEPA. It was not the intent that the descriptive terms used in the narrative would have a quantitative meaning as the commenter cites in other NMFS NEPA documents. The DEIS describes and compares the impacts of the alternatives (relative to the No-action Alternative) in both quantitative and qualitative terms as appropriate, including via numerous tables and figures (e.g., Table ES-1, Table 4-15, and Figure 4-1). The DEIS uses the term "negligible" in its dictionary definition sense, which is "so small or unimportant or of so little consequence as to warrant little or no attention." (Merriam-Webster).

Sort #	Commenter Code	Comment	Response
		Moreover, with the exception of a few instances where it includes text in parentheticals to ostensibly explain the meaning of the term being used, NMFS has failed to include any definition of any of the other impact thresholds in the DEIS. NMFS is well aware of the fundamental need to define such impact thresholds. For example, its Final Environmental Impact Statement for Issuing Annual Quotas to the Alaska Eskimo Whaling Commission for a Subsistence Hunt on Bowhead Whales for the Years 2013 through 2018 (Bowhead EIS),[19] published in January 2013, includes a section (see pages 74-76 in Bowhead EIS) explaining the "Steps for Determining Level of Impact." In that section, NMFS explains the legal basis for having to define impact levels: The CEQ regulations implementing NEPA state that an EIS should discuss the significance, or level of impact, of the direct, indirect, and cumulative effects of the proposed alternatives (40 CFR § 1502.16), and that significance is determined by considering both the context in which the action will occur and the intensity of the action (40 CFR § 1508.27). Context and intensity are often further broken down into components for impact evaluation. The context is composed of the extent of the effect (geographic extent or extent within a species, ecosystem, or region) and any special conditions, such as endangered species status or other legal status. The intensity of an impact is the result of its magnitude and duration. Actions may have both adverse and beneficial effects on a particular resource. A component of both the context and the intensity of an effect is the likelihood of its occurrence. The combination of context and intensity is used to determine the level of impact on each type of resource. The first step is to examine the mechanisms by which the proposed action could affect the particular resource. For each type of effect, the analysts develop a set of criteria to distinguish between major, moderate, minor, or negligible impacts. The analysts then use these impact criteria to rank the expected magnitude, extent, duration, and likelihood of each type of effect under each alternative. NMFS then goes on to include a number of definitions of different impact levels. For example, as to the impact of the proposed action and any alternatives on bowhead whales, NMFS defines "negligible," "minor," "moderate," and "major" based on the relevant "Q" values from the 2006 stock assessment report for this stock of bowhead whales. For other variables evaluated, NMFS provides definitions of terms such as "temporary," "long-term," "moderate," "frequent," "infrequent," and "likely."	

Sort #	Commenter Code	Comment	Response
		In its Supplemental Draft Environmental Impact Statement on the Effects of Oil and Gas Activities in the Arctic Ocean (March 2013), it provides a more comprehensive (and useful) suite of definitions of impact levels used in its analysis. In that document, NMFS defines: "low," "medium," and "high" in regard to the intensity (magnitude) of the impacts; "temporary" and "long-term" in the temporal context of the duration of the impact; "local," "regional," and "state-wide" in regard to the extent of the impact; and "common," "important," and "unique" in terms of the value of the resources that may be impacted. It then, for its "qualitative thresholds," provides a definition of "negligible," "minor," "moderate," and "major." In that NEPA document, "negligible" is defined as "impacts (that) are generally extremely low in intensity (often they cannot be measured or observed), are temporary, localized, and do not affect unique resources." This definition is different from the definition of "negligible" in the context of incidental take analyses. In the context of the DEIS, not only has NMFS failed to define the impact levels that it has used in its analysis, but it has even failed to provide a full complement of impact levels as reflected in the other NEPA documents identified above. Importantly, it is not just a matter of defining impact levels, but the impact levels used also must be developed so they are distinguishable, such that the public and decisionmakers are able to easily understand the difference between the various levels used (e.g., how a "negligible" impact is distinguished from a "minor" impact). As noted previously, the alternatives, affected environment, and environmental consequences sections of any EIS is considered the "heart" of the analysis and an agency "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 CFR § 1502.14. In order to sharply define the issues and to ensure, post- decision, that the agency's analysis of impact levels was accurate, it follows that the impact levels used must be meaningful, distinguishable, quantifiable, and/or measureable. If not, then the impact levels effectively become irrelevant since there would be no mechanism to differentiate between the reported impacts. In other words, the agency's analysis would be based largely on speculation as to severity of any impacts. In Bluewater v. Salazar (721 F.Supp.2d 7 D.D.C. (2010)), the National Park Service was criticized for its failure to use meaningful, distinguishable, quantifiable, and measureable impact thresholds in its impairment analysis of	

Sort #	Commenter Code	Comment	Response
		allowing jet skis use in the Gulf Islands National Seashore. The court went into great detail to explain why impact levels (or thresholds) in the context of the NPS impairment standard must be distinguishable from each other. While the NPS impairment standard is not a component of NEPA, the impact level concept is exactly the same, suggesting that impact levels contained in NEPA documents must, at a minimum, meet the standards imposed in Bluewater. Given the critical importance of the impact analysis in any EIS, the failure by NMFS to define the impact levels used in the DEIS, to provide a full complement of impact levels (i.e., to address the intensity, temporal context, extent, resource value, and physical impact of an action and its alternatives), and to differentiate between impact levels, is not an error that can be corrected in a Final EIS. Rather, at a minimum, NMFS needs to suspend the current NEPA process while it prepares a Supplemental EIS to address this (and other deficiencies) in the DEIS. [19] Available at: https://alaskafisheries.noaa.gov/protectedresources/whales/bowhead/eis0113/final.pdf	
26	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**Other Federal Agencies and Additional Legal Concerns** <u>1. NMFS has failed to adequately evaluate how the proposed whale hunt would impact other federal agencies with jurisdiction within the Project Area or to clearly explain management authorities of those agencies:</u> The Obama Administration has led a push towards the use of ecosystem-based management of our marine resources. In its 2011 EBM Strategic Action Plan Outline, the National Ocean Council (NOC) defined EBM as: an integrated approach to resource management that considers the entire ecosystem, including humans, and the elements that are integral to ecosystem functions. EBM is informed by science to conserve and protect our cultural and natural heritage by sustaining diverse, productive, resilient ecosystems and the services they provide, thereby promoting the long-term health, security, and well-being of our Nation. In a 2013 report to the NOC, the Ocean Research Advisory Panel (ORAP) stated: EBM is an integrated approach to management that drives decisions at the ecosystem level to protect the resilience and ensure the health of the ocean, our coasts and the Great Lakes. EBM is informed by science and draws heavily on natural and social science to conserve and protect our cultural and natural heritage, sustaining diverse, productive, resilient ecosystems and the services they provide, thereby promoting the long-term health, security, and well-being of our Nation.	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		As described in the DEIS, the project area encompasses several federally designated and managed areas, including the Olympic Coast National Marine Sanctuary (OCNMS), the Washington Islands National Wildlife Refuges, Olympic National Park, and internationally designated areas, including a United Nations World Heritage Site and the Olympic Biosphere Reserve, as well as the Makah and Ozette Reservations. To be consistent with EBM, NMFS must take into consideration the environmental impacts of a proposed hunt on this larger geographic region, which it has not done in this DEIS, as explained below. There are a number of federal agencies that manage lands or waters within the Project Area. These agencies include NOAA, the National Park Service, and the United States Fish and Wildlife Service. For each of the areas managed by these agencies, there are separate statutes and regulations that dictate wildlife management requirements. <u>Olympic Coast National Marine Sanctuary (OCNMS):</u> The OCNMS is managed by NOAA's Office of National Marine Sanctuaries. As noted in the OCNMS Final Management Plan and Environmental Assessment, the OCNMS encompasses 2,500 square nautical miles of marine waters off of Washington's Olympic Peninsula coast. See Figure 1. Its location enhances protections to the region's natural integrity provided by both Olympic National Park and the Washington Maritime National Wildlife Refuge Complex. The area's nutrient-rich waters contribute to the high primary productivity within the OCNMS, which attracts twenty-nine species of marine mammals, some of the largest seabird colonies in the continental United States, and a variety of commercially important fish species. It also supports the critical habitats of a number of unique communities of organisms, including deep sea coral and one of the world's most diverse seaweed communities. Figure 1: Map of OCNMS (available at http://sanctuaries.noaa.gov/pgallery/atlasmaps/oc.html) The OCNMS is managed pursuant to the National Marine Sanctuaries Act (NMSA). The NMSA, enacted in 1972, authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries. The primary objective of the NMSA is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats.	

Sort #	Commenter Code	Comment	Response
		Section 304(d) of the NMSA requires federal agencies whose actions are "likely to destroy, cause the loss of, or injure a sanctuary resource," to consult with the program before taking the action. The program is, in these cases, required to recommend reasonable and prudent alternatives to protect sanctuary resources. 16 U.S.C. § 1434(d). The boundaries of the Makah U&A appear to overlap with the boundaries of the northern portion of the OCNMS. Regulations relevant to the OCNMS generally prohibit the taking of marine mammals and other species in or above the sanctuary, except if such taking is authorized by several laws or treaties. Specifically, the regulations prohibit: Taking any marine mammal, sea turtle or seabird in or above the Sanctuary, except as authorized by the Marine Mammal Protection Act, as amended, (MMPA), 16 U.S.C. 1361 et seq., the Endangered Species Act, as amended, (ESA), 16 U.S.C. 1531 et seq., and the Migratory Bird Treaty Act, as amended, (MBTA), 16 U.S.C. 703 et seq., or pursuant to any Indian treaty with an Indian tribe to which the United States is a party, provided that the Indian treaty right is exercised in accordance with the MMPA, ESA, and MBTA, to the extent that they apply. 15 CFR § 922.152(a)(6) While the whaling provisions in the Treaty of Neah Bay would appear to secure the Makah Tribe's ability to hunt whales within the OCNMS, information in the OCNMS Final Management Plan and EA suggests that a management plan is required to facilitate this exemption to the general prohibition against taking marine mammals in the OCNMS. As explained in the Final Management Plan and EA: NOAA's implementation of the NMSA and its duty to implement the federal trust responsibility toward American Indian tribes complement and support one another. The purposes and policies of the NMSA include the following, "to maintain the natural biological communities in national marine sanctuaries, and to protect, and where appropriate restore and enhance natural habitats, populations, and ecological processes." This statutory mission supports NOAA's implementation of its trust responsibility for the protection of treaty trust resources, tribal access to treaty resources and the sustainable development of treaty rights. <u>One of the purposes and policies of the NMSA is "to develop and implement coordinated plans for the protections and management of [sanctuaries] with … Native American Tribes</u> and organizations…and other public and private interests concerned with the	

Sort #	Commenter Code	Comment	Response
		continuing health and resilience of these marine areas." This policy statement in the NMSA supports OCNMFS efforts to defer to tribal management plans that achieve the statutory mission and obligations of OCNMS. Finally, the NMSA's objective "to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of" national marine sanctuaries supports implementation of NOAA's trust responsibility to protect the exercise of treaty rights, now and in perpetuity. The NMSA and the federal trust responsibility provide one basis, among many, for the determination OCNMS regulations do not restrict the ability of Coastal Treaty Tribes to exercise their treaty protected rights (15 CFR 122.152(f)). The Coastal Treaty Tribes and NOAA strive to develop joint activities and projects, and to engage in the collaborative development and implementation of coordinated plans for the management and protection of treaty resources, to ensure resilience of those resources, and to promote the continuing health of the OCNMS ecosystem. (Final Management Plan and EA at 10; emphasis added).	
27	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	This language indicates that OCNMS and the Makah Tribe either must develop a coordinated plan for the protection and management of treaty resources or the OCNMS can defer to a management plan promulgated by the Makah Tribe. Any such plan, however, must provide for the protection of treaty resources, ensure the resilience of those resources, and promote the continuing health of the OCNMS ecosystem. NMFS does not provide any information in the DEIS to suggest that such a management plan for gray whales or for all sanctuary resources that may be exploited by the Makah Tribe has been developed. If such a plan exists, it should be disclosed as part of the NEPA process. If no plan is available, the Makah must not be allowed to engage in whaling within the OCNMS until it, ideally in collaboration with OCNMS representatives, promulgates a plan. Such a plan should be subject to public notice and comment before it is finalized.	NMFS is consulting with OCNMS, as appropriate under the National Marine Sanctuaries Act and as subject to the requirements of that Act. The language in the OCNMS Final Management Plan, that NOAA and the Tribe will "strive to" develop a joint management plan, does not require the Tribe to have a plan in place before exercising its treaty rights.
28	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Washington Islands National Wildlife Refuges: The Washington Islands National Wildlife Refuges include the Flattery Rocks, Quillayute Needles, and Copalis National Wildlife Refuges. See Figure 2. The refuge complex is under the jurisdiction of the US Fish and Wildlife Service (USFWS). For management purposes these refuges are managed as part of a complex. Flattery Rocks National Wildlife Refuge (NWR) is the furthest north of all three refuges and is the refuge most likely to be affected by the proposed Makah hunt. See Figure 3.	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		In 1907, President Theodore Roosevelt signed Executive Order 703, establishing the Flattery Rocks Reservation. That EO specified that: It is hereby ordered that all small, unsurveyed and unreserved islands lying off the coast of the State of Washington in the Pacific Ocean, between latitudes 48° 02' North and 48° 23' North, among which are those named and commonly known as Spike Rock, Father and Son, Bodiel-teh Islets, Flattery Rocks, Ozette Island and White Rock, as the same are shown upon coast survey chart No. 6400, or upon the General Land Office map of the State of Washington, dated 1887, and located within the area segregated by a broken line and shown upon the diagram hereto attached and made a part of this order, are hereby reserved end set aside for the use of the Department of Agriculture, as a preserve and breeding ground for native birds and animals. This reservation to be known as Flattery Rocks Reservation. In 1940, by proclamation, Flattery Rocks, Quillayute, and Copalis reservations were redesignated as national wildlife refuges. In 1970, all three refuges were designated as wilderness areas. Figure 2: Map of the Washington Islands National Wildlife Refuges (available at http://www.thearm chairexplorer.com/washington/w-images/nwr-photos/Washington_Maritime_NWRC_Ma.jpg) Figure 3: Map of Flattery Rocks National Wildlife Refuge (available at https://upload.wikimedia. org.wikipedia/commons/thumb/7/70/Flattery_Rocks_NWR_Map.svg/283px-Flattery_Rocks_ NWR_Map.svg.png Management of Flattery Rocks NWR is complicated given the multiple agencies, state and federal, and tribal that have separate or overlapping jurisdiction for the management of natural resources in the area. As explained in the Washington Islands National Wildlife Refuges Comprehensive Conservation Plan and Environmental Assessment (CCP/EA): The Service (USFWS) is responsible for most of the islands, rocks, and seastacks above the mean high water line. As with other national wildlife refuges, the Service is responsible for any wildlife, fish, and plants that occupy the Washington Islands NWRs whether they are seasonal or permanent residents. This includes seabirds, shorebirds, and marine mammals that use the Refuges' islands and shoreline. Although Service responsibilities cover terrestrial environments, the Refuges are vitally linked with the surrounding marine environment and its resources. The waters surrounding the Flattery Rocks NWR are largely managed by the OCNMS although, given the purpose of the refuge to protect birds and animals and the legally designated	

Sort #	Commenter Code	Comment	Response
		refuge boundary that includes a large amount of ocean habitat, the USFWS must have some role in the management of this wildlife, including ocean species. Management of Flattery Rocks NWR is governed by the National Wildlife System Administration Act, as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. § 668dd et seq.). While hunting can be permitted on national wildlife refuges, the USFWS must engage in an independent planning process to open a refuge to hunting or to amend or modify hunting practices once a refuge has been opened to hunting. In addition, refuge-specific hunting regulations must be promulgated. The Flattery Rocks NWR is not open to hunting or fishing, as there are no refuge-specific hunting or fishing regulations published in the Code of Federal Regulations (see 50 CFR 32.67).	
29	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Since the waters surrounding Flattery Rocks NWR appear to be managed by ONNMCS up to the "higher high water mark on Refuge islands," it would appear any hunting of whales by the Makah Tribe within the boundaries of the Flattery Rocks NWR does not require refuge-specific hunting regulations. However, if such hunting resulted in adverse impacts to the birds and mammals that utilize the islands, beaches, and rocky outcrops within the Flattery Rocks NWR, or if the Makah were to land a struck whale on lands under the jurisdiction of the USFWS, then the USFWS would have the authority to act to protect such species and their habitat despite NMFS's jurisdiction over whales under the MMPA and ESA. More than likely, given USFWS NWR regulations and policies, the Makah would not be authorized to land a whale onto any of the islands within the Washington Islands National Wildlife Refuges complex absent prior authorization to do so. As explained in the CCP/EA, the USFWS can enter into Memoranda of Understanding with tribal governments to permit their use of refuge lands and resources but, in this case, there is no evidence such an MOU has been negotiated between the Makah Tribe and the USFWS. Given the confusing mixture of management jurisdictions among federal, state, and tribal agencies in this region, NMFS must include a more detailed analysis of the various agencies and their management responsibilities in a revised EIS. In particular, it must identify the legal standards, including those relevant to the USFWS, that govern management of terrestrial and aquatic species in the area and under what circumstances the agencies have a role in the wildlife management decision-making process. Furthermore, NMFS must clarify if the Makah can land a dead whale on USFWS refuge lands, what permits would be required to do so, and evaluate how that could impact refuge wildlife, including refuge birds, and wildlife habitat.	For each affected resource the DEIS describes the regulatory environment. We are unaware of any permitting requirements for the Tribe to land a harvested whale on refuge lands. The CCP/EA includes a discussion (Section 1.7.5 – Tribal Consultation) describing the meetings between USFWS refuge staff and the Makah (and other affected tribes). In those discussions the Tribe noted that it considers these islands within its usual and accustomed ground and stations to be subsistence resources. The commenters assertion that the Makah would not be allowed to land a whale on a refuge island is speculative and inconsistent with the USFWS conclusion in the CCP/EA that "it will continue meeting with the tribes independent of the CCP process to develop memorandums of understanding that are both respectful of the rights and needs of the Tribes and consistent with preserving the

Sort #	Commenter Code	Comment	Response
			wildlife and wilderness values of the Washington Islands Refuges."
30	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While the DEIS does provide some broad analysis of the impacts of a hunt on birds, other marine mammals, and intertidal habitat, it fails to provide the level of detail that is required by NEPA in an EIS.	The commenter does not provide any specific information and does not identify how the current detail in the DEIS is deficient. The DEIS provides sufficient detail to allow for an examination of the potential impacts of the proposed action and alternatives.
31	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Olympic National Park:</u> Olympic National Park (ONP) is administered by the National Park Service (NPS). ONP protects 922,651 acres of three distinct ecosystem types: glaciers, coastline, and old growth and temperate forests. As described in ONP's Final General Management Plan and Environmental Impact Statement (ONP GMP EIS), the park provides habitat for 70 unique stocks of Pacific salmon and steelhead, 29 species of native freshwater fish, 1,100 species of native plants, 300 species of birds, including the federally protected marbled murrelet, and 70 species of mammals. ONP GMP EIS at 3. The 70-mile long, 43,000 acre Pacific coastal strip and off-shore islands of ONP provides protection to beached, intertidal areas, and rocky tidal pools as the park's boundary extends seaward to the "lowest low tideline." Id. See Figure 4. In addition, 95 percent of the park, including its coastal strip, is Congressionally designated wilderness managed pursuant to statutes governing national parks and the Wilderness Act (16 U.S.C. § 1131, et seq.). Figure 4: Map of Olympic National Park (available at http://media.away.com/gifs/states/wa/m_olymov.gif) ONP is managed pursuant to the NPS Organic Act (16 U.S.C. § 1, et seq.). The fundamental purpose of the NPS is to "promote and regulate the use of the Federal areas known as national parks, monuments, and reservations … as provided by law, by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 16 U.S.C § 1. Furthermore, the "authorization of activities (in national parks) shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National	These introductory comments are noted.

Sort #	Commenter Code	Comment	Response
		Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress. 16 U.S.C § 1a-1. Regulations specific to ONP indicate that "all hunting or the killing, wounding, or capturing at any time of any wild bird or animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of the park…" The Secretary of the Interior is also required to promulgate "regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property therein, especially for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonderful objects within the park, and for the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the park…" As dictated by statute, "possession within the park of the dead bodies or any part thereof of any wild bird or animal shall be prima facie evidence that the person or persons having the same are guilty of violating this Act." 16 U.S.C. § 256b.	
32	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While the majority of ONP is inland and, therefore, not likely to be directly impacted by the proposed hunt, the coastal portion of ONP could be affected. Such impacts could include park visitors observing a hunt, a dead whale being towed back to the Makah reservation, a whale injured by a hunt that strands on ONP lands, or a whale struck and lost by the Makah if it were to wash up on to ONP lands. In addition, albeit unlikely, Makah whalers under certain circumstances, including inclement weather or equipment failure, may elect to land a whale on ONP lands even though this would be illegal under existing ONP regulations. With the exception of conceding that visitors to ONP may be able to see or hear a whale hunt, NMFS failed to consider other potential adverse impacts to ONP visitors like those summarized above. In addition, it did not provide any discussion in the DEIS about the laws relevant to the protection of ONP, what the Makah would be authorized to do (or not to do) on lands and waters under jurisdiction of ONP, nor did it adequately consider the requirements of the Wilderness Act in the context of Makah whaling.	Several sections of the DEIS consider current activities at Olympic National Park (e.g., Section 3.6.3.2.4, Contribution of Tourism to the Local Economy; Section 3.11.3.1.3, Olympic National Park), and potential impacts to resources and visitors at Olympic National Park (e.g., Section 4.6.2.1, Tourism; 4.11.2.2, Noise Levels at Receiving Properties).
33	Schubert (Animal Welfare Institute)_Le	<u>The Wilderness Act</u> The Wilderness Act permits the designation of wilderness areas in order to protect these areas from increasing human population, expanding settlements, and growing mechanization. 16 U.S.C. § 1362.2(a).	The DEIS identifies the wilderness areas that might be affected by a hunt as well as effects of concern and relevant provisions of the Wilderness

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	A wilderness is defined as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain," that retains "its primeval character and influence," where "natural conditions" are preserved, where there is no "natural improvements or human habituation," and that "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." Id. at § 1362.2(c). Such areas are to be "administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use as wilderness, and so as to provide for the protection of these areas, (and) the preservation of their wilderness character…"Id. at § 1362.2(a). Within wilderness areas, "there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area." Id. at § 1364.4(c). NMFS has failed to evaluate the environmental impacts of the proposed whale hunt in the context of the Wilderness Act and its stringent standards for the protection of wilderness areas.	Act (e.g., Subsections 3.11.2 and 3.11.12, Regulatory Overview, specifically related to Noise and Aesthetics, respectively). It is unclear what is meant by evaluating impacts of the alternatives "in the context of the Wilderness Act." The DEIS examines the effect of the alternatives on wilderness areas. It is not the purpose of the DEIS to arrive at legal conclusions.
34	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**NMFS has failed to disclose all relevant information and to provide a clear and accurate analysis of the environmental consequences of the No Action and action alternatives:** The affected environment and environmental consequences sections of the DEIS provide the heart of the analysis. The former is intended to fully document the characteristics of the affected environment, while the latter considers the impacts on that environment of the alternatives evaluated in the DEIS. Because of the linkages between these sections of the DEIS, they will be considered together here. Analysis is not provided of each of the environmental variables (e.g., water quality, public services) contained in the DEIS. This is not to suggest that these variables are not important but only that the coalition does not have substantive concerns with the relevant analyses contained in the DEIS, unlike the variables discussed below. <u>NMFS has failed to properly evaluate the impact of a proposed whale hunt on ENP, PCFG and WNP gray whales:</u> This section provides an overview of each of the alternatives in the context of the potential timing of the hunt, number of hunting (and scouting) days, number and type of vessels involved in hunt related activities, number of ENP and PCFG whales killed, likelihood of striking a WNP, likely number of whales killed, number of unsuccessful harpoon attempts, number of approaches to	These introductory comments are noted. We agree there are many different ways to present whale counts and abundance, and presentation of the data can be confusing. We note that the discrepancies pointed out in this review of the data are minor. We will strive to ensure the final EIS accurately reflects the data as of the time it is published. Any decision-making on the Tribe's request will incorporate the most up-to-date information available at that time. We respond to specific criticisms of the DEIS analysis below.

Sort #	Commenter Code	Comment	Response
		whales, the number of shots fired, and the number of grenade explosions. As indicated below, there are a number of questions, concerns, and errors in the analysis of the environmental impact of the proposed whale hunt on ENP, PCFG, and WNP gray whales. Most of these issues are raised in the analysis of specific alternatives. Some of the issues raised under one alternative may be also applicable to another alternative. In those instances, such relationships are noted in the text. Before engaging in an alternative-specific analysis, there are broader issues and concerns that warrant discussion and review. Scope and focus of DEIS analysis: In regard to the scope or focus of the analysis, as explained in the Anderson opinion and as quoted in the DEIS: Even if the eastern Pacific gray whales overall or the smaller PCFG group of whales are not significantly impacted by the Makah Tribes' whaling, the summer whale population in the local Washington area may be significantly affected. Such local effects are a basis for a finding that there will be a significant impact from the Tribe's hunts. Thus, if there are substantial questions about the impact on the number of whales who frequent the Strait of Juan de Fuca and the Northwest Washington coast, an EIS must be prepared. DEIS at 3-122. In the DEIS, NMFS attempts to evaluate the environmental impacts of the hunt on PCFG whales and those PCFG whales in the OR-SVI and Makah U&A regions. The Makah U&A region, as evaluated in the DEIS, does not include any portion of the Strait of Juan de Fuca as the Makah Tribe's proposal explicitly excluded whaling in the Strait. Consequently, if approved, a hunt would only be permitted in the Northern Washington PCFG region. In the waiver application, the Makah Tribe requests that the analysis of the impacts to PCFG whales be focused on those whales within the OR-SVI region. That region encompasses the Makah U&A and, based on PCFG observation records, there is considerable exchange or mixing of PCFG whales within the OR- SVI and Makah U&A regions. As explained below, the analysis provided by NMFS does not consistently focus or apply the correct statistics to the OR-SVI or Makah U&A regions, as requested by the Makah Tribe or directed by the court. Pacific Coast Feeding Group: The DEIS contains a large amount of information about PCFG whales. This information includes data (numbers and percentages) on gray whales in the PCFG observed over time, seen more than once, seen by PCFG region, and newly seen by year. The assortment of numbers and percentages used throughout the DEIS	

Sort #	Commenter Code	Comment	Response
		can be confusing and difficult to follow. For the purpose of this analysis, the key PCFG information contained in the DEIS is: • Since 1977, approximately 650 gray whales have been seen at least once in the PCFG range from June 1 to November 30 and about half of these whales have been seen two or more times over the years. The whales seen more than once meet the definition of PCFG relied on in Alternatives 3-6 of the DEIS. DEIS at 3-144. • Of the 603 whales observed in the PCFG range after June 1 from 1996 through 2011, 309 (51 percent) have never been resighted in the PCFG region, while 44 of the 603 (7.3 percent) have been resighted every summer and 265 (44 percent) have been seen more than once but not in every year. DEIS at 3-137 (citing Calambokidis et al. 2014).[20] • 35.5 to 58.8 percent of whales seen in at least one year in the PCFG region from Northern California to Northern British Columbia were seen at some point within the Makah U&A, while 41.4 to 78.9 percent of whales seen within the PCFG region over at least two years were seen at some point within the Makah U&A. DEIS at 3-139 (citing Calambokidis et al. 2014). • Based on PCFG observation records collected from 1996 through 2012, of the 181 whales sighted in the Northern Washington PCFG region (which corresponds to the proposed hunt area) prior to June 1, 73 (40.33 percent) were seen in the PCFG range after June 1, 67 (37.02 percent) were seen in the OR-SVI area after June 1 and 60 (33.15 percent) were seen in the Northern Washington-Strait of Juan de Fuca (i.e., the Makah U&A) area after June 1. DEIS at 3-140 (citing Calambokidis et al. 2014). • The annual average of newly seen whales in the PCFG range, based on data from 1996- 2012, was 35.4, 23.8, and 12.1 for PCFG, OR-SVI, and Makah U&A regions, respectively. DEIS at 3-147. The annual average of newly seen whales that were recruited into the PCFG population was 14.3, 11.8, and 6.1 for the PCFG, OR-SVI, and Makah U&A areas, respectively. DEIS at 3-148. • The number of PCFG whales increased from 38 in 1996 to over 219 in 2005. The population has been relatively stable since 2002. The most recent (2012) population estimate was 209 animals. DEIS at 3-146. Within this region, the number of whales identified in the June through November period has averaged 146 whales from 1996 through 2012. DEIS at 3-148. Of these 146 whales, on average 35 are newly seen whales each year and 14 of these are recruited into the PCFG population (i.e., seen again in a subsequent year). Id. For calculating	

Sort #	Commenter Code	Comment	Response
		the PBR level, the Nmin for the PCFG whales is 173. DEIS at 3-145 (citing Carretta et al. 2014). • For OR-SVI whales, the number of animals increased from 25 in 1996 to 181 in 2008, with the most recent population estimate (2012) being lower but stable at approximately 155 animals. DEIS at 3-154. Within this region, the number of whales identified in the June through November period has averaged 95 whales from 1996 through 2012, ranging from 30 in 2002 to 128 in 2001, with 127 in 2012. Id. Of these 95 whales, on average 24 are newly seen whales (ranging from 8 to 56 with 28 in 2012) and 12 of these (ranging from 3 to 37 with 3 seen in 2012) are recruited into the PCFG population (i.e., seen again in a subsequent year). DEIS at 4-86.[21] For calculating the PBR level, the Nmin for OR-SVI PCFG whales is 152. DEIS at 3-154 (citing Calambokidis et al. 2014). • For Makah U&A whales, the number of animals increased from 18 in 1996 to 82 in 2008, with the most recent population estimate (2012) being somewhat lower but stable at approximately 77 whales. DEIS at 3-155. Within this region, the number of whales identified in the June through November period has averaged 33 whales from 1996 through 2012, ranging from 8 in 2002 to 75 in 2008. Id. Of the 33 whales, on average 12 are newly seen whales (ranging from 1 to 29 with 22 seen in 2012) and 6.1 of these (ranging from 2 to 17 with 4 seen in 2012) are recruited into the PCFG population (i.e., seen again in a subsequent year). DEIS at 4-86.[22] For calculating the PBR level, the Nmin of the Makah U&A whales is 73. DEIS at 3-155 (citing Calambokidis et al. 2014). • Although the IWC has not formally identified the PCFG as a stock, its Scientific Committee noted that its Implementation Review of ENP gray whales (with an emphasis on the PCFG) was "based on treating the PCFG as a separate management stock (which may not be equivalent to a stock as defined under the MMPA)." DEIS at 3-156, footnote 53 (citing IWC 2012). The IWC has also determined that it is plausible the PCFG may be a "demographically distinct feeding group," DEIS at 3-123, while NMFS concludes that PCFG whales "appear to be a distinct feeding aggregation and may warrant consideration as a distinct stock [under the MMPA] in the future." Id. at 3-68, 3-123/3- 124, 4-62, 4-65. It is important to note that PCFG surveys cannot locate and identify every potential PCFG whale. Due to the size of the PCFG range, it is simply impossible to comprehensively survey the entire area each year. In addition, a lack of personnel, equipment, time, and funds do not allow for the survey metrics to be consistent each year. Consequently, the number of PCFG whales seen each year represents only a rough approximation of the whales actually observed each	

Sort #	Commenter Code	Comment	Response
		year. There are two reasons for this: there are likely more whales present each year than are photographed and identified, and it is likely that some whales were present in a previous year but were not photographed and identified. DEIS at 4-66. For example, from 1999 to 2011 there were 14.3 new recruits on average annually in the PCFG, of which 12.5 were not identified as calves, while 1.8 were. The calf estimate could possibly be higher because some of the new whales may have entered the PCFG earlier as calves and were not seen. Id. [20] It is not known why the numbers cited in the DEIS and repeated in this summary do not add up to 603 whales. NMFS may want to confirm that these numbers are accurate. [21] NMFS should reexamine these numbers, particularly the number of newly seen whales, given contradictions in the DEIS 3-154 and 4-86. This discrepancy may be due to how the data are presented in Calambokidis et al. (2014). They are presented as the average number of whales identified per year (95) (page 9) and as the average number of unique whales seen in Table 2 (page 32). [22] NMFS should reexamine these numbers, particularly the number of newly seen whales, given contradictions in the DEIS at 3-155 and 4-86. This discrepancy may be due to how the data are presented in Calambokidis et al. (2014). They are presented as the average number of whales identified per year (33) (see page 9) versus as the average number of unique whales seen in Table 2 (page 32).	
35	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Interestingly, when the PCFG, OR-SVI, and Makah U&A PBRs are compared to the PBR for the California/Oregon/Washington stock of sperm whales or the ENP stock of blue whales, those populations are much larger than any of the groups of PCFG gray whales, but their PBR is either half (for the sperm whale) or just slightly higher (for the blue whale) compared to the PBR for PCFG whales. For example, for the CA/OR/WA stock of sperm whales, the estimated population size is 971 animals (Carretta et al. 2013), Nmin is 751, and the recovery factor is 0.1 (because the species is designated as endangered), resulting in a PBR of 1.5 animals. DEIS at 3-211. Using the estimate of 197 PCFG gray whales,[23] there are nearly 5 times as many sperm whales as PCFG whales yet, because the sperm whale is designated as endangered, its PBR is nearly half that of PCFG whales. Similarly, the ENP blue whale has an estimated abundance of 2,497 (Carretta et al. 2013). Despite there being 12.6 times more blue whales than PCFG whales, the recovery factor used for the blue whale is 0.3 (used for endangered species with a minimum abundance estimate of more than 1,500	The recovery factor is based on the overall status of the population stock in question. For example, blue whales and sperm whales are listed as endangered and therefore have an appropriately low recovery factor. The PCFG is not recognized as a stock. The stock assessment report (Carretta et al. 2019) nevertheless calculates a PBR for the PCFG, using a recovery factor of 0.5, which is explained as follows: "Use of the recovery factor of 0.5 for PCFG gray whales, rather than 1.0 used for ENP gray whales, is based on uncertainty regarding stock structure and guidelines for preparing

Sort #	Commenter Code	Comment	Response
		and a CV Nmin of <0.5), resulting in a PBR (3.1) only 0.4 more than the PCFG PBR (2.7). [23] 197 is the abundance estimate for PCFG whales used in the DEIS even though it is not the most recent abundance estimate, which is 209 whales. Calambokidis et al (2014).	marine mammal stock assessments which state that "Recovery factors of 1.0 for stocks of unknown status should be reserved for cases where there is assurance that Nmin, Rmax, and the kill are unbiased and where the stock structure is unequivocal" (NMFS 2005, Weller et al. 2013). Given uncertainties in external versus internal recruitment levels of PCFG whales described above, the equivocal nature of the stock structure, and the small estimated population size of the PCFG, NMFS will continue to use the default recovery factor of 0.5 for PCFG gray whales."
36	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While PCFG whales are not presently designated as endangered or depleted, given their low population numbers, the potential for them to be designated as a stock in the future, and remembering the precautionary principle, the PCFG PBR should be calculated using a 0.1 recovery factor. If this were done, the PCFG PBR would be 0.54, while the corresponding PBRs for OR-SVI and Makah U&A PCFG whales would be 0.47 and 0.23, respectively.[24] Alternatively, if the 0.3 recovery factor was used (even though the number of PCFG gray whales is nowhere near a minimum population of greater than 1,500 animals), the PCFG, OR-SVI, and Makah U&A PBR levels would be 1.6, 1.4, and 0.7, respectively. [24] For these calculations, the Nmins for PCFG, OR-SVI, and Makah U&A that are included in the DEIS were used, along with the larger .062 Rmax (instead of the default value of .04).	Comment noted. The DEIS relied on the stock assessment report for ENP gray whales, which contains the best available scientific information on its status and to inform the PBR estimate. The stock assessment report was adopted following scientific peer review and public notice and comment, which the commenter did not participate in.
37	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The potential impact of each action alternative on PCFG whales, including those that utilize the OR-SVI and Makah U&A, along with WNP gray whales if the maximum permitted number of strikes is used, is summarized in Table 1. Table 1. Estimated number of strikes on PCFG, OR-SVI, Makah U&A, ENP, and WNP whales per year in each PCFG region analyzed in the DEIS under each alternative based on maximum permitted strikes. (Data from Tables in DEIS on pages 4-16, 4-25, 4-29, 4-36, and 4-40/41).	This description of DEIS contents is noted.

Sort #	Commenter Code	Comment	Response
		In regard to the potential impact of any of the action alternatives on PCFG whales, including whales in the OR-SVI and Makah U&A, NMFS largely dismisses any meaningful effects.	
38	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In evaluating the environmental impacts of the proposed hunt to PCFG whales, for Alternatives 3-6, NMFS concludes that "gray whales would continue using these survey areas during summer months" because: 1) the PCFG mortality limit is more restrictive than the bycatch formula used in Alternative 2; 2) struck and lost whales will count as PCFG whales; 3) other human-caused mortality will be subtracted from the calculated PBR (for Alternatives 4 and 6 only); 4) the IWC analysis demonstrates that PCFG whales would remain viable with a Makah hunt; 5) PCFG whales are dense and abundant in the OR-SVI area; 6) PCFG whales are highly mobile within the PCFG range; 7) many new and returning whales are available to replace killed whales; and 8) gray whales continue to return in large numbers to feeding areas (Chukotka) where scores are actively hunted and killed. DEIS at 4-89, 4-96, 4-103, 4-111, 4-118. This suggestion that a hunt will not have any adverse impact on PCFG whales flat out contradicts other statements in the DEIS. For example, NMFS concedes in the DEIS that if external recruits don't replace killed PCFG whales, then under each of the action alternatives, it is "likely that the number of whales would decrease."[25] DEIS at 4-89, 4-96, 4-103, 4-111, 4-118. Considering that scientists continue to obtain data to better understand PCFG recruitment mechanisms, this possibility should not simply be dismissed to satisfy the Makah. This possibility is consistent with another statement in the DEIS that "killing even a few animals per year (especially over an extended period of time) from the relatively small PCFG stock could have long-lasting impacts for a group of whales whose population dynamics are not well understood." DEIS at 5-3. Indeed, considering the level of site fidelity seen in some PCFG whales, it is possible that removals of whales from the Makah U&A could result in a localized depletion that would require an extended time period to recover. Unlike calves of PCFG females who are known to be recruited into the feeding aggregation, it may take a unique ENP whale to not just use PCFG range but to use it annually (i.e., to become a PCFG recruit). If that unique whale is not common, then perturbations to PCFG whales may not be reversed for some time. [25] This finding is included in the analysis of Alternative 4. However, NMFS also notes in the DEIS that "Alternative 4 is less likely to affect PCFG viability compared to Alternatives 2 and 3 because the hunt would target males and would not affect matrilineal recruitment." DEIS at 4-101.	The comment mischaracterizes the DEIS analysis. The conclusion that gray whales will continue using PCFG survey areas during the summer months is not the same as a conclusion that the action alternatives "will not have any adverse effects." The comment goes on to cite passages in the DEIS where potential effects are described.

Sort #	Commenter Code	Comment	Response
39	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In regard to the specific conclusions noted above, the Coalition questions whether PCFG whales are "dense and abundant in the OR-SVI area," whether there are "many new and returning whales available to replace killed whales," and whether whales will continue to return to the OR-SVI area if subjected to hunting. As indicated above, from 1996 to 2012 the average number of whales seen in the OR-SVI area was 155. Considering the size of the area, this number hardly suggests a "dense and abundant" distribution. Furthermore, on average, only 12 whales per year are recruited into the OR-SVI region, which does not qualify as "many new and returning whales" available to fill the gaps left by any whales the Makah might kill or whales that may leave the hunt areas due to impacts of the hunt. These conclusions should be revisited.	We have reviewed information provided by the commenter and continue to find the conclusion in the DEIS accurate. It is based on more than a decade of photo-identification research by Cascadia Research Collective and others (e.g., Calambokidis et al., 2014), that PCFG whales are dense and abundant in the OR-SVI area. The area has long been considered a "core region" for the PCFG (Calambokidis et al. 2009) and consistently has large numbers of gray whales and high interchange rates between subareas within.
40	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Finally, assuming new whales will readily fill gaps left by dead whales based on the Chukotkan gray whale hunt may not be accurate, particularly considering that the Makah U&A is within the OR-SVI region. The mere fact that Chukotkan natives have killed an average of 116 gray whales over the past ten years (2004-2013)[26] is not sufficient information to determine if the characteristics of the whales' distribution have changed over time as a result of hunting pressure. To make that determination, additional information is necessary regarding catch-per-unit effort, the spatial and temporal distribution of the whales within their Russian feeding areas, how actual kill locations have changed over time (if at all), and if whales on the Russian feeding areas demonstrate different behaviors (i.e., alertness, flight response) to the approach by or presence of a vessel, including a whaling vessel. Even if maternal site fidelity to the feeding areas draws whales back to such areas year after year, it is still possible that their distribution (within their feeding areas) or behaviors have been changed as a consequence of the hunt. [26] Data obtained from https://iwc.int/table_aboriginal	We continue to evaluate IWC harvest data and studies by Russian researchers monitoring the Chukotkan gray whale hunts (e.g., Borodin et al. 2012 [cited in the DEIS]; Blohkin et al. 2012, 2013, 2017) and believe the best available information supports our conclusions in the DEIS. The comment points to no new studies that would further illuminate these issues. Please also see the response to frequent comment # 10 regarding the response of gray whales to being hunted. We will update any future NEPA analysis with information bearing on the issues raised by these comments.
41	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Similarly, for PCFG whales, unless maternal fidelity is specific to the Makah U&A region, PCFG whales have alternative feeding areas from North California to Southeast Alaska. That is, the Makah U&A, although it may be a desirable location for PCFG whales based on prey abundance, may be abandoned for alternative feeding areas – literally only miles away – if hunting is allowed.	The DEIS considers the potential for PCFG whales to abandon the Makah U&A in response to a hunt (see Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas).

Sort #	Commenter Code	Comment	Response
		This means PCFG whales would no longer be "functioning elements of [the Makah U&A] ecosystem."	
42	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In addition, considering that gray whales have been largely protected along the entire west coast of North America for decades (with the exception of the gray whales killed in 1999 and 2007), gray whales are not accustomed to being hunted in this region (unlike Chukotkan gray whales who are subjected to hunts every year). Consequently, the behavioral impact of a hunt on an OR-SVI PCFG whale could be vastly different from how gray whales in Russia respond to a hunt; "naïve" OR-SVI whales may be more likely to abandon the area because of the novel, negative stimulus posed by a hunt. NMFS must reevaluate this analysis, recognizing that comparing the reactions of PCFG whales with those of Chukotkan whales may not be valid. It should seek out information, perhaps from new stocks of whales that suddenly became subject to a novel threat, to determine if those reactions could provide any guidance to how PCFG gray whales may react to a hunt.	Please see the response to frequent comment # 10 regarding the response of gray whales to being hunted.
43	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS must also reconsider its use of the Chukotkan whale hunt as a proxy for how a Makah hunt could physically and behaviorally impact PCFG whales. This analysis must consider the impacts within the PCFG and OR-SVI regions.	Please see the response to frequent comment # 10 regarding the response of gray whales to being hunted.
44	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	It also should more comprehensively evaluate the impact of a hunt on PCFG whales in the Makah U&A region given the direction from the Anderson opinion to consider the impacts of a hunt on whales in the specific project location (i.e., the Makah U&A).	DEIS Subsections 4.4.2.3 (Change in Abundance and Viability of PCFG Whales) and 4.4.2.4 (Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas) address the impacts referenced in this comment.
45	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS also claims the "loss of a feeding aggregation such as the PCFG may not affect the viability of the overall ENP stock" because "sighting data and diet studies indicate that ENP gray whales, including PCFG whales, have the ability to switch feeding areas over time." DEIS at 4-64. This statement ignores NMFS's determination that PCFG whales "may provide important flexibility to the species as a whole given potential challenges in a changing sub-arctic ecosystem," DEIS at 3-129, and also ignores the fact that the loss of this feeding aggregation would remove it as a functioning element of this ecosystem. In addition, in its analysis of Alternative 2, NMFS concedes "If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP	This comment takes excerpts from the DEIS out of context and mischaracterizes the analysis. The DEIS explicitly considers the impact of actions on the PCFG feeding aggregation, even though it is not an MMPA stock, in part because of the possibility that actions affecting the PCFG may affect the ENP as a whole. The DEIS does not suggest the PCFG

Sort #	Commenter Code	Comment	Response
		summer range, and that adaptation were lost if the PCFG were compromised, Alternative 2 has the potential to affect the long-term viability of the ENP stock as a whole." DEIS at 4-82. Such conflicting statements and conclusions must be clarified and, in this particular case, NMFS must remove from its analysis any assertion that PCFG whales can be sacrificed without potentially significant adverse impacts to ENP gray whales and, in fact, to the entire population if the ongoing changes in the Arctic begin to adversely affect ENP gray whales.	could be "sacrificed" without affecting the ENP stock. To the contrary, the DEIS links these two elements of the environment.
46	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Western North Pacific gray whales: For WNP gray whales, NMFS relies entirely on the analysis by Moore and Weller (2013) to assess the potential of a Makah whale hunt to impact this endangered population of whales. Their analysis included consideration of the action alternatives evaluated in the DEIS. Their findings are presented in Table 2.[27] Table 2: Percent Chance of Approaching, Attempting to Strike, or Striking One WNP Gray Whale Over Six Years While their modelling results provide probabilities for a WNP gray whale to be approached/pursued, subject to an unsuccessful harpoon attempt, or struck is low, it is not zero (except under Alternative 4, where the risk is likely near zero). Notably, any of these outcomes reflects a "take" under the MMPA and, if not authorized by permit or included in the waiver application, [28] could lead to prosecution of a Makah whaler and his crew for violating the MMPA and ESA. Furthermore, whether these probabilities accurately reflect the real risk is uncertain. [27] These findings, as indicated in the DEIS, are also based on a separate communications between NMFS and J. Moore. [28] WNP gray whales are not included in the Makah Tribe's waiver application. In addition, the Makah could not qualify for any type of harassment authorization if it is allowed to hunt and any take of a WNP gray whale is considered intentional.	Please see the response to frequent comment # 6 regarding the need for waiver of the take moratorium for WNP whales. The comment questions whether the probabilities shown in Table 2 accurately reflect the real risk, but points to no information that would further illuminate the issue.
47	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In the analysis by Moore and Weller, the percent chance over six years of actually striking at least one WNP "was relatively low but non-trivial," of attempting to strike at least one WNP gray whale was "fairly high," and of approaching at least one WNP whale was "high." DEIS at 3-93. Overall, Moore and Weller conclude the tribe "might strike a whale (WNP) approximately once every 100 years." Id. Even if this is accurate, NMFS determined "the loss of a single whale, particularly if it were a reproductive female, would be a conservation concern for this small stock," DEIS at 3-93/3-94, 4-82, 4-92, while the IUCN has "emphasized the urgent need for a comprehensive international	Comments noted.

Sort #	Commenter Code	Comment	Response
		strategy to eliminate or mitigate anthropogenic threats facing WNP gray whales throughout their range." DEIS at 3-94.	
48	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, the analysis by Moore and Weller examined only the numerical probability of being affected by the hunt based on the total number of WNP gray whales and the proportion of the population known to have emigrated to the ENP gray whale range. They didn't consider any variable linked to time spent in the ENP range or, more specifically, in the Makah U&A. This is not a trivial concern since the more time a WNP gray whale spends in the hunting area, particularly during the time when a hunt is permitted, the greater the probability of an approach, pursuit, strike attempt, or strike. Even NMFS notes that "Sakhalin whales were seen in an area of the ENP (i.e., Vancouver Island) where some whales tend to linger and feed during the northbound migration," and that "the long distance and potential open water crossing required for transit from the ENP to the WNP may make it more advantageous for whales to spend time feeding in the Pacific Northwest prior to undertaking a westerly passage to Sakhalin." DEIS at 3-89 (citing Darling et al. 1998 and Weller et al. 2012).	The comment cites an alternative method of calculating the chance of hunters encountering a WNP gray whale based on time spent in the project area. Though we infer that WNP gray whales pass through the Tribe's U&A, there are no sightings of WNP gray whales in the project area (Moore and Weller, 2013). The comment points to no other source of information regarding the time spent by WNP whales in the ENP range. We are aware of a post-DEIS 2015 report regarding the migration rates of two WNP gray whales to the ENP (Mate B.R., Ilyashenko V.Y., Bradford, A.L., Vertyankin, V.V., Tsidulko, G.A., Rozhnov, V.V., Irvine, L.M. 2015. Critically endangered western gray whales migrate to the eastern North Pacific. Biol. Lett. 11:20150071). The average migration speeds of those whales (5.5-6.5 km/hr) is very consistent with the average migration speed of 5.9-6.3 km/hr reported by Swartz et al. (1987) for nine southbound gray whales tracked off California. Also, the study by Mate et al. (2015) only noted "[s]ome slower movement segments" for one of the whales, and those were recorded along the north side of the Alaska Peninsula and while crossing the Bering Sea, i.e., well outside the range of the Makah U&A.

Sort #	Commenter Code	Comment	Response
49	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Another concern independent of any statistical probability of WNP whales being struck, killed, or even approached during a hunt is the fact that none of the action alternatives require the comparison of any photographs taken of killed and landed whales with the WNP gray whale photo-id catalog maintained by Alexander M. Burdin of the Vyatka State Agricultural Academy, Kirov, RUSSIA. Considering the critically endangered status of WNP gray whales and the fact that each whale is critical to the short and long-term conservation and recovery of the population, any hunt must include a photo-id requirement for WNP gray whales. While NMFS suggests in the analysis of each action alternative that, if a gray whale is taken and landed, it will be possible to determine if it is a WNP whale based on comparing photographs to the WNP photo-id catalog, DEIS at 4-82, 4-92, this is not reflected in the description of any of the alternatives. At present, all the action alternatives require photographs of gray whales killed by the Makah to be compared only with the PCFG photo-id catalog maintained by the Cascadia Research Collective. If NMFS grants the Makah request for a waiver and permits the Tribe to whale, it must include a requirement in the waiver, regulations, or permit language that all landed whales must be photographed and the images compared to both the PCFG and WNP photo-id catalogs. In addition, tissue samples from any dead whale must be taken for DNA analysis to obtain a greater understanding of gray whale genetics and population/feeding aggregation relationships.	We agree that if hunting proceeds there would need to be a mechanism for comparing killed whales to the WNP catalog and anticipate that would be taken into account in any future decision-making that authorized a hunt.
50	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS also asserts that it might be possible to determine if a struck gray whale, even if it were lost, is a WNP whale. DEIS at 4-92, 4-99, 4-114. Unless the Makah or NMFS intend to take photographs of any targeted whale before he/she is struck with a harpoon or shot with a bullet or grenade or unless a WNP whale is otherwise marked or tagged, it is unclear how this could be accomplished. NMFS must clarify the methodology that would be employed to determine if a struck and lost whale is a WNP whale.	We agree that photographs of struck and lost whales should be compared to photo-cataloged WNP whales and anticipate that future decision-making would take that into account.
51	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Alternative 1:</u> This is the No Action Alternative. If selected it would deny issuance of the requested MMPA waiver to the Makah Tribe. However, this alternative does not prevent the Makah Tribe from revitalizing its whaling traditions and/or continuing to engage in any rituals, songs, dances, ceremonies, or story telling that has reportedly been ongoing since the tribe ceased whaling in the 1920s. It also, as indicated in the DEIS, does not prevent Makah whalers from constructing whaling canoes, from engaging in physical training as practiced in the past, or in	Comments noted.

Sort #	Commenter Code	Comment	Response
		using the canoes in the Makah U&A as long as no protected marine mammal species is taken in violation of the MMPA.	
52	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In the DEIS, NMFS repeatedly claims that Alternative 1, if it were selected, would not reduce the number of gray whales killed since the United States would likely transfer its allocation of gray whales back to the Russian Federation for its native hunters consistent with a bilateral agreement between Russia and the United States. DEIS at 4-8. While the return of any unused quota to the Russian Federation may occur, that does not necessarily mean the same number of whales (i.e., 140 per year as currently permitted by the IWC) would be killed each year. The Chukotkan natives do not currently take the full quota allocation, averaging 126 whales annually from 2009 through 2013.[29] [29] Data obtained from https://iwc.int/table_aboriginal	During 2003-2018 there were two 5-year block quotas for 620 ENP gray whales and one 6-year block quota for 744 ENP gray whales. Each of these quotas equated to 124 whales per year (and each had a maximum annual limit of 140 whales). A bilateral agreement between the Russian Federation and the United States, renewed each year, allocates catches between the two countries; 120 per year for Chukotkan hunters and 4 per year for Makah hunters. The DEIS notes that for the period 2009 through 2012 the Chukotka Natives harvested nearly all of the IWC catch limit (an annual average of 123.5). The most recent report by the Russia Federation (Blokhin et al. 2017) reports that an even higher level of harvest occurred between 2012-2016 with 640 whales landed (i.e., an average of 128 whales per year). Therefore, it is reasonable to expect that if the Makah Tribe's request is denied, or authorized at a lower limit, or the Tribe is unable to use its entire allocation, any unused allocation would continue to be transferred to and used by the Chukotka Natives.
53	Schubert (Animal Welfare Institute)_Le	At present, [30] if the no action alternative were selected, it would not necessarily correlate to an increase in Russian ASW kills. Conversely, if one of the action alternatives were selected, this would result in an increase in the number of whales killed because any gray whales killed by the Makah would be added to those killed by the Russian native whalers. Historically, the only other group that	The DEIS does not state that Russian kills would "increase" under the No-action Alternative. Rather, as noted in the preceding response, the entire IWC quota for ENP gray whales of 124

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	killed gray whales was Alaska Natives, who killed a total of seven from 1985 through 1995 but, at present, do not have an IWC-approved quota for gray whales. [30] Based on discussions at recent IWC meetings, the Russian Federation may attempt to increase the ASW quota for gray whales in the future to compensate for "stinky" whales that are reportedly inedible.	per year on average was nearly met in the Russian hunt from 2009 through 2012 (123.5 on average) and exceeded from 2012 through 2016 (128 on average). Under the No-action Alternative it would be reasonable to expect that the number of ENP gray whales killed by ASW hunting would continue to be the full number authorized by the IWC.
54	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Moreover, even if the United States transfers its gray whale quota to the Russian Federation, the additional whales that could be killed by the Chukotkan natives would likely not be the same animals that could have been killed by the Makah. In particular, transferring the quota would indisputably prevent the killing of PCFG and WNP gray whales, since neither group of whales are subject to hunting by Chukotkan natives. For the WNP and PCFG gray whales, this would be significant given their low population numbers and the many threats they face.	Comments noted.
55	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Benefits could also accrue to those who regularly observe PCFG whales and who may have named or otherwise developed a particular connection with select, distinguishable whales (this is further discussed below). Other benefits of selecting Alternative 1, whether the quota is transferred to the Russian Federation or not, would include preventing gray whales from being intentionally killed in United States waters by an aboriginal group that does not qualify for an IWC-approved ASW quota. This could be of great importance to the majority of Americans who oppose whaling. As previously noted, the Coalition supports this alternative and believes it is the only alternative that is consistent with federal law.	Comment noted.
56	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Alternative 2:</u> This is the Makah Tribe's proposed alternative. It is the most liberal of the alternatives, allowing the most strikes per year, the most hunting days (along with Alternatives 3 and 6), the largest number of whales that could be killed per year (six) with a limit of 24 whales over six years, as well as the largest number of PCFG whales likely to be killed each year (2.8). The allowable bycatch limit (ABL) for PCFG whales calculated for this hunt is three,[31] which is in excess of the current calculated PBR for PCFG whales (2.7). It would limit strikes to seven per year or 42 over six years, allow for three stuck and lost whales per year or 18 over six years, and would not permit any carry-over of any unused annual limits.	This background description of the Tribe's proposal is noted. We also note that the IWC provides for "local use."

Sort #	Commenter Code	Comment	Response
		All landed whales would be photographed in order to compare them to the photo-identification catalogs of PCFG gray whales (this would be an element common to all of the action alternatives) maintained by the Cascadia Research Collective. Whaling under this alternative would not occur in the Strait of Juan de Fuca, nor could it occur within 200 yards of Tatoosh Island or White Rock. Under this alternative, edible products from the hunt could not be sold, but could be consumed locally or shared with relatives on or off the reservation and with non-relatives on or off the reservation with whom the Makah whalers have familial, economic, social, or cultural ties. Non-edible products from any killed whale could be used to manufacture authentic native handicrafts that could be sold anywhere in the United States. [32] Notably, the PBR calculation used in this Alternative is based on the abundance estimate for PCFG gray whales in the OR-SVI region. This is consistent with the Makah Tribe's waiver application, which recommended the analysis area be the OR-SVI region in order to limit the potential impact of a hunt on PCFG whales. This is also consistent with the recommendation of Calambokidis et al. (2004), who identified the OR-SVI region as the most appropriate for the hunt analysis given the significant mixing of whales between the Makah U&A and OR-SVI PCFG regions. [31] As defined in the Makah Tribe's waiver application, the allowable bycatch level (ABL) is the "number of whales from the Pacific Coast Feeding Group that may be taken incidental to a hunt directed at the migratory portion of the Eastern North Pacific stock of gray whales. The ABL is calculated using the Marine Mammal Protection Act's potential biological removal approach but the minimum population estimate is based on the number of previously seen whales in the Oregon-Southern Vancouver Island survey area." DEIS at iv-v. Since the Makah Tribe uses the maximum recovery factor in calculating the ABL, the resulting number is larger than the PBR for the entire group of PCFG gray whales. This is problematic as it provides no buffer for other forms of anthropogenic mortality if the full ABL is taken. [32] As noted previously, the Coalition asserts that permitting the sharing of edible whale products throughout the United States would not be consistent with the IWC Schedule language for ENP gray whales.	
57	Schubert (Animal Welfare Institute)_Le	NMFS does not sufficiently highlight this caveat in its analysis of Alternative 2, nor does it employ the same limitation when evaluating the other action alternatives. It is precautionary to use the OR-SVI region instead of the entire PCFG region for the analysis. While consistent with the Anderson opinion's	The recommendation in Calambokidis et al. (2004), that a PCFG harvest limit be calculated using the abundance of whales in the OR-SVI, was based on

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	emphasis on evaluating the local impacts to gray whales, extending the analysis to Makah U&A whales would also be appropriate. It is therefore astonishing NMFS continues to evaluate impacts to PCFG whales at the largest possible scale. NMFS should prepare a revised analysis that utilizes the OR-SVI region as the primary analysis area for direct hunt effects or, ideally, that focuses the analysis on the OR-SVI and Makah U&A areas for all action alternatives.	the best available scientific information at that time. A considerable new body of information has been developed since then, which is reviewed extensively in the DEIS ((Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales). The IWC Scientific Committee has developed a working definition of the PCFG, which NMFS has followed in its stock assessment report. As noted elsewhere, we consider the stock assessment report as reflecting the best scientific information available. In any event, the DEIS includes an alternative that follows the Calambokidis et al. (2004) recommendation regarding the OR-SVI as the reference group for calculating a PCFG mortality limit. It is not necessary that every other action alternative also include that outdated recommendation.
58	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	If this alternative is selected and the Makah are allowed to kill up to 3 PCFG whales per year, this take would not only be in excess of the current PBR but it would not provide a buffer to compensate for any other anthropogenic mortality of PCFG whales, which could adversely affect the PCFG. Indeed, as noted in the DEIS, "as long as the total number of animals removed from the population as a result of human sources is no more than the calculated PBR of an affected stock of marine mammals, then the removals will not prevent the stock from recovering to, or being maintained within its OSP." DEIS at 3-55. Given this, even NMFS admits that the "Tribe does not propose to account for other sources of mortality when setting ABL for PCFG whales." DEIS at 2-10. According to the Makah Tribe's 2005 waiver application, the ABL was to be calculated from a "conservative abundance estimate based on the number of gray whales that are seen in more than one year in the OR-SVI survey area between June 1 and November 30." Makah Waiver Application at ii. The	This background description of the Tribe's proposal is noted.

Sort #	Commenter Code	Comment	Response
		abundance estimate used in the calculation is 165, which is the number of PCFG whales observed in the OR-SVI area in 2012. DEIS at 3-146 (citing Calambokidis et al.2014). Based on that number, the Nmin is 152 which, when combined with an Rmax of 0.04 (which is the Rmax used only for the analysis of Alternative 2), and a recovery factor of 1,[33] the PBR or ABL is three whales. The Tribe proposes to stop hunting when the ABL is reached. The ABL will be dynamic and will be calculated annually based on PCFG observation data for the June through November period before any Makah hunt were to occur. To determine when this ABL is reached, all cataloged whales seen between June 1 and November 30, even if seen only once, would be used to define a PCFG whale. A second definition, whales seen at least twice over two or more years in the PCFG range from June 1 through November 30, is used in the analysis of the other action alternatives. The Makah's definition would mean that any landed whale could be categorized as a PCFG whale based on a single observation in the PCFG range in past seasons, even though it may not actually be a PCFG whale. However, the Makah's proposal does not count whales struck and lost against the ABL for PCFG whales. [33] This recovery factor is used based on the Tribe's claim that the ENP stock of gray whales is not listed under the ESA and has been undergoing a steady or declining level of removals by aboriginal hunters. Makah Needs Statement at 30.	
59	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Alternative 3: This alternative would not allow the Makah to strike a whale unless it was five or more miles offshore. It would also count struck and lost whales as PCFG whales, would establish a PCFG PBR of 2.7 whales (with a sub-quota of 1.6 females), and set the struck and lost limit at 2 whales. DEIS at 2-18. In addition, this alternative limits the number of whales killed annually to a maximum of five (24 over six years), allow only six strikes (36 over six years), restrict the number of struck and lost whales to two per year (12 over six years), and would limit the landing of PCFG whales to 2.7 with a subquota limit of 1.6 female PCFG whales. Under this alternative, any struck and lost whale would be considered a PCFG whale and would count toward the quota. All other elements of this alternative are identical to Alternative 2. For struck and lost whales, they would be counted against the PCFG mortality limit in proportion to the availability of PCFG whales in the coastal portion of the Makah U&A from March through May. DEIS at 4-20. Calambokidis	This background description of Alternative 3 is noted.

Sort #	Commenter Code	Comment	Response
		et al. (2014) determined that, of 181 whales observed in the Northern Washington PCFG Region (which is included as part of the Makah U&A) from March to May from 1996 to 2012, 40.33 percent were observed in the PCFG range after June 1, 37.02 percent were seen in the OR-SVI range after June 1, and 33.15 percent was seen in the Makah U&A after June 1. DEIS at 3-140. In determining the proportion of stuck and lost whales that would be counted as PCFG whales, NMFS uses the 40.33 percent applicable to the entire PCFG range.	
60	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The NMFS definition of a PCFG whale is a whale seen more than once over two or more years. Percentages used in this (and other action alternatives) presumably should reflect that definition. However, according to Calambokidis et al. (2014), the 40.33 percent figure refers to whales seen only once, while 36.46 percent would be the corresponding figure for whales that meet the PCFG definition used by NMFS. This may mean the 37.02 and 33.15 percentages do not reflect the NMFS definition of PCFG whales either. NMFS should revisit these figures to ensure they are consistently reflective of the agency's definition of PCFG whales.	We agree that any future decision-making should rely on the most up-to-date scientific information regarding identification of PCFG whales.
61	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The proportion of struck and lost whales that would be considered PCFG whales will change over time based on new data from PCFG surveys. As with Alternative 2, however, the schedule for this adjustment is unclear. Presumably data collected in the summer immediately prior to any hunting season would be used. However, that raises concerns as to whether the proportion of PCFG whales observed in different PCFG regions from June through November would correspond to proportions seen during a hunt that could occur from March to May of the following year. Alternatively, data to identify proportional presence could be collected contemporaneously with a hunt. NMFS fails to adequately explain how it will determine the percentages to use in this alternative (as well as Alternatives 4, 5, and 6). For example, while this will require the continuation of the PCFG monitoring program (which the Coalition assumes will be coordinate d by the Cascadia Research Collective), NMFS does not explicitly disclose who would perform this work. Further NMFS doesn't address how any changes to the PCFG mortality limit would be communicated to the Makah, law enforcement authorities, and the public.	The comment notes the need to account for new data developed during implementation of a hunt. We agree that any future decision-making should consider procedures for monitoring and identifying whales and communicating changes in mortality limits.
62	Schubert (Animal Welfare Institute)_Le	This Alternative also establishes a sub-quota for females which is based on both the percent of PCFG whales present during the hunting period and the proportion of females within the entire PCFG population (which is currently 59 percent). Consequently, if using the 40.33 percent figure, a struck and lost whale would count as 0.24 PCFG female (0.4033 x 0.59). The use of the 0.59 figure is	DEIS Subsection 4.1.3.3 (Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested) cites the most recent data

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	inconsistent with the findings of Ramarkrishan et al. (2001) and Steeves et al. (2001), who reported a significant male bias in the PCFG of 1.8 to 1 (N=45) and 1.7 to 1 (N=16), respectively. Makah Waiver Application at 27. NMFS must revisit this analysis to determine which correction factor is accurate.	regarding the PCFG sex ratio, i.e., "The annual female PCFG mortality limit would be equal to the total PCFG mortality limit times the proportion of females in the PCFG, which is currently estimated to be 0.59 (Lang et al. 2011b)." Subsequent to publication of the DEIS, new information was developed indicating the PCFG is actually approximately evenly divided between males and females (A. Lang, pers. comm., 10/17/17*). The most up-to-date information will be reflected in future decision-making and a final EIS. * October 17, 2017 e-mail from A. Lang, NMFS, to S. Stone, NMFS.
63	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Alternatively, because there is a struck and lost limit of 2, it is unnecessary to use these calculations at all. It would be simpler and far more precautionary to consider any whale struck and lost as a PCFG whale and, in order to maximize protection for PCFG females, to assume that each lost whale is female. Alternative 3 must be adjusted accordingly to be more precautionary.	Alternative 3 would rely on the best scientific information available regarding proportions of PCFG whales and female whales. NEPA does not require that every alternative be as precautionary as possible.
64	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	As for the risk to WNP gray whales, while the offshore hunt location could reduce the potential risk to WNP gray whales, NMFS concedes there are "insufficient data to discern whether hunters would be more or less likely to encounter WNP whales if hunting is restricted to offshore area at least 5 miles from the coast, but tracking data for two whales indicate that they could be encountered in such areas." DEIS at 4-92.	Comments noted.
65	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In calculating PBR under this alternative (and for Alternatives 5 and 6), NMFS relies on data contained in Carretta et al. 2014. The gray whale population estimate in Carretta et al. (2014) is from 2006-2007, making it 8-9 years old. As indicated in NMFS (2005), "the minimum population estimate of the stock should be considered unknown if 8 years have transpired since the last abundance survey of a stock." Consequently, as long as NMFS continues to rely on the gray whale population estimate from Carretta et al. (2014) it cannot calculate a PBR	We agree it would be important to maintain up-to-date gray whale abundance estimates if a hunt is authorized. NMFS recently updated the ENP gray whale SAR in 2019 (Carretta et al. 2019). The revised SAR includes a more recent estimate of

Sort #	Commenter Code	Comment	Response
		for the ENP or PCFG whales. Even if NMFS claims the 2006-2007 estimate is only 8 years old and therefore still appropriate to use to calculate PBR, by the time NMFS completes this decision-making process the estimate will be significantly more than 8 years old.	abundance of the ENP stock of 26,960 whales, based on data from the 2015/2016 southbound survey (Durban et al. 2017) and calculates a new PBR accordingly (801). Please also see the response to frequent comment # 7 regarding calculation and use of PBR for a PCFG mortality limit.
66	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	An updated gray whale population estimate from 2010-2011 was published in new draft Stock Assessment Reports (SARs) for marine mammals in the Pacific Ocean (Carretta et al. 2015), but those SARs have not been finalized. This is presumably why NMFS was unable to include the updated estimate in the DEIS. However, given the restrictions associated with using a population estimate that is 8 or more years old to calculate PBR, NMFS must use the updated estimate in its decision-making process. While the public comment period on Carretta et al. (2015) has closed, given the importance of the gray whale population estimate to this issue and the DEIS analysis, the Coalition recommends that NMFS republish just the ENP and WNP draft SARs for public review and suspend the current decision-making process until any comments are evaluated and those SARs are finalized.	Comment noted. Since publication of the DEIS, updated gray whale reports were published in the 2014 final SARs (Carretta et al. 2015) and the 2018 final SARs (Carretta et al. 2019). We anticipate additional SARs with updated information would be published before a final EIS is published and there will be ample opportunity for public comment on those updated SARs.
67	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Regardless of which gray whale population estimate is used, the PBR calculation should be based on the OR-SVI Nmin rather than the Nmin for the entire PCFG range. This would be consistent with both the Makah's request (as reflected in Alternative 2), which was intended to limit the potential impact of a hunt on PCFG whales, and the direction provided by the Anderson opinion, which was particularly concerned with the potential for a hunt to impact the local gray whale population (i.e., the population in the Makah U&A).	As noted previously, Alternative 2 relies on a PBR calculation based on the OR-SVI abundance. NEPA does not require that all alternatives adopt the same management elements. The court in the *Anderson* decision required the NEPA analysis to consider impacts at the local scale, which the court defined as the Makah Tribe's U&A. The DEIS comports with this direction. The court's decision did not require that any of the alternatives in the NEPA analysis adopt a particular scale for management, only that

Sort #	Commenter Code	Comment	Response
			impacts be considered at the local scale.
68	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Alternative 4: This alternative, if selected, would allow whaling from June 1 through November 30 each year and would retain the prohibition on hunting in the Strait of Juan de Fuca and within 200 yards of Tatoosh Island or White Rock. Under Alternative 4, the hunt would be limited to seven days, the Makah could only strike male ENP whales, struck and lost whales would count as PCFG whales, and the PBR for PCFG whales would be a single whale. This alternative would permit up to five whales to be killed and seven struck per year with a struck and lost limit of a single whale and no carry-over of any unused annual limits. Due to the timing of this hunt, there would be close to no risk of hunters approaching, attempting to strike, or striking a WNP gray whale but PCFG whales would be killed. In addition, under this alternative "any whale landed would be presumed to be a PCFG whale even if it did not match a known PCFG whale." DEIS at 2-20. In calculating PBR for PCFG gray whales under this alternative, NMFS utilized a conservative recovery factor of 0.35, while also subtracting estimated mortalities from other human causes (0.45) as reported in the ENP gray whale SAR (Carretta et al. 2014). DEIS at 2-19. According to Wade (1998), this restrictive recovery factor would allow the PCFG whales to equilibrate at 80 percent of carrying capacity over a 200 year period. Id. This results in a PBR of 1.43, which NMFS rounds down to 1 for use in this alternative. Since this alternative will necessarily target PCFG whales given the hunting period, a restrictive limit on PCFG gray whale mortality is appropriate. Notably, if the analysis under this alternative used the OR-SVI or Makah U&A regions, the corresponding PBR levels would be 1.19 and 0.34, respectively.	This background description of Alternative 4 is noted.
69	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While this alternative is unique in that it explicitly targets ENP male whales, NMFS doesn't explain how Makah whalers, if permitted to whale, will be able to limit their pursuit and killing of whales to only males. This must be clarified.	If such an alternative were ultimately adopted, any regulations would need to describe how hunters would distinguish known PCFG males.
70	Schubert (Animal Welfare Institute)_Le	In addition, the deficiencies identified in the other alternatives are relevant here as well (i.e., use of an 8-year-old population estimate and lack of clarification on how, when, and by whom PCFG data will be collected in order to update the PBR calculations).	Comments noted. As noted above, If hunting is authorized it would be important to ensure up-to-date abundance estimates.

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15		
71	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Alternative 5: This alternative would permit whaling during a split season (December 1-21 and May 10-31), but it sets the PBR level for PCFG whales at 0.27 (10 percent of the current PBR for PCFG gray whales as reflected in Carretta et al. (2014)) and requires that stuck and lost whales (with a limit of a single whale) be counted toward PBR in proportion to their presence in the Project Area. Notably, if the PBR level in this alternative was calculated using the Nmins for the OR-SVI and Makah U&A regions, they would be 0.23 and 0.11, respectively. This alternative is intended to reduce the potential for take of WNP gray whales based on limited data suggesting that WNP gray whales have not been observed in the Makah U&A during the split season dates. It is possible that, as scientists continue to monitor WNP gray whales, they will be found in the ENP regions during the split season dates. The total days available for hunting under this alternative would be 14.7 to 22.[34] Under this alternative, as many as five non-PCFG whales could be killed each year, but NMFS anticipates an average of no more than four ENP whales to be killed annually. Even this would be unlikely, according to NMFS, given the PCFG struck-and-lost limit. In fact, NMFS anticipates that only one whale will be killed every five years under this alternative. If so, this alternative could substantially reduce the number of ENP gray whales killed by the Makah should a hunt be approved, which in turn would reduce risk to PCFG and WNP gray whales. [34] The DEIS contains two different estimates for the number of hunting days under this alternative. Compare DEIS at 4-34 ("22 days of hunting in May") to DEIS at 4-35 ("14.7 hunting days per year").	This background description of Alternative 5 is noted.
72	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Although more conservative [than] Alternative 2, 3, and 6, this alternative suffers from the same deficiencies as in the other action alternatives (i.e., use of an 8-year-old population estimate and lack of clarification of how, when, and by whom PCFG data will be collected in order to update the PBR calculations).	Comment noted. As noted above, If hunting is authorized it would be important to ensure up-to-date abundance estimates.
73	Schubert (Animal Welfare Institute)_Le	Alternative 6: Alternative 6 shares many of the same characteristics as Alternatives 2 and 3 in regard to the number of days available to hunt and the timing of the hunt. However, under this alternative the Makah could kill a maximum of four	Comments noted.

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	whales in any single year and could not kill more than 7 whales over two years. The maximum number of PCFG whales that could be killed under this alternative would be 3.5 per year, but 1.4 would be more likely, according to NMFS, due to struck and lost whales being limited to 3 and a PBR level set at 2 per year. Struck and lost whales would be counted as PCFG whales in proportion to their presence in the Project Area and there would be no carry-over of unused whales. This alternative would also impose a 10- year limit on the duration of any MMPA waiver and any regulations issued pursuant to the waiver would expire after three years. The limitations on the duration of the waiver and regulations are appropriate, as this will provide an opportunity to adjust the terms of the hunt, or cancel it altogether, depending on a review of the relevant data. Under the other alternatives the waiver would be valid indefinitely.	
74	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	This alternative also suffers from the same deficiencies as identified in the other action alternatives (i.e., use of an 8-year-old population estimate lack of clarification of how, when, and by whom PCFG data will be collected in order to update the PBR calculations). Given the deficiencies noted above with respect to alternatives 2-6, the Coalition presents a seventh alternative at page 38 of this letter. This alternative combines some of the more conservative elements from alternatives 2-6. While the Coalition would not support this seventh alternative, it is included to highlight NMFS' deficiency in presenting a comprehensive analysis of alternatives.	Comments noted. As noted above, If hunting is authorized it would be important to ensure up-to-date abundance estimates.
75	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to disclose all relevant information regarding marine species, including marine plants and invertebrates, and has downplayed the potential impact of a whale hunt on these species and the local ecosystem:</u> NMFS fails to disclose all relevant information about marine species in the DEIS. It includes information about ocean current patterns, the influence of upwellings on marine productivity, and the impact of large scale environmental perturbations (e.g., Pacific Decadal Oscillation, El Nino, La Nina) on the marine ecosystem. DEIS at 3-98. It also provides general information about phytoplankton, zooplankton, and other marine species, including marine plants, marine mammals, and marine birds.	These introductory comment are noted; specific responses are provided below.
76	Schubert (Animal Welfare Institute)_Le	What is lacking, however, is information relevant to evaluating the environmental impact of the hunt on many of these species. In particular, despite asserting that any impacts of a gray whale hunt on benthic marine plant, macroalgal species, shellfish, and kelp raft communities would be "negligible" due to high levels of background disturbance and a strong capacity of these	We disagree. Subsection 3.3, Marine Habitat and Dependent Species, provides the information the commenter suggests is lacking. Consistent with CEQ regulations at 40

Sort #	Commenter Code	Comment	Response
	tter Only_7-31-15	species for growth and recolonization (DEIS at 4-56, 4-58, 4-59, 4-60), there are no data in the DEIS upon which to make that determination. Specifically, NMFS did not disclose any information about the composition, abundance, diversity, or productivity of marine plants, macroalgal species, and/or shellfish in the Project Area. This assertion may be true and may simply be common knowledge among NMFS and local biologists in the area but, for the purpose of a NEPA analysis, the evidence supporting a conclusion must be disclosed instead of asking the public to trust that an otherwise unsubstantiated finding is correct.	CFR 1502.2(b), there is a sufficient description of marine habitat and species, with citations to the literature, to support the analysis regarding the minor level of impact on these resources. When an impact is likely to be minor, it is not necessary to present the detailed information suggested by the comment.
77	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The potential environmental impacts of the proposed hunt on other wildlife species are largely dismissed by NMFS for all species either because the impacts will be "temporary (lasting a few minutes to a few hours)" and "localized (occurring near the hunt)." DEIS at 4-123, 4-126, 4-137, 4-143, 4-144. It also claims that the "number of marine mammals that would potentially occur close enough to hunting activities to be affected by the associated noise would probably be low." DEIS at 4-123. Only Alternative 4 is identified as having greater potential impacts on other wildlife since the hunt would occur during the summer when it is more likely to disrupt key activities such as breeding and nesting (although the limited number of hunting days under Alternative 4 could mitigate such impacts). DEIS at 4-142, 4-143. The alleged lack of impacts of the hunt may be more wishful thinking than substantive finding, since a hunt is not merely a carved wooden canoe with a crew of Makah whalers pursuing a gray whale. Rather, given the significant controversy inherent to a Makah whale hunt, the atmosphere surrounding a hunt (if the 1999 hunt is any guide) is akin to an aquatic three-ring circus, with whalers, support personnel, media representatives (on land and sea and in air), law enforcement personnel, federal and state wildlife officials, and protesters (on land and sea) all seeking to achieve a certain objective. Such activities will contribute to the harassment of wildlife in the Project Area above and beyond the baseline disturbance from recreational boaters/anglers, commercial shipping, and private and commercial air traffic. Instead of seriously considering this threat, NMFS compares it to a normal level of recreational angler trips, to suggest that the impacts would be similar. This is nonsense. While most humans using the Project Area may have no intention of disrupting or harassing other wildlife, including protected species, such impacts are inevitable. For seals that are hauled out on a beach, for nesting birds, or for other species engaged in daily behaviors (e.g., feeding, breeding,	The DEIS contains a thorough discussion of the activity surrounding a Makah whale hunt, beyond the activity of a hunting party (Subsection 1.4.2, Summary of Recent Makah Whaling - 1998 through 2014). The analysis contains a thorough discussion of potential impacts to other wildlife (Subsection 4.5, Other Wildlife) based upon best available science. We appreciate the referenced article and will include relevant information in a final EIS.

Sort #	Commenter Code	Comment	Response
		resting), the impacts of a hunt could be deadly, sub-lethal or, at a minimum, disruptive. The scientific literature is replete with studies on the adverse impact of stress on birds, terrestrial and aquatic mammals, fish, and reptiles (e.g., Kuczaj 2007; Attachment 5). The potential for sub-lethal stress to adversely impact a host of species in or near the Project Area has not been even remotely evaluated by NMFS.	
78	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Its attempt to evaluate the potential effects of stress on gray whales was similarly deficient as it largely disregarded such an impact claiming that stress-related symptoms triggered by pursuit have not been documented in gray whales. DEIS at 3-166. More than likely, such symptoms have not been documented because no one has specifically studied stress in gray whales. Even if an animal does not flee from a threat, this does not mean it is not undergoing significant stress. In terrestrial mammals, for example, even if animals become habituated to particular perturbations in their environment, they may still experience elevated chronic stress levels, which can translate into reduced survival, a decline in productivity, or increased susceptibility to disease (Martin et al. 2011) NMFS must reconsider its analysis of such impacts to other marine species (i.e., mammals, fish, reptiles, and birds) and, in particular, focus on the potential impacts and implications of the hunt causing acute stress or contributing to chronic stress in these species.	The DEIS considers potential effects of stress on gray whales from the proposed hunt and alternatives in light of best available information (Subsection 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock). Although information is limited, it is sufficient to allow for a comparison between the action alternatives and the No-action Alternative. We are unaware of studies that could be conducted or additional information that can be available and the commenter does not suggest any that could be obtained within a reasonable timeframe.
79	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	As previously explained, NMFS has failed to explain the ESA consultation requirements or to provide any information about that process for federally listed threatened and endangered species in the Project Area. The DEIS does not describe whether NMFS has engaged or is engaging in the required internal and external reviews. While WNP gray whales are likely the most critically endangered species within the Project Area that could be impacted by a proposed hunt, there are several other endangered or threatened marine mammals, sea turtles, birds, and fish that may be affected by the proposed hunt and related activities. NMFS completely failed to even disclose that there are a number of federally protected fish, including salmon, in the Project Area that could be indirectly impacted by a hunt.	NMFS will engage in ESA section 7 consultations as appropriate, when a preferred alternative is sufficiently certain to support an ESA analysis.
80	Schubert (Animal Welfare	In general, for imperiled species within the Project Area, NMFS discounts potential impacts due largely to the rarity of the species. That is, it assumes that if a species is rare in the region the impacts of the proposed hunt will be limited.	Please see the response to frequent comment # 12 regarding the risks to WNP gray whales. Evaluating risks to

Sort #	Commenter Code	Comment	Response
	Institute)_Letter Only_7-31-15	However, it is this rarity that should be of considerable concern and must merit additional analysis since, if there were an impact, its consequences would be more significant from a conservation standpoint on a rare species than on a species that is common. Recently, in Conservation Council for Hawaii v. NMFS (2015 WL 1499589 at *50 (D. Hawaii Mar. 31, 2015)(Attachment 6), the court criticized NMFS for dismissing potential adverse impact caused by training and testing activities of the US Navy conducted in its Hawaii-Southern California Training and Testing Study areas on imperiled species. Specifically, in regard to WNP gray whales, the court wrote: For Western North Pacific gray whales, NMFS says it does "not expect any western North Pacific gray whales to be involved in a ship strike event" because of "the low number of western North Pacific gray whales in the HSTT Study Area." ECF No. 67-19, PageID # 12641. But if Western North Pacific gray whales are so scarce in the area, why does NMFS proceed to authorize mortalities for that species and on what basis does NMFS conclude that those mortalities in an area where the species is low in number "would not appreciably reduce the Western North Pacific gray whales' likelihood of surviving and recovering in the wild"? This same concept is applicable here in that the rarity of a species should not be used to disregard the potential adverse implications of an impact and, indeed, if anything, such impacts should be subject to more careful review when they could affect imperiled species.	any species involves considering the likelihood of an encounter (i.e., its rarity) as well as the nature of the encounter/impact. The DEIS explores both of these aspects and, in the case of WNP gray whales, evaluates two alternatives (#4 and #5) specifically designed to explore the consequences of implementing additional protective measures for these whales. The concept the commenter suggests flows from the cited case is not relevant here because as described by the commenter the court in that case questioned the agencies' authorization of take of WNP whales and evaluation under ESA Section 7. None of the alternatives analyzed in the DEIS would authorize the take of WNP whales or analyze authorization under Section7 of the ESA.
81	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	For ESA-listed bird species (i.e., the short-tailed albatross and marbled murrelet), as well as the bald eagle (which is protected under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act), NMFS again discounts the potential impact of a hunt (claiming that the risk of potential disturbance to albatross and murrelet is "extremely low" to "low," respectively, while indicating that it is unlikely that any whale hunt activities would occur close to bald eagle nests). DEIS at 4-127, 4-128. NMFS, however, failed to disclose sufficient information about these species to permit any assessment of these claims. For example, for the albatross it failed to disclose information about estimated population numbers, trends, likelihood of the species' presence in the project area, distribution and movement data, nor did it discuss the threats to the species. For the murrelet, the analysis was somewhat more robust, but much of the same information was lacking for that species. Failing to disclose such information violates NEPA.	There is a sufficient description of these species, with citations to the literature, to support the analysis regarding the level of impact. Consistent with CEQ regulations 40 CFR 1502.2(b), when an impact is likely to be minor, it is not necessary to present the detailed information suggested by the comment.

Sort #	Commenter Code	Comment	Response
82	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS concedes that the ESA-listed species that have the highest likelihood to encounter hunt-related activities include killer whales and humpback whales. Southern Resident killer whales (J, K, and L pods) are listed as endangered under the ESA. NMFS reports that, when this stock of killer whales was listed, the listing factors included noise and disturbance of vessel traffic. DEIS at 4-124. It also concedes that "disturbance from vessels, aircraft, and weapons associated with whale hunting also has the potential to disrupt the ability of killer whales to communicate or find prey." DEIS at 4-124/4-125. With only 80 Southern Resident killer whales remaining, NMFS is rather cavalier in its dismissal of the potential impacts of a whale hunt on this stock or its critical habitat (i.e., "none of the proposed alternatives would appreciably affect these elements[35] of critical habitat for this species" DEIS at 4-125). A far more detailed analysis of the impacts of any potential hunt on this population must be conducted in the context of NEPA and pursuant to the consultation requirements of the ESA. [35] As stated in the DEIS, the elements referred to here are the primary constituent elements for the Southern Resident killer whale critical habitat. They include 1) water quality to support growth and development; 2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development as well as overall population growth; and 3) passage conditions to allow for migration, resting, and foraging or critical habitat for this species. DEIS at 4-125	Given the minor increase in vessel traffic associated with a whale hunt, compared to overall vessel traffic in the project area, the large size of the project area, and the fact that Southern Resident killer whales do not prey on gray whales, it is unlikely a Makah gray whale hunt would have a noticeable effect on the Southern Resident population (Section 4.5.2.1.1, Marine Mammals (Excluding Gray Whales)).
83	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	For non-listed marine birds, NMFS makes conclusions for which there is no supporting evidence, does not provide a conclusion as to the potential impact of the hunt, dismisses potential impacts as "temporary and localized," DEIS at 4-130, or indicates that long-term effects on local populations "cannot be determined with certainty." DEIS at 4-144. For marine birds inhabiting beaches, bays, and estuaries, NMFS concedes that gunfire and helicopter noise "is particularly likely to flush birds off nests if it occurs close to shore where these birds are nesting or if they are foraging just off shore" but then concludes that it is "difficult to determine what impact this type of direct short-term effect would have on the long-term productivity of populations as a whole, although it might be a negligible loss." DEIS at 4-130. Or it claims such long-term effects "cannot be determined with certainty." DEIS at 4-139. Assuming that an impact "might be negligible" without providing evidence to support such a finding is reckless and may reflect an effort to discount some impacts of the proposed hunt. Similarly, for birds inhabiting coastal headlands and islands, despite concluding that "ledge nesting birds in the project area may be easily flushed off nest sites, leading to	We disagree. Section 4.5.2.1.2, Other Marine Wildlife, describes expected effects on non-listed marine birds and their associated habitat, commensurate with the expected minor level of effect (40 CFR 1502.2(b)). This comment does not point to any information not considered in the DEIS.

Sort #	Commenter Code	Comment	Response
		abandonment, predation on eggs or chicks, and subsequent nest failure," NMFS fails to make a determination as to the impact of the hunt on this assemblage of birds. Id.	
84	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS has failed to fully disclose all relevant information about gray whales and has downplayed potential adverse impacts on the species posed by a Makah hunt: Gray whale population trends and carrying capacity As reported in the DEIS, the estimated average annual rate of population increase for WNP gray whales is 3.3 percent per annum. DEIS at 3-67 (citing Cooke et al. 2013). The ENP gray whale population trajectory has remained relatively flat since 1980. DEIS at 3-110 (See Figure 5[36]). This suggests that the ENP gray whale population is at carrying capacity (or K), that births largely equal deaths, or there are other factors, natural or anthropogenic, that are preventing the ENP gray whale population from increasing its numbers. [36] Data obtained from DEIS at 3-111.	These introductory comments are noted.
85	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Similarly, NMFS reports that the PCFG abundance trend appears to be flat at the current rate of recruitment. DEIS at 4-84, 4-100 (See Figure 6[37]). Noting that Punt (2015) found that PCFG whales are at 50 percent of K, the long-term stability of this population should be cause for concern, since the population should be increasing in size toward the region's carrying capacity. It is not entirely clear why the PCFG population's numbers have stabilized but, since they are only at 50 percent of K, permitting their lethal take by authorizing a Makah whale hunt is not appropriate. If Punt's estimate of K for the PCFG is correct, then it would qualify for a depleted designation if it were designated as a stock, which would prohibit NMFS from authorizing lethal take through a Makah whale hunt. [37] Data obtained from DEIS at 3-145/3-146.	We contacted Dr. Andre Punt who authored the paper cited in this comment. In an 8/24/15 e-mail to S. Stone (NMFS), Dr. Punt noted that this was a draft document still under development and "that this model does not make assumptions about constant carrying capacity so I am not sure what it can say about stock status relative to K - certainly that is not the aim of the overall project."
86	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In regard to carrying capacity, NMFS reports that it interprets K as the "current" capacity versus the habitat's historic capacity. DEIS at 3-52. To substantiate that claim, NMFS cites from Gerodette and DeMaster (1990) who, in contrast to the NMFS claim, report that: in the context of OSP determination and as used in this paper, carrying capacity refers to an equilibrium population level before impact by man, either direct (through harvest or incidental killing) or indirect (through habitat degradation or harvest of predator, prey, or competitor species). Id. This quoted text contradicts the NMFS claim above. NMFS must clarify this issue and provide additional analysis of its recent practice in the use of	Punt and Wade (2012) represents the best scientific information available on the OSP status of ENP gray whales. That published study concludes the ENP stock is at OSP. The 2012 Punt and Wade analysis was subject to review by the IWC Scientific Committee and also to public review and comment during the SAR process.

Sort #	Commenter Code	Comment	Response
		current or historical K when, for example, making depleted designations for species or stocks.	
87	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Lack of disclosure of critical information and deficient analysis of impacts The Project Area is confined primarily to the marine waters, islands, and land area near the Makah Tribe's U&A in the Pacific Ocean and Strait of Juan de Fuca that may be directly or indirectly affected by one or more of the project alternatives. DEIS at 1-3. In terms of any direct impacts of the hunt, this Project Area may be sufficient. However, as to indirect effects, the scope of the DEIS should have been extended to the entire range of ENP gray whales, as was done for the cumulative impacts analysis. In particular, with respect to the disclosure of information relevant to the analysis, NMFS should have provided more information about gray whales and their habitat throughout this larger area. NMFS has disclosed some information about gray whales and their habitat in Alaska and elsewhere along the migratory corridor. The DEIS includes information about killer whale predation on gray whales, amphipod availability on gray whale feeding grounds in the Arctic, and briefly references the ecological regime shift that is ongoing in the Bering Sea. While some of this information is relevant to the cumulative impacts analysis, ENP gray whales would be killed in the proposed hunt. Therefore, given changing habitat conditions (particularly in the Arctic), there is a compelling need to disclose additional information about the ecology, prey species, distribution, movements, and habitat use patterns for gray whales in the Arctic. Ocean warming caused by climate change is altering gray whale distribution, causing them to expand their summer range in order to find new feeding areas. DEIS at 3-196. This is due to changes in prey abundance, composition, productivity, and distribution. Indeed, the Arctic is experiencing a regime shift whereby a benthic ecosystem is transitioning into a pelagic ecosystem, as Arctic waters warm due to climate change (Grebmeier et al. 2006). In the past, a large proportion of the zooplankton and phytoplankton, including under ice algae, would die and settle to the ocean floor where it would sustain an enormous benthic community, including energy-rich amphipods. As the oceans have warmed, the zooplankton and phytoplankton blooms are occurring earlier and much of their production is being consumed by pelagic fish that have immigrated into the area. Without as much primary production settling to the ocean bottom, the abundance, density, and composition of the benthic invertebrate community has declined. DEIS at 3-99, 3-197.	The DEIS focuses on impacts of the proposed action in the project area but also contains relevant information regarding the status of gray whales and threats across their migration and life history (including the conditions identified in this comment) (Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts) to support an analysis of the effects of the proposed action and alternatives (e.g., Subsection 4.4.3.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock) and cumulative effects (Subsection 5.4, Gray Whales). Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		This is consistent with findings by Highsmith and Coyle (1992), Grebmeier et al. (2006), and others who have studied the implications of this regime shift. In the Chirikov Basin, amphipod populations declined 30 percent between 1986 and 1988, DEIS at 3-99 (citing Highsmith and Coyle 1992, Sirenko and Koltun 1992), which, over time, forced gray whales to find alternative feeding areas. DEIS at 3-99. As a result, gray whale numbers in the Chirikov Basin were 3 to 17 times lower in 2002 compared to numbers observed in the 1980s. Id. (citing Moore et al. 2003, Grebmeier et al. 2006). Gray whales are now observed in areas that were historically devoid of the species or where the species was rare, including in the south-central Chukchi Sea, just north of St. Lawrence Island in the Bering Sea, and in the Beaufort Sea. Id. This, along with the reduction in sea ice, has contributed to a one-week delay in the timing of the southbound migration, DEIS at 3-100, resulting in a larger proportion of gray whales giving birth along the migratory route outside of the protective confines of the Mexican lagoons. This, in turn, has increased the risks to newborn gray whale calves as a consequence of predation, increased energy use for thermoregulation, and other threats (e.g., ship strikes, exposure to pollution, oil spills and seepage) that are more prominent along the west coast of the United States compared to those faced in or near the Mexican lagoons. While some have suggested that gray whales, as generalist feeders, may adapt well to climate change impacts to their Arctic feeding areas, this may not be true. At present it is, at best, difficult to accurately predict what impact the changing Arctic will have on gray whales. Some of the information that would be needed – which is the evidence that should have been disclosed in the DEIS – includes data on the: 1) abundance, composition, diversity, and productivity of amphipods throughout the Arctic including in the Chukchi and Beaufort Seas; 2) the availability of pelagic prey for gray whales both in currently occupied Arctic feeding areas but also throughout Arctic waters given their expanding range; 3) the caloric content and energy value of potential gray whale prey in the Arctic; 4) ocean substrate survey data to determine potential future feeding areas for the species (particularly in regard to amphipod availability, given their preference for particular substrate types);	

Sort #	Commenter Code	Comment	Response
		5) species-specific data on fish that are increasing in density in Arctic waters, including their preferred prey, to assess if gray whales will be competing with such fish for pelagic prey; and, 6) an assessment of any new potential health threats to gray whale in the form of exotic or invasive species, including viruses, bacteria, parasites, and natural toxins (e.g., saritoxin, domoic acid) that may be more prevalent or have greater pathogenicity as Arctic waters warm. In addition, NMFS must disclose if there is any evidence of radionuclide contamination in Arctic waters linked to the Fukushima nuclear reactor meltdown in Japan in 2011. Only with such information can there be any meaningful analysis of the long-term survival potential of ENP gray whales. Whether such evidence applies primarily to the analysis of indirect or cumulative impacts (which is addressed below), it should have been disclosed in the affected environment section of the DEIS so that interested stakeholders could consider and evaluate it in light of the full suite of potential impacts of the hunt.	
88	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS also addresses the impact of PCFG whales within the ecosystems they occupy. This is a critically important issue, as it is directly relevant to the MMPA requirement to ensure that marine mammals remain a significant functioning element in the ecosystem. While ENP gray whales may transit the Project Area relatively quickly during their south or northbound migrations, there is also evidence that some ENP gray whales may linger within the range of the PCFG, including in the OR-SVI and Makah U&A, primarily to feed. While these whales will have an effect on the ecosystem while present in the area, PCFG whales have a far greater impact given their presence throughout the spring, summer, and fall. While present, PCFG whales can have substantial impact on the pelagic and benthic environments, which, in turn, can benefit other species. Instead of acknowledging such potential effects, NMFS reports that "none of the action alternatives has the potential to appreciably affect the physical features and dynamic processes of the pelagic or benthic environments." DEIS at 4-51, 4-54. NMFS claims that these environments are subject to far greater impacts from larger scale oceanographic processes. The Coalition does not dispute that there are larger scale processes, including ocean currents, upwelling, oscillation events, and other factors that influence the pelagic and benthic ecology of the project area, but NMFS is evaluating the impacts at too large a scale and in doing so has wrongly dismissed the potential impact of a hunt	The comment asserts that PCFG whales have a "substantial impact" on the marine environment in the project area but cites no evidence or information not considered in the DEIS. Section 3.3, Marine Habitat and Dependent Species, describes conditions in the existing environment, including benthic conditions, and Section 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem, describes gray whale feeding ecology and effects of gray whale feeding on the benthos. Section 4.3, Marine Habitat and Species, discusses the effect of each alternative on marine habitats, including the benthos.

Sort #	Commenter Code	Comment	Response
		on the role of gray whales in influencing pelagic and benthic ecology in the Project Area.	
89	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Gray whales are important to the ecological structure of the Bering Sea. Though they can consume pelagic prey, as primarily bottom feeders they suck up mouthfuls of sediment, which is then resuspended in the water column (Grebmeier and Harrison 1992, Oliver and Stattery 1985). In the early 1980s when the gray whale population contained approximately 16,000 individuals, it was estimated that they resuspended approximately 1.2 x 108 m3 of sediment during a summer feeding season (Johnson and Nelson 1984, Nerini 1984). Resuspended sediments include various nutrients, microorganisms, invertebrate species that provide benefits to ocean ecology, as well as food to other species, including seabirds (Obst and Hunt 1990). PCFG whales provide the same ecosystem service in their range and, thereby, provide important benefits to the structure and function of the ecosystem, as well as to other species in the area. Dismissing such impacts, as NMFS has done in the DEIS, is wrong. Indeed, if the hunt results in a reduction in gray whales in the Project Area, given the influence of gray whales on benthic ecology, this loss could at least result in an appreciable effect on ecology of the Makah U&A and OR-SVI. In addition, since gray whales, as generalist feeders, also consume pelagic prey, their impact on the structure and function of the pelagic ecosystem could also be higher than considered by NMFS. Quantifying this impact, however, is not possible given the lack of any specific data on benthic and pelagic species, their abundance, composition, productivity, and distribution within the project area. NMFS needs to disclose such information in the DEIS.	The comment refers to impacts of gray whale feeding in the Bering Sea and asserts that PCFG whales play a similar role in the PCFG feeding area, but provides no information or evidence to support that conclusion. The comment also asserts that the DEIS should have provided greater detail regarding "benthic and pelagic species, their abundance, composition, productivity, and distribution within the project area" so that impacts could be quantified but provides no new information on this point. There is a sufficient description of marine habitat and species, with citations to the best available science and literature, to support the analysis regarding the level of impact (Section 4.3, Marine Habitat and Species). Consistent with CEQ regulations 40 CFR 1502.2(b), when an impact is likely to be minor, it is not necessary to present the detailed information suggested by the comment.
90	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to adequately evaluate the economic impacts of the proposed whale hunt:</u> As an initial matter, the description of the economic environment in the affected environment section of the DEIS is confusing. The variable use of numbers in some cases and percentages in others creates a data set that is difficult to interpret. NMFS should, at a minimum, review this section with the intent to clarify the statistics by, for example, consistently using numerical followed by percentage values in parentheses. For example, where the DEIS reports that “the per capita income of Makah Reservation tribal members is	Comments noted. We reviewed the cited sections of the DEIS and did not find errors. We also note that CEQ regulations at 40 CFR 1502.2(b) do not require a detailed presentation of information when a category of impacts is likely to be minor. In any event, we will consider these

Sort #	Commenter Code	Comment	Response
		lower than per capita income countywide, registering 54 percent of the countywide level in 2010," DEIS at 3-281, it should insert a numerical value before the "54 percent" reference. By doing so, NMFS could then confirm that all of the data contained in any of the economic tables contained in the DEIS are accurate. In addition, NMFS should compare the economic values contained in the DEIS on pages 3-246 to 3-269 with the data contained in the environmental justice section of the DEIS on pages 3- 270 to 3-281 to ensure that they are consistent. Such a comparison would be unnecessary if NMFS removes the Environmental Justice text from the DEIS as recommended below.	suggestions for clarifying the presentation in developing a final EIS.
91	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The Coalition has no reason to question the accuracy of the economic data presented in the DEIS, although it is concerned that, as presented, the data used may not be consistent throughout the document. We note, however, that the overall economic impact analysis is incomplete. NMFS's evaluation of the impacts to economics is based on the following economic variables: potential change in revenue, employment and/or economic value associated with tourist-related business activity; change in household consumption of whale products and manufacture and sale of traditional handicrafts; and economic impacts to the whale-watching industry, commercial shipping, and sport and commercial fishing, and hunt-related management and law enforcement. DEIS at 4-148.	Comments noted.
92	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Based on an analysis of the information contained in the DEIS, there are a number of questions and concerns that NMFS must address. Prior to articulating those concerns, there are several key statements or conclusions in the DEIS that are relevant to the analysis and must be noted and discussed. These include: • The Makah Tribal Council financially supported the whaling crews in 1999 and 2000, but in 2002 the Council decided to end financial support for whale hunts, leaving it up to the whaling families to financially support any hunts consistent with tribal traditions. DEIS at 3-283, 4-147. Because of this, the economic impact analysis in the DEIS does not include an assessment of the economic burden on Makah tribal members or households that may choose to engage in whaling. The Coalition supports this decision and notes that, should the Makah Tribal Council elect to financially support tribal whalers in the future, NMFS must reevaluate the economic impacts of the hunt, since funds expended on whaling could not be spent on meeting other needs of the Makah people on the reservation. Moreover, if the Makah Tribe seeks federal funds (i.e.,	Comment noted.

Sort #	Commenter Code	Comment	Response
		taxpayer money) for the purpose of subsidizing whaling from NMFS or any other agency, this too should trigger at least a supplemental Environmental Assessment under NEPA.	
93	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• The potential for any changes on the reservation under any of the alternatives to have a noticeable effect on economic conditions in Clallam County is negligible, because economic contributions by the Makah reservation to the countywide economy are so small. DEIS at 4-147. Given this conclusion it also would hold that the economic impacts of the No Action Alternative would also be negligible in the context of the economic conditions in Clallam County.	Comment noted.
94	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• There are no economic data demonstrating any positive economic impact from the influx of visitors during previous hunt-related events as a result of an increase in the number of rooms rented or in other economic activities in the region. DEIS at 4-149. This is notable since, as indicated below, NMFS ignores this point when evaluating the alternative-specific economic impacts. Nor has NMFS disclosed any economic data to suggest that there was any positive economic impact for Clallam County or the Makah reservation subsequent to the hunt because of the media attention focused on the Makah Tribe.	Comment noted.
95	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• Figures are not available for the amount of revenue generated by reservation tourism and recreation or the number of jobs and amount of personal income that depend on visitor spending. DEIS at 4-148. This statement is at least partially false, given that the DEIS did include statistics in regard to the number of persons purchasing permits to recreate on the reservation, including to use the Cape Flattery trail, and the number of non-tribal members visiting the Makah Cultural and Research Center. It is also inconceivable that additional tourism data are not available. Surely the Makah or NMFS (or its environmental consulting firm Parametrix) could have surveyed any inns, hotels, motels, lodges, tourist cabin owners, or other tourism-linked companies on the reservation to obtain data on the nightly room rentals and/or other tourist expenditures. Similarly, considering that the Makah have attempted to improve the marketing of Neah Bay as a tourist destination through Washington State and through the Affiliated Tribes of Northwest Indians, DEIS at 4-419, the Makah Tribal government must have data that documents what impact, if any, such marketing efforts have had on tourist visits to the reservation. Since NMFS has not satisfied the requirements of NEPA in regard to incomplete or unavailable information in this case, it must secure this information and use it in a revised analysis.	Comment noted. We will assess whether it is necessary to obtain such information for a final EIS.

Sort #	Commenter Code	Comment	Response
96	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• There is no evidence that calls for boycotts of Olympic Peninsula tourism as a result of the 1999 hunt had any negative economic impact on tourist businesses in the area. DEIS at 4-150. While this may be true, using this to predict the future is naïve. During the 1999 and 2000 hunts, it was known that litigation was being pursued that could stop the hunt. Consequently, although some advocated a tourism boycott of the Olympic Peninsula, others elected to determine the outcome of the judicial process instead of immediately supporting a boycott. If, as a result of this decision-making process, an MMPA waiver is granted and legal efforts to stop the hunt are not successful, there may be a renewed and more vigorous effort to promote a tourism boycott that could have adverse economic impacts on the Makah reservation and other businesses on the Olympic Peninsula.	Whether there would be an economic boycott of the Olympic Peninsula as a result of implementing any of the alternatives is speculative in light of existing evidence. The DEIS notes that there were attempts to organize a boycott around the 1998-99 hunts but that there is no evidence of any effect of those efforts (Section 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts).
97	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• No revenue would be made from the sale of whale meat but such products would meet the nutritional needs of Makah families. DEIS at 4-150. NMFS also claims that "attaching a dollar value to food products from harvested whales is difficult," id., but that whale products could "potentially replace foods that families would otherwise have to purchase." Id. This statement is not entirely accurate since, as explained below, an estimate can be obtained as to the value of the reported 8-20 pounds of whale meat per capita and 16 to 20 pounds of oil or blubber per capita based on similar, currently available food products. With that estimate, the alleged economic benefit to Makah families if the whale hunt were to be allowed can be quantified.	We maintain that attaching a dollar value to food products from harvested whales is difficult and speculative. The commenter does not provide any new data or information on how to obtain data. For example, the DEIS Subsection referred to in this comment (4.6.2.2, Household Use of Whale Products) also notes that he distribution of subsistence products through sharing networks makes it likely that many households and individuals would enjoy the economic benefits of a whale harvest. We do not have information to predict the type and cost of products that would be exchanged in such sharing networks nor the frequency of such exchange.
98	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• The Makah Tribe has a long tradition of manufacturing carvings, baskets, and other items for sale to collectors and tourists. Tribal artisans also produce carvings, jewelry, and silk screen designs for sale in local shops and regional galleries. DEIS at 4-151. Despite this claim, NMFS provides no data in the DEIS on the annual revenue generated by the sale of these products. As explained below, this is relevant to the environmental impact analysis when NMFS asserts that whaling will increase revenue for tribal artisans because it will	We disagree that it is necessary to quantify the potential economic benefit and/or tradeoffs from the manufacture of handicrafts to provide information necessary for an informed evaluation of the proposed action and alternatives. The DEIS presents

Sort #	Commenter Code	Comment	Response
		allow them to manufacture and sell native handicrafts from whale bone, baleen, and other non-edible parts of the whale. In addition, NMFS needs to provide some data on the value of native authentic handicrafts manufactured from whale products. Such data may be available from Native Alaskan artists who utilize non-edible products from the bowhead whale hunt to manufacture authentic handicrafts. Quantifying this potential effect requires understanding the current value of Makah authentic native art/handicraft sales and of the potential revenue that could be gained by selling native handicrafts manufactured from whale products.	sufficient information for decision-makers to distinguish among the alternatives regarding impacts to this resource. When an impact is likely to be minor, CEQ regulations at 40 CFR 1502.2(b) provide it is not necessary to present detailed information such as that suggested by the commenter.
99	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• Information on the current number of whale-watching expenditures, passengers, revenues, and employment numbers in the Washington/British Columbia areas is "not available." DEIS at 4-152. In addition, NMFS claims that "current revenues of whale- watching operations are unknown, and there is no information available or that could reasonably be obtained that would allow an estimation of how much whale watching revenues might decrease if gray whale behavior or numbers were altered by a Makah hunt." DEIS at 4-154. Despite admitting to not having such data, NMFS reports that it is "unlikely that whale hunting under any of the action alternatives would have more than a negligible effect on whale-watching revenues or employment within or outside the Project Area." DEIS at 4-152. It is inconceivable that the whale-watching data reported above were not reasonably attainable. It could be that neither NMFS nor Parametrix (the consulting firm paid by NMFS to prepare the DEIS) endeavored to obtain the data but, surely, had NMFS contacted whale watching companies, they likely could have provided requested revenue, expenditure, passenger, and employment numbers. NMFS has not complied with the NEPA requirements in regard to incomplete or unavailable information, so since this information is reasonably available, NMFS must obtain it and use it in a revised analysis.	NMFS did attempt to collect data on the whale-watching industry, through its contractor TCW Economics. Such information is not available and NMFS cannot require whale watch operators to provide it. Moreover, we consider this potential impact to likely be minor and therefore not requiring the level of detail suggested by the comment, per CEQ regulations at 40 CFR 1502.2(b). Given the likely minor impact, the qualitative comparison among alternatives is sufficient to support informed decision-making. We will determine the need to make a statement pursuant to 40 CFR 1502.22 when we complete a final EIS. Following publication of the DEIS NMFS did retain another economics firm to analyze impacts on the Puget Sound whale watching industry of regulations to protect Southern Resident killer whales (Industrial Economics, Incorporated (IEc). 2015. Memorandum: Regional Economic Benefits of Whale Watching in Puget Sound). We have reviewed that study

Sort #	Commenter Code	Comment	Response
			and concluded it does not change the analysis in the DEIS. We will incorporate the findings from that study in a final EIS.
100	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	It is also reasonable to conclude that tourists may not wish to watch whales they believe might be killed in a Makah hunt, which would result in a decrease in whale-watching bookings in the region and indeed throughout the North American Pacific coast. Claiming this likelihood is negligible because the Chukotkan hunt does not have a similar effect is disingenuous, given the attention the Makah hunt has received in the past by US media, compared to the relative lack of attention US media pay the Chukotkan hunt. Further, the remoteness of the Chukotkan hunts makes whale watching there currently almost impossible and therefore not a good comparison. Therefore, the conclusion in the DEIS that a hunt would have a negligible impact on whale-watching revenues is not necessarily true.	As noted in the DEIS, the proposed hunt area is remote and not a major whale-watching destination compared to other areas along the West Coast. There is no information to suggest that individuals would avoid whale-watching tours if a Makah hunt is authorized, and it is unlikely that Makah hunting activities would overlap geographically with whale-watching tours (Section 4.6.2.3, Whale-watching Industry). The DEIS also notes that whale watching has grown within the analysis area during the past two decades and may continue to grow (Subsection 5.1.3.5, Tourism).
101	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	• Costs associated with any proposed hunt would include approximately $75,000 per year to continue a photo-identification study of PCFG gray whales, $263 per day to cover the costs of NMFS observers, and $91,670 per day for law enforcement costs, with the bulk of the costs borne by the United States Coast Guard to cover the costs of its aircraft and vessels. DEIS at 4-155/4-156.	This summary of information contained in the DEIS is noted.
102	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In evaluating the impacts of each action alternative, NMFS dismisses any potential impact on whale-watching operations as a result of a change in behavior of gray whales in response to vessels. This is based on the Chukotkan gray whale hunt in Russia, which has been ongoing, largely without any stoppage, for centuries. NMFS claims that the hunt "has not translated into a general avoidance of boats by gray whales." DEIS at 4-153. This is a rather simplistic analysis of the potential impact of a hunt in the Washington region on gray whale behavior. First, NMFS has not disclosed sufficient information in the DEIS to permit a credible assessment of the impact of a Chukotkan hunt on gray whales. While the Russians continue to kill approximately 123 gray whales per year, DEIS	The DEIS does not dismiss potential impacts on whale-watching operations. Subsection 3.6.3.3.2, Commercial Value of Whales, describes available information on the whale-watching industry off the U.S. coast and Subsection 4.6.2.3, Whale-watching Industry, summarizes potential impacts of the alternatives. Contrary to commenter's assertion,

Sort #	Commenter Code	Comment	Response
		at 3-162, NMFS has not provided any information about catch- per-unit-effort, any change in gray whale distribution within their Russian feeding grounds, any change in the temporal use of near shore habitats, or any change in their behavior on those feeding grounds in response to vessels (i.e., are they more alert or more likely to flee compared to gray whales using feeding grounds within the Arctic waters of the United States where they are protected).	the DEIS relies on a variety of sources to inform its conclusion, in addition to the response of gray whales to the Chukotkan hunt.The commenter asserts the DEIS should have provided additional information but does not identify where such information may be available. Since publication of the DEIS Russia has reported some limited additional information, which we have reviewed but which has not altered the conclusions in the DEIS. We will consider whether a final EIS would benefit from additional discussion of the impacts from Chukotkan hunts on gray whales. . Moreover, we consider impacts on the whale-watching industry would likely be minor and therefore the analysis of impacts isn't essential to informing a reasoned choice and does not require the level of detail suggested by the commenter (40 CFR 1502.2(b)).
103	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Although matrilineal site fidelity may be the dominant factor drawing gray whales into Russian feeding grounds where they are subject to hunting, it would not be surprising if there have been some changes, even if only subtle, in gray whale behavior within the Russian feeding grounds. For example, it is well known that white-tailed deer can learn where and when they are safe from hunters and where and when they are not. This allows deer to utilize forage resources by night in areas open to hunting during the day, only to return to more protected areas during the day. If white-tailed deer have this capacity, it is likely gray whales do as well. In other words, gray whales may recognize, after decades of near complete protection in Mexico, along the west coast of the US and Canada, and in US Arctic waters that they are safe from hunting, while those who occupy Russian waters may demonstrate different behaviors intended to minimize their risk of lethal take while in that area. NMFS must explore this issue	The line of reasoning suggested in this comment is speculative.

Sort #	Commenter Code	Comment	Response
		in more detail before making such overreaching comments about the potential impact, or lack thereof, of any hunt on gray whale behavior.	
104	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS also must consider how a hunt by the Makah Tribe, which would include harassment of gray whales through pursuit, unsuccessful harpoon attempts, and potential injury to gray whales due to non-lethal strikes of a harpoon or bullet, might impact the behavior of gray whales in the larger eastern Pacific region. The impact of the proposed hunt on gray whale behavior is not addressed in the DEIS. Similarly, NMFS entirely ignores the possibility that a Makah hunt could influence the popularity of gray whale watching along the entire Pacific coast of North America, including the unique experience of interacting with gray whales and their calves in the lagoons in Mexico.. It is possible that people interested in undertaking a gray whale watching excursion may choose to skip such a trip if they are aware that the whales they would observe could be killed in a hunt in US waters. At a minimum, the enjoyment of watching gray whales would likely be diminished if tourists were aware of the potential danger posed by Makah whalers.	The DEIS considers whether a hunt would alter the distribution of ENP gray whales (e.g., Section 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Areas). The assertion that a Makah hunt could affect whale watching coast-wide is speculative, and the commenter provides no information to support the speculation.
105	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In evaluating each action alternative, NMFS suggests each is likely to increase tourism to the Makah reservation. DEIS at 4-158, 4-162, 4-164, 4-168. This assumes that non-tribal members have an interest in watching the killing or butchering of a whale or that media attention to the hunt will increase tourism to the reservation. This claim completely ignores evidence from the 1999 hunt, as contained in the DEIS, that the Seattle Times reported that of the 400 calls it received after the 1999 hunt ran 10 to 1 against the hunt (DEIS at 3-286) and that more residents of Clallam County expressed disapproval of the hunt than expressed support. Id. at 3-288, If anything, given that most US citizens are opposed to whaling, including aboriginal whaling when the tribe does not have a legitimate need for whales, it is more likely the action alternatives will result in a reduction in tourism to the Makah reservation.	It is unclear what if any correlation there is between the desire and effort to phone in an opinion about a hunt versus actually visiting the reservation to observe a hunt. The conclusion that there is likely to be a "minor short term" increase in tourism at the time of a hunt is based on the influx of visitors to the area during previous hunts, which included hunt protesters and reporters.
106	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Similarly, for each action alternative, NMFS claims there will be a negligible change in whale- watching revenue. DEIS at 4-159, 4-162, 4-167, 4-168. This conclusion is curious considering NMFS claims data on whale-watching operation revenues was not reasonably available.	Comment noted.

Sort #	Commenter Code	Comment	Response
107	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS also claims, for each of the action alternatives, that the increase in the availability of whale meat/blubber/oil for consumption and non-edible whale products for use by artisans will provide an economic value for members of the Makah Tribe. DEIS at 4-160, 4-163, 4-166, 4-168. For the non-edible products, without data on current sales of Makah artisan products and some assessment of the value of products manufactured from whale baleen or bone, the alleged impact of a whale hunt on artisan revenues cannot be quantified.	The DEIS does not attempt to quantify the economic benefits of handicraft sales.
108	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	For edible products, NMFS should have provided an estimate of the value of such products so as to quantify the potential savings to Makah tribal households. For example, the June 2015 price for uncooked beef steak in the western US is $7.67 per pound, [38] while olive oil (which, for this analysis is being used to represent whale blubber/oil; olive oil is often used to flavor foods as the Makah traditionally used whale oil) costs approximately $5.46 for 25.5 ounces[39] or 27.40 per gallon (which corresponds to $3.28 per pound). Using these figures, the estimated 8 to 20 pounds of whale meat would correspond to a value of $61.36 to $153.40, while the 16 to 20 pounds of blubber/oil would correspond to a value of $52.48 to $68.52. Combined, the value of the meat and blubber/oil would be $113.84 to $221.92. Depending on the household or family income of the Makah families that choose to consume whale products, the savings accrued by consuming these products may or may not be significant to a family/household annual budget. This assumes any savings accrued from the consumption of whale products will not be spent on other food items. [38] See http://www.economagic.com/em-cgi/data.exe/blsap/APU0400FC3101 [39] http://www.walmart.com/ip/Great-Value-100-Extra-Virgin-Olive-Oil-25.5-oz/10316039	For purposes of the analysis in this DEIS, it is sufficient to present information about edible products in the quantitative terms referenced here. Monetizing the benefit of whale products would not provide additional information that would benefit the decision-making process. Moreover, CEQ regulations at 1502.2(b) direct that EIS analyses be commensurate with likely impacts, which in the case of this resource are likely to be minor.
109	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In regard to the potential impacts of a hunt on law enforcement/management costs, Table 4-14 in the DEIS provides a summary of the estimated enforcement-related costs (including the costs for NMFS observers) of each alternative. These costs would range from a maximum of $5.6million per year under Alternatives 2, 3, and 6 to a minimum of approximately $717,000 per year under Alternative 4. As indicated previously, the majority of these costs will be borne by the United States Coast Guard, yet NMFS provides no discussion of whether the Coast Guard has the funds to cover this cost, if Congress would allocate funds for the Coast Guard to cover such costs, or how Coast Guard funding for these costs could impact other Coast Guard operations in the Washington area, including search and rescue, homeland security patrols, and any drug interdiction efforts. While admittedly the Makah	Comment noted. It would be speculative to consider whether future funding would be available to support monitoring and enforcement and NMFS cannot commit the federal government to future expenditures.

Sort #	Commenter Code	Comment	Response
		hunt, if allowed, will not occur in the immediate future, given federal budgetary realities there must be some discussion of whether the funds needed to pay for a hunt are or would be available and if they would impact other Coast Guard operational programs.	
110	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Similarly, since funds allocated by the Coast Guard and NMFS to a potential hunt are collected from taxpayers, if a waiver is granted then NMFS is effectively subsidizing with taxpayer dollars a hunt the public may strongly oppose. This impact to the taxpayer was not evaluated in the DEIS.	The information commenter suggests is lacking is provided in the DEIS. DEIS Subsection 4.6.2.5 (Management and Law Enforcement) and Table 4-14 address the costs described in this comment, noting that "If whale hunting by the Tribe engendered protests by whaling opponents, as it has in the past, there would likely be law enforcement operations to maintain order. Past law enforcement activities have involved the United States Coast Guard, NMFS Office of Law Enforcement, the State of Washington, Clallam County Sheriff's Office, and Makah tribal police. Estimated costs for all non-tribal agencies could approach $91,670 per day, with the bulk of costs associated with United States Coast Guard aircraft and vessels."
111	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	There are other gaps in the economic impact analysis that must be addressed. First, NMFS has not disclosed any information about the total amount of federal funds expended since the mid- 1990s in an effort to facilitate the Makah's resumption of whaling. This would include, but not be limited to, costs for NEPA compliance, consultations with the Makah and other agencies, fees paid to consultants, legal costs, costs associated with scientific research relevant to the proposed hunt, and costs incurred in obtaining past ASW gray whales quotas from the IWC. This is directly relevant to any analysis of economic impacts of a Makah hunt, as it would provide interested stakeholders with additional information about the true costs of the Makah's whale hunting proposal.	The DEIS considers potential costs to local, state, and federal governments associated with implementing the alternatives. It's not clear how the retrospective costs of responding to the Makah Tribe's request would be relevant to decision-making regarding the proposed action and alternatives because these costs fall within NMFS' authorized responsibilities and prior appropriated funds

Sort #	Commenter Code	Comment	Response
112	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Finally, NMFS completely fails to include any information about the economic value of gray whales. This is not uncommon, as most agencies, when evaluating the environmental impacts of an action that will affect a species, fail to recognize that the species has worth beyond its value, economic or otherwise, to humans (i.e., for hunting, fishing, or wildlife watching/tourism). This value extends well beyond the value to a whale watching company, to include the ecological value of gray whales (i.e., the value gray whales provide as part of an ecosystem, including as prey, predator, and how their behaviors may affect other marine species and the marine environment) and their intrinsic or existence values.	The DEIS examines the role of gray whales in their environment (e.g., Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem). Though it does not explicitly consider the "existence value" of whales, the DEIS does examine the social environment that may be affected by the proposed action (Subsection 4.8, Social Environment). Please also refer to the response to the next comment.
113	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Calculating such intrinsic values can be done using an economic tool known as contingent valuation (CV). CV has historically been used by the Department of the Interior and the Department of Commerce, including NMFS, to assess the intrinsic value of natural resources lost as a result of an oil spill. Indeed, federal law requires that such intrinsic values be assessed in order to calculate the amount of damage caused to the environment. This damage calculation is used to assess penalties against those responsible for the damage. The CV concept, however, is equally applicable in this context and could – and should – be used to assess the intrinsic or existence value of a gray whale, in order for the cost of losing a whale due to a Makah hunt to be considered in the economic analysis. The CV process utilizes surveys to determine, in this case, the value local residents, regional residents, and citizens nationally apply to gray whales. The purpose of the analysis is to collect value data both from those who may observe gray whales in the wild and from those who have never seen, and may never see, a gray whale in the wild. The Department of Commerce is well aware of CV as its National Oceanic and Atmospheric Administration empaneled a number of distinguished social scientists in the early 1990s to determine if CV "is capable of providing reliable information about lost existence or other passive-use values."[40] The report provided support for the use of CV to calculate such existence or passive-use values and included a series of recommendations to direct such assessments. NMFS must engage in this type of analysis using the CV methodology (or something similar), so that it can obtain data on the intrinsic value of gray whales to include in a revised analysis. [40] See Arrow, K., R. Solow, P.R. Portney, E.E. Leamer, R. Radner, and H. Schuman. Report of the NOAA Panel on Contingent Valuation. January 11, 1993 (available	We are unaware of information or existing studies regarding the contingency valuation of gray whales and the commenter does not provide such information. Commenter does not cite such studies. . The DEIS provides a qualitative analysis of public values surrounding whales in Subsections 3.8 and 4.8, Social Environment and that analysis supports informed decisionmaking for this scale of potential impact.

Sort #	Commenter Code	Comment	Response
		at http://www.economia.unimib.it/DATA/moduli/7_6067/materiale/noaa%20report.pdf).	
114	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS has improperly applied the environmental justice concept to the proposed Makah whale hunt: NMFS has grossly misapplied the environmental justice requirements contained in Executive Order (EO) 12898 in the DEIS (59 Federal Register 7629, February 16, 1994). This EO mandates that "… each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States …" DEIS at 4-173, EO 12898 at 1-101. Traditionally, this concept has been applied to, for example, the impact of constructing a road, refinery, waste storage facility, or feedlot in areas where the majority of the population is minority or low income. The idea is to ensure such populations are not disproportionately impacted or unduly burdened by such a project compared to other human populations (i.e., non-minority and middle/upper income). Here, however, NMFS is attempting to evaluate the environmental justice implications of allowing or not allowing a minority group, the Makah Tribe, to engage in whaling; an activity that the Makah have not pursued, save for once, for nearly 90 years. If the Makah Tribe was currently whaling and the government was considering prohibiting the hunt, the environmental justice implications of such an action would be relevant. Or, if the government was considering the construction of a road, military base, mine, port, or missile silo on or near the Makah reservation, environmental justice concerns would be applicable. Attempting to apply such an analysis to an activity for which there has been such an extended period of inaction, however, is entirely inconsistent with the intent of the Executive Order. Indeed, the Coalition challenges NMFS to identify any other instance where it or any federal agency has applied the environmental justice analysis in the same manner as it has here. An examination of EO 12898 reveals other elements that further demonstrate the inapplicability of its use in the present situation. For example, Section 2-2 states that: "Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment in a manner that	We properly applied and met the requirements of the Executive Order in our inquiry into whether any of the alternatives would have a disproportionate impact on minority or low-income populations.

Sort #	Commenter Code	Comment	Response
		ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin" (emphasis added). Although unstated in the analysis in the DEIS, NMFS may be engaging in this analysis based on claims that depriving Makah access to whale meat, blubber, and oil is substantially affecting the health of the Tribe. As previously explained, however, this is not supported by the evidence.	
115	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Section 4-4 of the EO is specifically focused on subsistence consumption of fish and wildlife. This section mandates that federal agencies do the following: 4-401. Consumption patterns. In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns. "4–402. Guidance. Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife. Agencies shall consider such guidance in developing their policies and rules." NMFS may believe these mandates permit the application of environmental justice in the case of the Makah whale hunt. If anything, based on the lack of any credible data or analysis in the DEIS on the fish and wildlife consumption patterns of Makah tribal members (i.e., what wildlife species are consumed, the quantity consumed, the contaminant profile of each consumed species), NMFS has clearly failed to comply with this section of EO 12898. Indeed, the only information contained in the DEIS regarding Makah consumption patterns of fish and wildlife includes statements about how frequently Makah families consume traditional foods, how many times per week they eat fish, how many pounds of fish they eat each year, and that they also engage in subsistence hunting of terrestrial wildlife.	The DEIS considers patterns of consumption to the extent necessary to analyze and compare the alternatives. Please also see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
116	Schubert (Animal Welfare	NMFS also provides no information in the DEIS to suggest it has worked collaboratively with other agencies to publish guidance on methods used to evaluate the human health risks associated with the consumption of pollutant-	Please see the response to frequent comment # 11 regarding the safety of

Sort #	Commenter Code	Comment	Response
	Institute)_Letter Only_7-31-15	bearing fish or wildlife or that it relied on such guidance in evaluating the environmental impacts of consuming gray whale products by the Makah. NMFS does provide data on contaminant loads in some species of fish and wildlife in the DEIS. It also refers to Washington State standards for what amount of whale blubber may be safe to consume (see DEIS at 3-373: "(e.g., an 8-ox [227 gram] meal size) yields a calculated 'allowable consumption rate' of 0.43 meals of blubber per month." It does not, however, identify any federal standards or guidelines for what is considered an acceptable or safe level of contaminants in fish and wildlife species used for subsistence purposes. Nor does it suggest that it has provided – or will provide – any guidance to the Makah in regard to its consumption of gray whale food products.	gray whale products for human consumption.
117	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While the EO provides broad standards for all federal agencies to meet, it does not establish agency or department-specific standards for environmental justice review. Rather, Section 1- 103 mandates that: "… each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)–(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low- income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable." What NMFS fails to disclose in the DEIS is that the Department of Commerce (DOC) has adopted an Environmental Justice Strategy (DOC Strategy).[41] In this strategy, the DOC does specify that: "During National Environmental Policy Act reviews of major agency actions, <u>any potential disproportionate and adverse environmental or health effects</u> on low-income or minority populations are considered." (emphasis added) DOC Strategy at II.B.1. Notably, this DOC language is not consistent with the EO language, which refers to a "substantial" effect on human health or the environment.	Comments noted. Please also see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.

Sort #	Commenter Code	Comment	Response
		Nevertheless, even without reference to a substantial effect, the impacts of the proposed whale hunt (or lack thereof) on the environment and health of the Makah people do not meet this standard and, therefore, the environmental justice analysis in the DEIS is improper. First, there would be no adverse environmental impacts if NMFS rejects the Makah Tribe's request for a waiver. Indeed, as documented in the DEIS, all of the adverse environmental impacts (differentiating environmental from cultural, social, and subsistence use impacts) would occur if NMFS allows the Makah to whale. [41] The Department of Commerce Environmental Justice Strategy is available at: http://open.commerce.gov/sites/default/files/DOC_Environmental_Justice_Strategy.pdf	
118	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Moreover, as previously stated, NMFS concedes that "there is insufficient information to conclude that the lack of fresh whale products under the No-action Alternative would be expected to negatively alter current dietary conditions for any tribal member," DEIS at 4-259, so denying the waiver would have no known health effects on the Makah. If anything, as also conceded by NMFS, whale products, particularly blubber, "would likely contain higher levels of certain contaminants (e.g., PCBs) than other foods consumed by the Makah," DEIS at 4-257, suggesting that allowing a whale hunt could be adverse, not beneficial, to the health of the Makah people. The environmental justice analysis in the DEIS, however, fails to consider how allowing a whale hunt could adversely impact the health of the Makah Tribe.	Potential health effects of hunting whales and consuming whale products are discussed in Section 4.16, Human Health. We will consider whether this information needs to be repeated in the section on environmental justice in a final EIS.
119	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In the DOC Strategy, NOAA is identified as an operating unit of the DOC that is in a position to advance environmental justice for affected populations. DOC Strategy at II.B.2.i. This is done through five overarching NOAA programs or activities; recovery of protected species, sustaining healthy coastal ecosystems, habitat protection, climate change and weather. While all of these programs or activities may be broadly relevant to the Makah (and indeed directly relevant to the conservation status of gray whales), only the recovery of protected species—gray whales— is directly relevant here. For the recovery of protected resources, the Strategy contains the following mandates: • NOAA will continue its current research and management activities to determine the impact of subsistence harvest on protected resources, and the impacts of other factors (e.g., commercial fishing, habitat loss, renewable energy development, oil and gas production, and pollution) on subsistence activities.	Comments noted.

Sort #	Commenter Code	Comment	Response
		• NOAA will continue to conduct research to determine the status of North Pacific marine mammals used by indigenous peoples. In addition, NOAA will continue to support the Eskimos' full participation in the International Whaling Commission and provide information in support of sustaining the bowhead whale quota allocated to subsistence use. • NOAA will also ensure that the activities it authorizes are conducted in a manner that ensures no unmitigatable adverse impacts on subsistence use of marine mammals. DOC Strategy at II.B.2.i.a.	
120	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	None of these mandates specifically mention the Makah, as they do Alaska Natives. None are directly relevant to any decision by NMFS regarding the Makah Tribe's MMPA waiver application. Indeed, notably, there is no language in the DOC Strategy suggesting that NOAA will support the Makah Tribe's full participation in IWC meetings or that it will provide information to support or sustain the ASW quota for gray whales for the Makah. Based on the foregoing evidence, NMFS has improperly included an analysis of environmental justice effects in the DEIS and it must be removed from future documents.	NMFS determined that the Makah Tribe constitutes an "Environmental Justice" community based on the fact that Native Americans are a minority community and the Makah Tribe is a low income community. We are required to include an environmental justice analysis in the DEIS. The analysis contained in the DEIS follows the guidance from the Environmental Protection Agency's Office of Civil Rights and Environmental Justice (EPA 1998; EPA 2010).
121	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Regarding the analysis itself, it is, predictably, entirely one-sided. The criteria used to evaluate the environmental justice impacts were economics, ceremonial and subsistence resources, and the social environment. DEIS at 4-174. In regard to the latter criterion, NMFS concluded that "it is not possible to determine if the action alternatives would result in disproportionately high and adverse social effects on the Makah Tribe." DEIS at 4-176.	Comment noted.
122	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	As for economic impacts, this analysis was linked to the potential effects of each alternative on tourism, with NMFS asserting, albeit inaccurately and without any supporting data, that a hunt would increase tourism to the Makah reservation. This ignores the widespread opposition to the Makah whale hunt in Clallam County and the broader region based on public outrage expressed in association with the 1999 hunt (see DEIS at 3-286, 3-288). It also ignores NMFS' own determination that there are no economic data demonstrating any positive economic impact from the previous hunt related events, DEIS at 1-149, nor has NMFS provided any evidence that there was an positive economic impact post-hunt as a result of media coverage of the event. Nevertheless, based on the	This comment misrepresents the information contained in the DEIS. The DEIS notes that a hunt could result in more visitors to the peninsula, such as occurred during the 1998 and 1999 hunts, but concludes that "while a whale hunt might attract visitors to the Neah Bay area, it is likely that any positive effect would be short term and minor," and adds that any positive

Sort #	Commenter Code	Comment	Response
		NMFS claim that a hunt will increase tourism to the reservation, it concluded that the action alternatives would not have a disproportionately adverse impact on the Makah Tribe compared to the No Action Alternative.	effect could be offset by negative effects from potential boycotts.
123	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Predictably, the NMFS analysis of the impacts of the proposed hunt on the ceremonial and subsistence criteria concludes that action alternatives would "have positive ceremonial and subsistence effects associated with a resumption of a Makah whale hunt." DEIS at 4-176. Conversely, it claims that the No Action Alternative - by preventing the preparation, hunting, butchering, sharing, consuming, dancing, singing and rituals associated with whale hunting - would result in a "disproportionate share of the adverse effects on subsistence uses, traditional knowledge and activities, spiritual connection to whale hunting, and cultural identity … upon the Makah Tribe." Id. This analysis entirely ignores any consideration of the health effects of a whale hunt in the context of a review of environmental justice, although it is highlighted in EO 12898 and in the DOC Strategy. This is not to suggest that NMFS should merely add such information to the environmental justice text in any revision to the DEIS since, as recommended above, the entire section should be struck from the analysis due to non-relevance. Rather, this is noted to demonstrate that, as presented, the analysis does not even include a key element that is a focus of the EO.	Potential health effects of hunting whales and consuming whale products are discussed in Subsection 4.16, Human Health. We will consider whether this information needs to be repeated in the section on environmental justice in a final EIS.
124	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>The DEIS contains substantial evidence to suggest the Makah Tribe does not have a subsistence or cultural need to whale or for whale products:</u> The discussion of subsistence use in the DEIS largely focuses on the Makah Tribe's historic whaling practices and its traditional use of whale and whale products for ceremonial purposes and how these activities, if reinstated, may affect the social environment on the reservation. In other words, the analysis of the impacts of a whale hunt on subsistence use overlaps with the Tribe's desire for whaling and whale products for its traditional ceremonies, rituals, and other cultural practices. This section does not address any nutritional need for whale products, as this was evaluated separately in the DEIS. In addition, since this section of the DEIS shares a number of similarities with the analysis of environmental impacts of the proposed hunt on the social environment, these sections are analyzed together. The latter section evaluates the impact of a whale hunt on the social relationships among supporters and opponents of the proposed Makah hunt.	We disagree with the assertion that the DEIS contains "evidence" regarding the Makah Tribe's needs. Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
125	Schubert (Animal Welfare	One critical element in evaluating subsistence and cultural need in this context is whether, in fact, the Makah Tribe has a legitimate subsistence/cultural need for whaling and whale products. Nevertheless, setting aside for the moment	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt, # 2 regarding the

Sort #	Commenter Code	Comment	Response
	Institute)_Letter Only_7-31-15	any discussion of whether the Makah Tribe has continued to practice its traditions associated with whaling (e.g., ceremonies, rituals, dances, songs, stories), the role of tradition in any potential future whale hunt must be addressed. The DEIS and its appendices are replete with information about historical traditions associated with the Makah whale hunt. What is not clear is whether the Makah Tribe, if granted the authority to kill whales, will continue to practice such traditions. Considering the apparent importance of the Tribe's cultural and spiritual connection to whales, it would be expected that such traditional rituals, including frequent bathing, rubbing the body with nettles, and sexual abstinence would be continued. However, in the DEIS, the only statement regarding such practices being followed if the Makah Tribe resumes whaling is that "whaling team members may also partake in spiritual preparations." DEIS at 2-16 (emphasis added). The Coalition is not advocating that the Makah Tribe must follow all of the past traditions. For example, in regard to the methods used to kill the whales, if whaling is allowed, the method used must, by law, cause the least suffering and cruelty (i.e., must be the most humane). The traditional methods of killing a whale with cold harpoons and floats, where the whale would sometimes linger for days before dying, are clearly no longer acceptable. To that end, if the Makah Tribe and NMFS elected to only utilize motorized vessels in order to reduce the amount of harassment inherent to a hunt and to more effectively and efficiently kill the whale (ideally utilizing an explosive grenade as the primary killing weapon), the Coalition, based on humane concerns alone, would not object. However, notwithstanding the killing methods, considering that the Makah Tribe's hunt, if allowed, represents a form of cultural ASW (since the evidence of subsistence or nutritional need is lacking), it is expected that all cultural traditions will be followed. Many of those traditions are described below. While the Coalition reemphasizes its recognition of the Makah Tribe's history of whaling, the DEIS and its appendices contain considerable information suggesting the traditions the Tribe has claimed have continued during its nearly 90-year hiatus in whaling may not have been consistently practiced over the years. In this regard, the Makah Tribe has a dilemma. If it can prove, as it claims, that it has continued to engage in traditional whaling practices for the past nine decades, then this raises the question of why it needs to kill any whales to satisfy a cultural need. Alternatively, if it cannot prove that it has continually practiced such traditions, then the claims that it and the United States government have	ASW status of the Makah Tribe, and # 3 regarding the Makah Tribe's desire to revive its cultural traditions.

Sort #	Commenter Code	Comment	Response
		used to suggest that the Tribe can meet the "continuing traditional dependence on whaling"[42] language in the IWC's definition of ASW would simply not be true. Admittedly, because Makah whaling has historically only been conducted by a limited number of powerful and influential families, some families may have retained and shared their whaling traditions more consistently than other families. Nevertheless, given that only a limited number of families had the qualifications, skill, and rank to engage in whaling, it is unclear if that social hierarchy will limit the number of families that can participate in any future whaling (if permitted) and whose members could serve as whaling captains. If only select families among the Makah Tribe qualify, through their ancestry, to engage in whaling, then NMFS should identify which families would have the authority to whale. This would allow the agency to gather more information from those families about their financial resources (i.e., can they afford to conduct whaling if it were allowed) and their history of sharing, both within their family and with other tribal members, of their family-specific whaling traditions (at least those traditions that are not secret). Conversely, if any member of the Makah Tribe, if he/she has the equipment and funds and regardless of ancestral connections to whale, can engage in whaling, then this raises questions about the Tribe's alleged cultural connection to whaling. Traditionally, a Makah whaling canoe was helmed by the whaler or headman and contained seven crew members. Whalers, who provided the equipment for whaling and owned important ceremonial privileges acquired through heredity, were ranked at the top of the Makah society social pyramid. The whaler was also believed to have the ability to "interact with the natural and the supernatural to assure a successful hunt." 2002 Needs Statement at 9/10. Furthermore, given the hierarchy in Makah society (i.e., nobles, commoners, and slaves), DEIS at 3-295, positions on whaling crews "were restricted to men who could withstand the rigors of intensive ritualized training, possessed the hereditary access to the position and its ritualized knowledge, or underwent a supernatural encounter which engendered the gift of whaling ability." Makah Waiver Application at 6. The safety and success of the hunt was not limited to the crews' training, strength, or stamina, as it depended on the observance of rituals by the whaler, his crew, and their families. Id. Training included "ritual bathing, praying, rubbing the skin with boughs or nettles, and imitative performance." DEIS at 3-297. Many if not all such rituals were conducted at secret locations and varied for each whaling family. Such details like the "bather's costume, the prayers, and the type of branches the	

Sort #	Commenter Code	Comment	Response
		whaler used were private knowledge that was passed from one generation to the next according to the rules of inheritance." Id. For the whaler's wife, tradition held that her movement during a hunt would determine the behavior of the whale. DEIS at 3-297. If she moved too much, the whale being pursued by her husband would be "equally active and difficult to spear." Id. Conversely, if she lay quietly, "the whale would give itself to her husband." Id. Lack of attention to such traditions, which included other proscribed behaviors, "could result in the capture of a whale that was not fat or large enough, or cause the harpooned whale to run out to sea instead of in toward the shore." 2002 Needs Statement at 11. For the chief whaler and his wife, the traditions required even greater sacrifice as "the whaler and his wife observe a long and exacting course of purification, which includes sexual continence and morning and evening baths at frequent interval from October until the end of the whaling season … about the end of June." Id. If the Makah Tribe desires to hunt whales to honor tradition, it would follow that tribal members would willingly follow such traditional practices. Evidence of potential disruptions to the alleged sharing of whaling traditions extends back to even before the Treaty of Neah Bay was signed. According to the Makah Tribe's 2002 needs statement, in 1853, the Makah Tribe was devastated by an epidemic of smallpox. This and other diseases reduced the Tribe's population by 75 percent by 1890, resulting in the loss of much family-owned information that was therefore never passed down to younger generations. 2002 Needs Statement at 21. While this was and is a tragic period in Makah history, it is simply a fact that it caused the abrupt loss of knowledge about critical components of rituals and ceremonies. Id. Considering the loss of historic knowledge during long ago epidemics and, more recently, the lengthy hiatus in whaling during which many of those alive in the 1920s passed away, and the potential lapse in transmitting traditions within a family, it is unclear how many Makah whaling families can demonstrate an unbroken link to the past. In the various Makah Tribe's needs statements submitted to the IWC, such links are assured, but beyond the words on the page, no other proof has been offered to verify such claims. Although it is commonly reported that the Makah ceased whaling in the late 1920s, the decline of whaling as a tribal tradition extends to the mid-1800s, even before commercial whalers decimated gray whale numbers. DEIS at 3-302. At that time, as a result of contact with non- Indian traders and explorers who had come to the Pacific Northwest, whale products, particularly oil, became more	

Sort #	Commenter Code	Comment	Response
		of a marketable good than a subsistence need. Although the Makah had already been engaged in the trading of whale products, the new visitors to Neah Bay provided a new market for whale oil. By the late 1840s and 1850s, as the market for whale oil and dogfish oil increased, the whale oil purchased from the Makah Tribe (and presumably other Native Americans) became a major export of the Hudson Bay Company. 2002 Needs Statement at 17. By 1852, the Makah "were trading or selling some 20,000 gallons of whale oil and fish oil each year, with this amount escalating to 30,000 gallons per annum over the next two decades." Id. at 18. Whales had apparently become a cash commodity for the Tribe. As whale populations declined in the 1870s, whaling by the Makah diminished in frequency, reportedly because it became too cost prohibitive. Makah Waiver Application at 8. Profits from whale products also declined. 2002 Needs Statement at 21. At that time, the Makah Tribe "increased their seal hunting efforts to compensate for a less profitable whale hunt."2002 Needs Statement at 20. Given their sealing and navigational skills, Makah tribal members were hired to work on commercial sealing ships plying the waters of the Washington coast and Vancouver Island in search of fur seals; the European-American ship owners relied on the Makah Tribe's aboriginal wage-labor force to succeed at sealing. DEIS at 3-304. The profits accrued from the seal hunts permitted Makah tribal members to purchase and operate their own schooners and, in a role reversal, they began to hire non-tribal navigators. 2002 Needs Statement at 20. By 1891, "sealing became so lucrative for the Makah and west coast native hunters that their traditional whaling expeditions virtually ceased." Id. In 1897, an international convention signed by the United States effectively banned pelagic seal hunting. At that time, given the diminished number of gray whales, the intensive investment in time and ritual preparation to hunt whales "was too difficult to justify." Id. at 23. Consequently, in 1905 there were only three recorded whale hunts undertaken by the Makah whalers (although the success of these hunts is not known). Id. at 23. Without whaling or sealing, Makah men engaged in a new, more productive venture – ocean fishing – that would continue to make use of their exceptional navigational and seafaring skills. 2002 Needs Statement at 23. At that time (the early 1900s), fishing "had become a more effective venture than whaling prior to the turn of the last century." Id. As noted in the 1889 Annual Report to the Commissioner of Indian Affairs:	

Sort #	Commenter Code	Comment	Response
		"the Makahs catch a great many fish, which they ship three times a week to Seattle, where they have a good market for them. They have caught and shipped as high as 10,000 pounds of halibut in one day." 2002 Needs Statement at 23. As both gray and humpback whale populations continued to decline and as more Makah men shifted toward "the very successful subsistence and commercial venture of ocean fishing," whale hunts became an even riskier investment. 2002 Needs Statement at 24. Based on these historical accounts, while the Makah Tribe has a long history of whaling, its whaling practices transitioned from true subsistence to a profit-making operation by the mid- 1800s. Once profits from the sale of whale oil declined, the Makah Tribe transitioned to sealing to continue to profit from Northwest Washington's bountiful wildlife. When that hunt was largely banned by an international convention, the Makah transitioned again to ocean fishing – an activity that continues today and that, given the revenue produced, must provide some Makah with substantial income.[43] Cumulatively, this evidence raises additional questions about the claims that the Makah have continually practiced and passed down from generation to generation their traditions related to whaling, given that, for many ancestral whaling families, whaling has not been practiced for approximately 165 years. Despite a 90-165 year hiatus in whaling, the DEIS indicates that recently the "Makah Tribe has attempted to revive its cultural traditions for the past three decades" in order to "combat social disruption resulting from the rapid changes of the last century and a half," causing high rates of teenage pregnancy, students dropping out of high school, substance abuse, and juvenile crime. DEIS at 3-282, Makah Waiver Application at 9. To reverse these trends, the Makah "have reinstated numerous song, dance, and artistic traditions." Id. The Coalition supports the revival of the cultural traditions but notes that "revival" clearly suggests that these traditions – particularly those tied to whaling – have not been continually practiced since the late 1920s when the Tribe gave up whaling. [42] The Coalition believes that any claim that the Makah Tribe has continually engaged in traditional practices related to whaling does not meeting the "continuing tradition dependence on whaling and use of whales" standard to obtain an ASW quota as explained previously in this comment letter. [43] According to data in the DEIS the salmon fishery out of Neah Bay generated annual revenue between $226,000 to 1.4 million between 2003 and 2011, DEIS at	

Sort #	Commenter Code	Comment	Response
		3-260,while overall commercial fish landings to Neah Bay for 2007-2011 were valued at 5.9 to 9 million dollars each year.	
126	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, recognizing that these revitalizations were undertaken to address certain social ills on the reservation, NMFS has not provided any data to demonstrate the impact of such cultural revival on the rate of, for example, teenage pregnancy, substance abuse, or juvenile crime on the Makah reservation. Nor has it cited to any other data – for example from other Native American tribes – to suggest that, in this modern era, reviving cultural traditions can influence the rate of such societal ills. For example, have efforts by the United States Fish and Wildlife Service to facilitate the acquisition of feathers from bald eagles and other raptors for Native American tribes to use in their cultural celebrations helped any of those tribes in reducing social ills on the relevant reservations? The Coalition is not suggesting that restoring cultural traditions cannot aid in addressing social ills on reservations, but such claims have to be proven with credible data versus mere opinion.	The Makah Tribe asserts that a revival of their culture is necessary to combat social ills within the society, and that a resumption of whaling is necessary to pursue their cultural revival (Makah 2005a). The DEIS presents information from the Makah Tribe's needs statements and from interviews conducted by Dr. Stephen Braund DEIS Subsection 4.8.2.1 (Makah Tribal Members). The DEIS draws limited conclusions about the social and cultural effects of authorizing or not authorizing a whale hunt.
127	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Surely, the Makah Tribe has monitored and measured the rates of these societal ills that are of concern on the reservation and can demonstrate a trend in those rates over the past three decades. If such data were available, a proper analysis would also require the consideration of other tools, methods, or strategies the Makah Tribe may have implemented over the past decades, so that the impact of cultural revival can be considered in the full context of other methodologies used to address these problems. According to tribal survey results, "an overwhelming majority (93.9 percent) of the village believes the resumption of the whale hunt has positively affected the Tribe and 51.6 percent specifically cited moral and social changes as the most important benefit," 2002 Needs Statement at 1, but no other metrics have been provided to quantify such positive change.	We are not aware of other metrics or information besides those described in the tribe's application (Makah 2005) and household survey and needs statements provided in several reviews over the years and routinely updated for presentation at the IWC. (Renker 2012). Nor does the commenter suggest additional metrics or information.
128	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Other examples of statements that call into question whether the Makah have continued to practice whaling traditions are evident throughout the DEIS and its appendices. For example, NMFS notes that the Makah Tribe's "desire to reinvigorate the whaling tradition never dissipated," DEIS at 3-306, which suggests the traditions have not continued, at least not substantially, over time. Similarly, NMFS concedes that "many traditions related to whaling have waned, however, since the Makah Tribe's cessation of the hunt in the 1920s." DEIS at 3-309. The DEIS also notes that "tribal members reported that whaling songs and rituals also resumed following the 1999 hunt, with more people participating in	DEIS Subsection 3.10.3.5.1 (Makah Whaling) notes that according to a survey of Makah tribal members (Renker 2012), 'Makah people had never stopped educating their children about their respective familial whaling traditions.' Furthermore, the public school included a whaling curriculum, and the Makah Cultural and Research

Sort #	Commenter Code	Comment	Response
		family songs and sharing traditional knowledge," DEIS at 3-313 (citing Braund and Associates 2007), which is counter to the claim that such traditions were continuously practiced since the 1920s. NMFS also concedes in the DEIS that while the continuous practice of a cultural activity makes it "more likely that knowledge of that activity will pass from generation to generation," should there be "a hiatus in practicing the activity, the knowledge may be lost." DEIS at 4-197. Such a loss could take time, but inevitably "knowledge of specific elements of the activity wanes as elders die." Id. If that is true, given the Makah Tribe's nearly 90-year hiatus in whaling (with the sole exception of a whale killed in 1999), it would follow that the cultural knowledge of whaling has, at least, diminished, if not been largely lost. If traditions regarding whaling, including the transfer of recipes on how to prepare whale meat and blubber, had been passed down between family members, then those receiving whale products after the 1999 hunt would have been able to use those recipes to prepare the meat and blubber consistent with tradition. Yet, according to tribal survey results, the majority of respondents "reported a desire to learn more about preparing whale products and using whalebone." DEIS at 3-313. While some "households began to use recipes held in family confidence for decades," others experimented with "techniques used for other sea creatures like seals and fish," suggesting those who experimented didn't have traditional family recipes. Even Makah whalers, after the 1999 hunt, expressed an interest in learning more about the "ancient activity of whaling," again calling into question the transmission of whaling traditions among family members. Id. Similarly, the Makah Tribe reports that "community members are ready to rise to this challenge and re-learn the techniques necessary to make the food from the whale a part of Makah life again," 2002 Needs Statement at 38, providing further evidence that such techniques have not been passed down through the generations. According to the data in the Makah Tribe's 2002 needs statement from the first tribal household survey, of the 61.3 percent of survey respondents who received whale meat after the 1999 hunt, 41.5 percent made jerky, 43.9 percent ate roasts, 41.5 percent cooked stew, 35.4 percent grilled steaks, and 34.1 percent smoked meat; what is not clear is whether any of this was done with the use of traditional recipes passed down through the generations. 2002 Needs Statement at 15. Another 19.5 percent of respondents utilized "innovative methods" for preparing whale meat, including stir frying, kippering, deep frying, barbecuing, and boiling," id. at 16; this would suggest that these tribal members	Center supported whaling education efforts." "While non-Makahs perceived a large temporal gap in the whaling history of the Tribe, tribal members saw continuity. Many individuals were patiently waiting for the whaling traditions to be taken from storage and implemented in reality."

Sort #	Commenter Code	Comment	Response
		did not rely on traditional recipes to prepare whale meat. Similarly, for the 75.4 percent of survey respondents receiving blubber, 22.4 percent smoked it, 37.9 percent rendered the blubber into oil, 6.9 percent pickled it, 48.3 percent boiled it, and 65.5 percent ate the blubber raw, id., although again it is not clear if they used traditional recipes to prepare the blubber. While traditions and traditional techniques do change with time, this occurs when these traditions are in continuous use. When reviving traditions that have fallen out of use, simply substituting modern methods of food preparation and recipes arguably defeats the purpose. Makah whalers participating in the 1999 hunt also had "to learn whaling techniques and traditions from knowledgeable Canadian elders." DEIS at 3-315. While it is understandable that no Makah whalers in 1999 would be skilled in the killing technique (as none had ever killed a whale) the fact that they had to learn whaling traditions from Canadian elders suggests whaling traditions had not been passed down through their own families. Also, considering the fact that many of the whaling traditions are apparently family-specific, they were likely taught traditional practices that were inconsistent with those followed by their ancestors.	
129	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Even the process of butchering the whale killed in 1999 created confusion, as the Makah whalers and other tribal members apparently didn't know how to butcher the whale or have the requisite tools to do so. DEIS at 3-381. According to Renker (2012): Butchering the gray whale proved a huge task for the Makah people. Lack of familiarity with gray whale anatomy, tools poorly adapted for gray whale meat and blubber, and logistical issues presented immediate obstacles for the butchering process which began on Front Beach. Some confusion also centered on whale parts other than meat and blubber. DEIS at 3-381 Indeed, some of the Makah tribal butchering crew included tribal members who had traveled to Alaska to learn the processing techniques. DEIS at 3-382. On the day of the kill, they also had assistance from an Alaska Native. Id. As recorded in video footage of the 1999 hunt, at the end of the day, even though the butchering process had not been completed, the Alaska Native, one or more NMFS officials, and a number of bystanders were left alone with the carcass to continue the flensing process.[44] According to Sepez (2001), the "1999 whale harvest yielded approximately 2,000 to 3,000 pounds of meat and 4,000 to 5,000 pounds of blubber," DEIS at 4- 196, although there's no information as to	Comments noted.

Sort #	Commenter Code	Comment	Response
		how much meat and blubber may have been lost due to the difficulties butchering the whale. Furthermore, although not reported by NMFS, given the difficulty the Makah whalers faced during the butchering process, it is possible they failed to comply with traditions associated with whale flensing, which were dictated by strict protocols that identified "the sequence of the butchering, the portions of the whale reserved for ceremonial use, and the portions to be distributed to the crew and other village inhabitants." Makah Waiver Application at 6. Tradition associated with the flensing process was not limited to protocols on how to butcher and apportion the whale but included who would make the first cut into the whale and the "need to decorate the whale with eagle feathers and white down." DEIS at 3-299. The chief whaler was responsible for entertaining the villagers with his family's songs and imitations while adorned in ceremonial gear. He was given the dorsal section of the whale, the section richest in oil, for his family's use, although it was often sold. Id. Based on eyewitness accounts of the flensing process in 1999, none of these practices were followed. [44] The videotape footage was obtained by Erin O'Connell on May 18, 1999. A DVD of the footage will be mailed to NMFS to be part of the administrate record for the DEIS. Since it is submitted as part of the record it will need to be reviewed, including by agency decision-makers, so that they are familiar with its content. The content includes video and sound of the Alaskan native asking where the Makah were and if anyone knew how to reach them and explaining that he was "really tired right now and there is no one helping us." A NMFS official is also seen and heard on the DVD complaining about the lack of Makah present to help clean the whale intestines.	
130	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Much of the data the Makah Tribe uses to try to justify the resumption of whaling comes from the various household surveys that have been conducted on the reservation (in 2001, 2006, and 2011). These surveys, which were essentially identical, were prepared and the results analyzed by Dr. Ann Renker. Dr. Renker, however, is hardly an objective or independent expert in regard to Makah whaling, given that she is a longtime resident of Neah Bay and is married to a Makah whaler who is a current member of the Makah Whaling Commission. Consequently, whether these surveys provide a legitimate picture of the Makah Tribe's interest in resuming whaling, its use of whale products, and the cultural value of whaling to the Tribe is open to debate. Furthermore, as is the case with any survey, the design or content of the survey can be created to achieve a particular outcome.	Dr. Stephen Braund assisted in development of the 2008 DEIS with relevant analysis carried forward into the 2015 DEIS. Dr. Braund visited the Makah reservation and interviewed tribal members. He also reviewed Dr. Renker's work and included references to it in his report. We also retained Dr. Dorothy Kennedy to review our presentation of Dr. Renker's work and provide comments. The names of both

Sort #	Commenter Code	Comment	Response
		The administration of the first survey in 2001 raises additional questions about its legitimacy. In that year, of 217 Makah households reportedly randomly selected to participate in the survey, 159 agreed to participate. This means that 58 (27 percent) elected not to participate. The reasons why those families elected not to participate in the survey were not disclosed (if even known). Although the DEIS contains conflicting information on this point, at least four households that were selected to participate in the survey either declined to participate or were not allowed to participate due to their known opposition to Makah whaling (compare DEIS 3-310 to 2002 Needs Statement at 49). Those conducting the survey filled in the survey for those four families, marking a negative response for all questions regarding support of the hunt or use of whale products. DEIS at 3-310. Reportedly, this was done "to minimize external influences on the survey administration." 2002 Needs Statement at 49. In regard to those survey results, based on the results of the 2001 survey, only 38 percent of surveyed households reported participation in post-hunt ceremonies in 1999, DEIS at 3-312, and only 30 percent reported they "cooked whale meat." Makah Waiver Application at 10. Such percentages seem to be inconsistent with the claims of the importance of whaling to tribal members and to revive tribal culture. The percentage of Makah Tribal members participating in ceremonies related to whaling increased to 42.2 percent based on the results of the 2006 Household Survey (Renker 2007) but that statistic was not reported in the results of the 2012 Household Survey (Renker 2013).	of these cultural anthropologists appear in the list of preparers. To ensure that NMFS decision-makers give appropriate weight to the information from Renker's household surveys, the DEIS includes a discussion of the limitations of the data from the surveys. We have also included the information that Renker has lived on the reservation for many years and has close ties to the community.
131	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Collectively, this evidence raises serious concerns about whether the Makah Tribe can demonstrate either a cultural or subsistence need for whaling and whale products. While the Coalition concedes that the information summarized above is only a fraction of the relevant evidence presented in the DEIS, NMFS must reinvestigate the claims of cultural and subsistence need with the Makah to confirm or reject the Tribe's alleged needs.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
132	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Notwithstanding the foregoing evidence that questions whether the Makah Tribe has a credible cultural or subsistence need for whaling and whale products, NMFS concludes in the DEIS that the action alternatives will facilitate subsistence use of whale products on the reservation consistent with the tribe's cultural and ceremonial needs and that whaling will improve the social environment on the reservation. Conversely, the No Action Alternative in both cases would prevent the Makah Tribe from exercising a treaty right, would prevent them from accessing freshly killed whale products not only for nourishment but would also adversely impact their cultural identity, sense of self-	The DEIS does not conclude that the No-action Alternative will "cause the cultural, spiritual, or physical collapse of the Makah Tribe." The conclusions in the DEIS regarding cultural impacts to the tribe of various alternatives are based on interviews of tribal members by an independent cultural anthropologist, Dr. Stephen Braund,

Sort #	Commenter Code	Comment	Response
		sufficiency, the self-esteem of the tribe and its individual members, and their trust in the United States government. In particular, according to NMFS, the impact of the No Action Alternative on subsistence use would: erode tribal identity in the absence of opportunities to participate in an activity central to Makah cultural identity; provide the community little or no incentive to work cooperatively to prepare for the hunt, to harvest, butcher, share and eat whale or to participate in song and dance festivals to celebrate the harvest; adversely affect community and individual pride and self-esteem, particularly among Makah tribal members who support the hunt; reinforce that the Makah are not in control of their destiny and would undermine a sense of autonomy within the community; and reinforce the Makah's feeling of disillusionment with the federal government. DEIS at 4-201. Considering that the Makah Tribe has not been able to regularly engage in whaling since at least the late 1920s (and likely since the mid-1850s), this description of the implications of the No Action Alternative seems disingenuous, as it suggests the Makah Tribe is currently whaling and the United States is considering ending the practice. The reality is that no evidence has been offered to confirm the Makah are suffering from such cultural ailments. Indeed, since the Makah have been living without whaling for nearly 90 years, the description of the No Action Alternative proffered by NMFS is a significant overstatement of present day reality. It should be amended to reflect the fact that the Tribe has adapted to life without whaling and, while some may desire to resume a hunt, not doing so will not cause the cultural, spiritual, or physical collapse of the Makah Tribe as suggested in the DEIS.	whose qualifications are described in the DEIS.
133	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to comprehensively evaluate the adverse impacts of the proposed hunt on aesthetics:</u> NMFS concedes that a hunt may have impacts on the aesthetics of people who live and recreate near or in Neah Bay. It notes that, if the hunt is conducted 1-2 miles from shore, then there are few vantage points on land. However, "activities closer to shore, (e.g., towing a dead whale and butchering it) would be more readily viewed." DEIS at 4-227. It then contradicts itself and reports that "under all action alternatives, interested observers could view a whale being hunted, towed to shore, or butchered from numerous points along the shoreline near Neah Bay and, to a lesser degree, the Pacific coast portion of the Makah U&A." DEIS at 4-228. It claims that such impacts could be positive for those who may have an interest in observing a hunt and the butchering of a	The second statement quoted by the commenter contains an "or"; while not all alternatives would allow viewers to view a whale being hunted, all of the action alternatives would allow viewers to view the cited activities of towing and butchering a dead whale.

Sort #	Commenter Code	Comment	Response
		whale or negative for those who have no interest in observing whaling or the flensing process. DEIS at 4-228.	
134	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	This is a simplistic analysis that doesn't do justice to the potential adverse aesthetic impacts associated with a hunt. This is because NMFS has based its analysis largely on the potential for observing certain activities associated with a whale hunt versus considering how such observations may impact a person's experience on the Olympic Peninsula (i.e., how the actual experience contrasts with the expected experience of using public lands in or near the Project Area). Nor is the scope of its analysis sufficient to capture the full range of aesthetic impacts.	We disagree. The evaluation criteria in Subsection 4.12.2, Evaluation Criteria, provide important insights into potential aesthetic effects under the various alternatives.
135	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Many who visit the Olympic Peninsula do so to enjoy Olympic National Park (ONP) or to explore the rugged Washington coastline. ONP includes a 70-mile-long coastal strip that is designated wilderness. Those who visit wilderness areas often do so to enjoy a primitive and relatively pristine experience in an area where the human imprint is, by law, supposed to be minimal if not non-existent. The experience of solitude and serenity is often a key attribute of the desired experience when using wilderness and backcountry areas of national parks. For such a visit to be disrupted by images of a whale hunt, the associated chaos surrounding the hunt, weapon fire, and the possibility of seeing a dead or dying whale is not consistent with the wilderness experience. For those who recreate along the Washington coast, they do so to enjoy the scenic beauty, and marine wildlife; very few if any expect a trip to the coast to include scenes of a whale being pursued, harpooned, shot, and killed, or the frenzy of media, protestors and law enforcement that is likely to accompany a hunt. NMFS has failed to consider such impacts in the DEIS. The analysis that should be undertaken is not just about how many people may observe a whale hunt or from what vantage points but, rather, has to evaluate how such observation will affect the tourist's (or resident's) experience based on his or her purpose for recreating (or living) in the area.	As noted in DEIS Subsection 4.12 (Aesthetics), we used two criteria to determine the potential for aesthetic effects under the alternatives. The first was the anticipated number of persons who may be present at sites that may offer views of hunt-related activities, as well as their expectations (that is, whether individuals may encounter views of hunt related activities without intending to do so). The second criterion includes the anticipated amount, intensity, duration, scope, and content of media coverage. The commenter fails to acknowledge that interested observers also warrant consideration in an analysis of aesthetics.
136	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Tourists, residents, anglers, commercial shippers, among others, also use the Pacific Ocean for recreation, sport, or work. While the Coast Guard's RNA and MEZ may alert boaters to a hunt, permitting (or requiring) them to leave the area, it doesn't mean that they could not be adversely impacted by the hunt (due to disruption of otherwise legal activities which could cause economic loss or disrupt recreational activities) or through the mere contemplation of a whale being killed whether they observe it or not. Indeed, this same impact could affect anyone nationally or internationally that opposes the hunt. In Fund for Animals v.	The DEIS notes that previous Makah whale hunts were the focus of intense coverage in the media. Such media attention would make it relatively easy for the public to contemplate a whale hunt and, as noted in the DEIS, result in substantial and diverse responses from the public.

Sort #	Commenter Code	Comment	Response
		Ridenour, Civ. No. 91- 0726 (D.D.C. 1991), the court held that that merely contemplating the killing of a bison near Yellowstone National Park was sufficient harm to demonstrate legal standing. These impacts were not evaluated in the DEIS. Nor did NMFS consider the impact to a resident, tourist, or boater upon seeing a whale that is injured or dying as a consequence of a Makah hunt (i.e., a struck and lost whale) in the ocean or stranded. Each of the action alternatives set a limit on the number of struck and lost whales so the potential to observe an injured or dying whale is real.	
137	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Finally, NMFS only considers the impact of the hunt on the economics of whale-watching in the DEIS. Such impacts, however, extend well beyond economics to include adverse effects on the social environment and on the aesthetic experience of those who enjoy observing whales in their natural habitat. NMFS largely dismisses the potential of the hunt to impact whale-watching operations, claiming that there are no such operations in the immediate project area and that it had no information to suggest that the hunt would stop people from taking whale-watching trips nearby. DEIS at 4-152. It also asserts that Washington-based whale-watching companies will not expend the time or funds necessary to access whales in the Makah U&A and, therefore, won't be adversely impacted by the proposed hunt. Id. Finally, it claims that because gray whales are not typically targeted by most whale-watching operators in the region, a decrease in gray whale numbers would not appreciably impact the public's incentive to pursue whale watching in the PCFG range. DEIS at 4-153. These conclusions are either wrong or not supported with any credible evidence.	Comment noted. The DEIS considers the potential for a Makah whale hunt to affect whale watching, as cited in the comment.
138	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The issue is not only about watching a whale die but, again, it must extend to the knowledge of the hunt and the contemplation of a whale being killed. For those who enjoy observing gray whales throughout their migratory range, from the Mexican lagoons to Alaska, the knowledge that the whales that they observe and, in some cases know by name, could be killed in a Makah hunt could result in emotional harm or cause them to choose not to partake in future whale- watching trips or visit the region. Indeed, contrary to the claim by NMFS that gray whales are not targeted by most whale-watching operations, a few minutes of online research revealed three operations in Oregon (oregonwhales.com, The Whale's Tail Chartered Whale Watching, and Tradewinds Charters) that appear to focus on gray whales.	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).
139	Schubert (Animal	Notably, several whale-watching operations offer whale adoption programs for named PCFG whales. For example, oregonwhales.com Whale	Comments noted.

Sort #	Commenter Code	Comment	Response
	Welfare Institute)_Letter Only_7-31-15	Research EcoExcursions currently has a number of PCFG whales up for adoption (e.g., Scarback, Rambolina, Zebra Stripe). In addition, the company blogs on the activities of whales that it observes. On July 27, 2015, the blog entry was: Whale sightings have been excellent as usual. Ginger, Ridgeback, and Pearl have been in the bay and very active. There were 4 whales at on (sic) time in and around our boats. I have identified and along with my team, suggested by a group on one of our trips named a new whale, "BANDIT". A beautiful female with a large band of white on her dorsal area. Also we saw a couple of Mola Mola (Ocean Sunfish), one of which was over 8ft in size and lazily swam right up to the boats. We have had a 100% sighting rate for many weeks now. Trips leave every day from 8am every 2 hours through 6 pm and sometimes sunset tours. We would love to teach you all about our whales and other wildlife. Also check out our Baja information. We are going to Baja in February to see and pet the friendly gray whales. This is the only place in the world where you can have this kind of interaction. It is awesome!!!" (see http://www.oregonwhales.com/daily.html). Cascadia Research Collective also provides an opportunity for people to adopt PCFG whales (see http://www.cascadiaresearch.org/adopt.htm).	
140	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	As these websites reveal, many PCFG whales have names, they are known, and there may be people who have bonded to these animals. During excursions run by oregonwhales.com, clients are introduced to individual PCFG whales and are provided information about each whale and his or her history. While it is not known how many whale-watching operations from Alaska to Mexico promote PCFG whales, for those who do they are creating a connection between their clients and individual whales. If their clients, or those who adopt a whale, were to learn that their whale was killed by the Makah Tribe, the emotional impact could be significant. Even NMFS concedes that "many people who watch whales in the project area on a regular basis attach existence values to individual PCFG whales that regularly visit the area." DEIS at 4-188. The likelihood that the public, including those who participate in whale-watching, will oppose the Makah hunt is high. Evidence of this is included in the DEIS (see DEIS at 3-286 and 3-288). In addition, according to Hoyt and Hvenegaard (2002), 75 percent of whale watchers surveyed in California said it was "morally wrong" to kill whales, while whale watchers surveyed in Vancouver registered an average score of 4.47 (based on a survey scale of 1 to 5, with 5 being "strongly agree") to the statement "it is wrong to kill whales." Another survey of New England whale watchers found that 83 percent agreed it was "morally wrong" to kill whales, regardless of the reason.	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).

Sort #	Commenter Code	Comment	Response
		One need only consider the ongoing international outrage surrounding the case of Cecil, the lion from Zimbabwe, to understand the potential for adverse social impacts associate with the killing of a single, named whale. In that case, an American trophy hunter was involved in a hunt that illegally lured Cecil out of a national park after which he shot and injured him with an arrow. The injured lion was then tracked and killed, skinned and beheaded after 40 hours of suffering.[45] The social media backlash has been massive and the trophy hunter has disappeared from public view. NMFS has not evaluated such impacts in the DEIS related to the killing of a gray whale. [45] See K. Rogers, American Hunter Killed Cecil, Beloved Lion That Was Lured Out of Its Sanctuary, New York Times, July 28, 2015 (available at http://www.nytimes.com/2015/07/29/world/africa/american-hunter-is-accused-ofkilling-cecil-a-beloved-lion-in-zimbabwe.html?emc=eta1).	
141	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Nor has it considered how, if the Makah Tribe is allowed to whale indefinitely, the hunt could harm the reputation of the whale-watching industry in Washington, Canada and throughout the species' migratory range; people may choose to avoid whale-watching or visiting the coast because they do not want to view whales who could be killed by the Makah Tribe.	Refer to the following Subsections: 3.6.3.2.1, General Description of the Local Economy; 3.6.3.2.4, Contribution of Tourism to the Local Economy; 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts; 3.6.3.3.2, Commercial Value of Whales; 3.8.3.3 Other Individuals and Organizations; 4.6.2.1, Tourism; 4.6.2.3, Whale-watching Industry; 4.6.3, Evaluation of Alternatives.
142	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to adequately evaluate the risks to public safety inherent to the proposed gray whale hunt:</u> The DEIS significantly underestimates the substantial risk to public safety inherent to any Makah whale hunt. Unlike the Alaskan, Russian, or Greenlandic ASW hunts that take place in extremely remote regions of the world, the Makah hunt, if permitted, would occur in a region that is much more populated, is a destination for millions of tourists annually, and where commercial and recreational shipping/vessel operations are common. As an example of the population differences, there are an estimated 3,439,809 people live in the Washington Metropolitan Area (which comprises the Seattle-Tacoma-Bellevue region of Washington)[46] and, based on the 2010 US population census results, 71,404 people lived in Clallam County, WA.[47] This compares to a total of 736,732	The DEIS describes and analyses the potential for impacts to public safety resulting from a hunt (Subsection 4.15, Public Safety). That subsection notes that the hunt area is large and remote, and also describes Coast Guard actions and regulations to protect public safety. Regarding Footnote 51, we will update any final EIS to accurately reflect testing requirements in the latest tribal ordinance.

Sort #	Commenter Code	Comment	Response
		people in the entire state of Alaska in 2014,[48] including only 4,373 (as of 2013) in Barrow, AK[49] (one of 11 whaling villages). According to tourism data contained in the DEIS, 3 million people visit the Northern Washington Coast every year to enjoy the beautiful scenery, pristine wilderness, and opportunities to view wildlife. DEIS at 3-331. More specifically, Olympic National Park attracted an average of 3.0 million visitors per year between 2006 and 2010, with more than half of those visits occurring during the months of July through September, with an additional 25 percent occurring during the months of March through June. Id. Within the Makah reservation, 16,000 people visited the Cape Flattery Trail each year from 2005 through 2011, with more than 80 percent of those visits occurring during the months of July, August, or September. Id. For those using the area for commercial and recreational boat trips, 80 percent of such trips occur from May through August, six percent from November to March, with another four, seven, and three percent in April, September, and October, respectively. DEIS at 3-341. While the risks to public safety may be lower during a hunt conducted in the winter months or offshore, simply due to the lower number of persons in the vicinity, even those hunts could adversely affect persons occupying any hunt support vessels, media vessels, or vessels operated by protesters. This is due to the likelihood of more challenging sea conditions further from shore potentially resulting in an errant shot, DEIS at 4-246, or an increased risk of boating accidents where any needed medical assistance would not be readily available. Conversely, a hunt conducted during the spring months or over the summer (Alternative 4) would increase public safety risks, although, if conducted well offshore, the risks would be less than if conducted near shore. The use of high-powered rifles poses a significant public safety concern. As indicated in the DEIS, a 750 grain bullet fired from a .50 caliber rifle can travel nearly 5 miles. DEIS at 3-169 (citing Graves et al. 2004). A bullet from a .577 rifle, because it has a lower ballistic coefficient and greater rate of drop, would be expected to result in a shorter range than a bullet fired by a .50 caliber rifle, id., but that range is not identified in the DEIS. Due to the distance that such bullets can travel, Kline (2001) stated that "no firing should be conducted within 6,670 yards from shore and advised that a ricochet could travel almost 1,860 yards off the line of fire." DEIS at 3-363.The use of an explosive projectile would substantially reduce the public safety risks since such grenades, due to their weight and size, will have only a very limited range.	

Sort #	Commenter Code	Comment	Response
		If there were no public safety risks associated with the hunt, there would have been no need for the Coast Guard to establish a Regulated Navigation Area (RNA). In finalizing its rule establishing the RNA after the 1999 hunt, the Coast Guard reported that "the uncertain reactions of a pursued or wounded whale and the inherent dangers in firing a hunting rifle from a pitching and rolling small boat are likely to be present in all future hunts, and present a significant danger to life and property if persons or vessels are not excluded from the immediate vicinity of the hunt." DEIS at 3-10 citing 64 Federal Register 61212 (November 10, 1999), DEIS at 3-349. The Coast Guard also created a 500 yard Moving Exclusionary Zone (MEZ) around tribal hunting vessels in order to ostensibly "keep protesters, reporters, and spectators out of the area where life and property would face the greatest risk of endangerment from an injured or pursued whale or a round from a .50 caliber rifle." DEIS at 3-349. Consequently, even the Coast Guard's 500 yard RNA is likely not sufficient to eliminate the potential risks to other vessels, including protest vessels, in the vicinity of the hunt. The Makah Tribe has established, in its 2013 Whaling Ordinance,[50] rules that are intended to address the risks of the whale hunt. These rules include drug and alcohol testing of the riflemen, training and certification programs, and requirements regarding when a shot can be fired. DEIS at 2-15.[51] More specifically, the Makah Tribe has developed the following safety standards for any hunt: The Makah safety officer has authority to determine whether visibility is less than 500 yards in any direction in which case the whaling captain suspends the hunt; safety officer would not authorize the rifleman to discharge the weapon unless the barrel of the rifle was above and within 30 feet or less from the target area of the whale; safety officer would not authorize the rifleman to discharge the weapon unless the field of view is clear of all persons, vessels, buildings, vehicles, highways, and other objects or structures that if hit by a rifle shot could cause injury to human life and property. DEIS at 3-351. The risks to public safety inherent to any Makah whale hunt are not limited to the weapons used or vessel collisions, since a struck gray whale can also pose a significant threat to public safety by ramming nearby boats or swamping the Makah canoe. DEIS at 4-249. While those vessels, including any Makah canoes, closest to the injured whale would be most at risk, an injured and distressed gray whale could cover a fair distance in a short period of time. As explained in the DEIS, the Russian Federation reported that of the 129 gray	

Sort #	Commenter Code	Comment	Response
		whales killed in its 2007 hunt, 49 animals (or 39 percent) were highly aggressive and even attacked hunting boats. DEIS at 3-166. Such violent struggles by struck gray whales can, as reported in the DEIS, "result in vessels being capsized, persons on vessels being knocked in to the water, or individuals become entangled in the lines fastened to the whale." DEIS at 3-357. Given the sheer numbers of people who live and recreate in the vicinity of any potential Makah whale hunt, there is a significant public safety risk associated with the hunt. Conducting a hunt well offshore with a strongly enforced RNA, and using explosive grenades as the killing weapon, would reduce public safety risks compared to conducting a hunt near shore using high-powered rifles. Nevertheless, even with an offshore hunt, there would still be a risk to the whalers, their support personnel, the Coast Guard (and other enforcement agency personnel), the media, protesters, and innocent onlookers, not just from the use of rifles as the primary killing weapon but also from a wounded whale. Regardless of where the hunt occurs, if rifles are used, the likelihood of every shot being fired at a safe downward angle, given that the rifleman is aiming at a swimming whale from a moving boat on a rolling ocean, is low. Consequently, a misfired bullet could travel an extended distance, potentially hitting something or someone and causing damage, injury, or death. Even with an RNA, an MEZ, and Makah safety standards, the potential risk of the whale hunt to public safety in such a highly populated and trafficked area is simply too high to justify a hunt for a Tribe that does not need to hunt whales. NMFS must reevaluate its analysis of the public safety risks inherent to the whale hunt and provide a more detailed and comprehensive risk assessment. [46] See http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1&prodType=table? [47] See http://www.peninsuladailynews.com/article/20110225/NEWS/302259982 [48] See http://quickfacts.census.gov/qfd/states/02000.html [49] See https://www.google.com/?gws_rd=ssl#safe=active&q=how+many+people+live+in+Barrow%2C+AK [50] The mere existence of a 2013 Makah Whaling Ordinance is of concern to the Coalition since the current decisionmaking process will likely take years to complete. Consequently, it is unclear why the Makah would expend the time and resources to create and approve a whaling ordinance when they cannot currently whale and may not receive the requested MMPA waiver. Perhaps the Makah	

Sort #	Commenter Code	Comment	Response
		Tribe presumes that it will receive a waiver given its treaty right, or its adoption of a new whaling ordinance may suggest that the outcome of this NEPA/MMPA process has been predetermined, which is illegal. The Makah Whaling Ordinance is discussed in greater detail in a latter section of this comment letter. [51] NMFS suggests that the alcohol testing requirement for Makah riflemen is contained in the 2013 Makah Whaling Ordinance but a review of that ordinance reveals no such requirement.	
143	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>The DEIS fails to substantiate the need for whale meat or other products to benefit the health or nutrition of the Makah Tribe:</u> The Makah Tribe has repeatedly claimed in need statements submitted to the IWC that marine foods, including marine mammal products, are of nutritional importance in the diet of tribal members. In making this claim, the Makah Tribe has described the alleged nutritional benefits of whale products and the notion that access to whale products would help alleviate poverty on the reservation by providing food that would be shared and free of charge, reducing costs of store-bought foods. DEIS at 1-31. Prior to contact with Europeans, the Tribe was able to exploit land and sea animals, including elk, deer, bear, seal, and a diverse population of fish, shellfish, and other marine species. Whale meat and oil were among their principle foods. 2002 Needs Statement at 33. Traditionally, the Makah Tribe consumed nearly every edible part of whales, including the meat, organs, and blubber. In addition, whale oil extracted directly from dead whales or rendered down from blubber was widely used. Considering that some of the traditional hunts could take days to complete,[52] the oil was often the most important product from the whale, as it did not spoil as quickly as the meat. DEIS at 3-367, DEIS at 3-300. Interestingly, due to the tendency of whale meat to spoil easily, particularly when the process of towing a dead whale back to land could take several days, whale meat was not as important in the pre-contact and historical diet of the Makah compared to whale oil. 2002 Needs Statement at 33. Indeed, as the Makah Tribe concedes, only "about ten percent of the food the Makah people derived from whales can be attributed to meat." Id. Whale oil, which was not subject to spoilage, could be stored and used indefinitely, assuming it was rendered properly. Id. While the historical quantity of whale products consumed per capita was not reported in the DEIS, Sepez (2001) calculated that the whale killed in 1999 resulted in about 2.4 pounds of whale meat and product per capita on the reservation, with an additional amount consumed at the community potlatch.	Comments noted. As the commenter notes, need statements are relevant to inform decisionmaking in the international arena at the IWC and it is not the purpose of the DEIS to establish the subsistence needs of the Tribe. Rather the purpose of this DEIS is to implement NEPA by comparing the effects of the alternatives to aid subsequent decisionmaking under the MMPA and WCA. The DEIS notes that the action alternatives may result in an increase in certain minerals and omega-3 fatty acids in the Makah diet, which could have health benefits. It makes no assertions that Makah tribal members need an increase in any particular nutrients. It also notes that the action alternatives may increase the exposure of tribal members to certain contaminants, depending on whether whale products replaced other foods with similar contaminants (primarily other seafood), or food that did not.

Sort #	Commenter Code	Comment	Response
		DEIS at 3-367. In the future, if the Makah are allowed to resume whaling, Renker (2012) determined that if an average of four whales were killed per year, the hunts would yield 8 to 20 pounds of whale meat and 16 to 20 pound of oil or blubber per Makah tribal member (with a smaller amount of oil due to the rendering process). Id. Based on the reported number of Makah tribal members (1,121) living on the reservation in 2010, DEIS at 4-196, this would equate to 8,968 to 22,420 pounds of meat and blubber and 17,936 to 22,420 pounds of oil/blubber. Results of the survey of Makah tribal members conducted in 2001 revealed that "most reservation households now desire whale products to be a regular part of their diets" with 86.5, 72.4, and 55.8 percent of respondents desiring whale meat, whale oil, and blubber respectively.[53] Makah 2002 Needs Statement at 2. Desiring to have whale meat and oil, however, is not the same as needing these products to reverse any health concerns caused by decades without access to such products. The Makah Tribe claims in its needs statement that the "restored (whale) hunt provides modern Makah people with a rich source of traditional foods which are nutritionally superior to many non-indigenous provisions which are available in the community," Id. Yet, it provides no evidence to substantiate that claim nor does it concede, as is made clear in the DEIS, that the same alleged benefits from whale products can be obtained from other marine foods. As to the alleged consequences of not having regular access to whale products in their diet, in the Makah Tribe's 2002 needs statement, the majority of the claims regarding the health consequences of not eating a traditional diet are based on health concerns for American Indians generally, instead of focusing on particular health/disease conditions experienced by members of the Makah Tribe specifically. For example, the needs statement claims the following regarding the health of American Indians: • American Indians are generally considered to be one of the unhealthiest populations living within the United States. This observation is especially true for natives living within the confines of a reservation. Infant mortality and life expectancy rates for reservation residents are the lowest of all American citizens. 2002 Needs Statement at 35. • Diminished life expectancy on American Indian reservations is compounded by the fact that certain systemic illnesses linked to food and nutrition appear in a statistically higher percentage among these populations. Diabetes, for	

Sort #	Commenter Code	Comment	Response
		example, is 234% more prevalent among American Indians than in all other US races. Id. The only specific information about health concerns contained in the needs statement relevant to the Makah Tribe is that they "did not utilize plant foods to a great degree" in their historical diet, and thus they "still experience many digestive problems with diets high in fiber and cruciferous vegetables," 2002 Needs Statement at 35. In addition, it is noted that some tribal members, particularly descendants of whaling families, are frequently affected by rheumatoid arthritis and diabetic neuropathy. Reportedly, digestive disorders seem to be an issue for members of other Native American tribes who live along the NW coast, as the Makah Tribe reports that it "have the highest rate of digestive illnesses of all American Indian people and are the leading cause of hospitalizations." 2002 Needs Statement at 37. Yet no evidence is provided that whale products, especially to the exclusion of other marine foods, will address these digestive disorders. Notably, when discussing the value of essential fatty acids (EFAs) in their diet, the Makah Tribe refers not to cetacean or even gray whale EFAs but, rather, to marine EFAs. 2002 Needs Statement at 37. General marine EFAs have reportedly improved conditions such as rheumatoid arthritis and diabetic neuropathy. Since the benefits can be obtained from any marine EFA, however, this does not provide justification for killing gray whales. Today, the Makah tribal members consume a large quantity of subsistence food. Reportedly, "a majority of Makah households use traditional Makah foods (i.e., fermented salmon eggs, smoked fish heads and backbones, halibut cheeks and gills, and dried fish) at least once a week." Makah Waiver Application at 9. [52] According to the Makah Tribe's 2005 waiver application, historically some hunts occurred 30 or more miles from shore, even though at that time the Makah were using the traditional hand-carved canoes. Makah Waiver Application at 5. At that time, the process of killing a whale "could take up to three to four days" followed by up to two days to tow the whale back to shore. Id. at 6. [53] The percentages declined in 2006. Survey results that year revealed that 71.7, 67.1, and 47.4 percent of survey respondents desired whale meat, oil, and blubber, respectively. DEIS at 4-203.	
144	Schubert (Animal Welfare	The DEIS reports both terrestrial and marine species (primarily fish) are taken in subsistence hunts. It does not, however, disclose any information about the quantity of terrestrial wildlife killed, the amount of meat/fat/other edible	We are not aware of information available regarding the number of terrestrial wildlife killed nor the

Sort #	Commenter Code	Comment	Response
	Institute)_Letter Only_7-31-15	products obtained from those animals, nor does it provide any information regarding contaminant profiles of such subsistence foods. For fish, it is estimated the Makah consume 126 pounds of fish per capita each year, which is eight times higher than the average American. DEIS at 3-367 citing Sepez (2001), Makah Waiver Application at 9. Yet, again NMFS does not provide any data as to the contaminant loads contained in fish products regularly consumed by the Makah.	amount of meat, fat, or other edible products. DEIS Subsection 4.16.2.2 (Environmental Contaminants) does report that PCB concentrations in Chinook salmon from the Makah National Fish Hatchery (19 µg/kg) (Missildine et al. 2005) are considerably lower than those found in samples of gray whale blubber (137 to 1,200 µg/kg).
145	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Western foods are also available on the reservation, although NMFS does not disclose the type of such foods or the quantities consumed.	Comments noted.
146	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In evaluating the human health impacts of a whale hunt, NMFS considered three issues: the potential nutritional benefits associated with consuming whale food products; the potential for exposure to contaminants in food items from the whale harvest; and the potential for exposure to food-borne pathogens in food items from the whale harvest. DEIS at 4-256. NMFS concedes, however, that due to uncertainties associated with this analysis, it is not possible to "predict whether any of the alternatives would result in a net positive or negative effect on human health." Id. Indeed, the DEIS lacks data needed to even begin to evaluate the alleged nutritional benefits of whale products to the Makah Tribe. This includes: a baseline evaluation of the health status of Makah tribal member (or at least data on a representative sample of tribal members), a lack of species-specific (terrestrial and marine) data on Makah consumption of subsistence foods; the quantity of such foods consumed per capita per week, month, or year; the nutritional value of such products; the contaminant loads of such products; the amount and type of western foods consumed; current health conditions of Makah tribal members (i.e., prevalence of heart disease, diabetes, kidney disease, obesity, and other diet or lifestyle-related diseases), and evidence of lifestyle factors that may affect disease conditions (i.e., activity levels, smoking, drinking, illegal drug use).	The purpose of the DEIS is not to establish the "nutritional benefits" of whale products, but to analyze the effects of the alternatives on, among other things, human health. The DEIS (Subsection 4.16, Human Health) analyzes the best available information pertaining to these comments. CEQ's NEPA guidance ("NEPA's Forty Most Asked Questions") notes that NEPA 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative. This regulation does not dictate an amount of information to be provided, but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.

Sort #	Commenter Code	Comment	Response
		NMFS recognizes this void, given its own disclosure of a litany of information that would be required to determine if consuming freshly killed gray whale products would improve nutrition among the Makah. Such deficiencies include the current types and level of nutrition present in Makah tribal members' existing diet; what parts of the whales and how much would be consumed; what currently consumed food items and associated nutritional levels would be replaced by whale products; and how such food items are collected, stored, and prepared for consumption. DEIS at 4-257. NMFS claims that "none of this information is currently available or could reasonably be obtained" but it failed to meet the required standards for incomplete or unavailable information under NEPA. If the Makah or NMFS want to ever meaningfully address the Makah's alleged need for whale products, they would have to, at a minimum, collect and analyze this type of information.	The commenter makes suggestions about future work and studies that would be helpful but offers no information on the potential costs of or time associated with conducting the studies or what uncertainites they will address. Data gaps will always exist and NMFS will continue to review new information on this topic as it is developed. As commenter notes the DEIS appropriately identifies information that is currently unavailable and can not reasonably be obtained as required by CEQ regulations 40 CFR 1502.22. .
147	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In the DEIS, NMFS asserts that "whale products have a similar nutritional profile as other finfish, shellfish, wild game and domestic meats," DEIS at 3-368, that whale oils and blubber provide a richer source of energy (calories) than other food types listed in Table 3-46, DEIS at 3-370, while whale meat has higher levels of iron.[54] Id. NMFS concedes, however, that gray whale meat, blubber, and oil are not necessary to obtain the alleged nutritional benefit claimed by the Makah, since many of the vitamins, essential elements, and both essential and beneficial polyunsaturated fatty acids found in whale products can be obtained from other marine mammal food products, DEIS at 4-256, as well as from fish oils, vegetable oils, soybeans, nuts, meat from terrestrial mammals, and vitamin and other nutritional supplements. DEIS at 3-268, 4-256. For example, essential fatty acids that have reportedly been found to be beneficial in controlling diabetes, kidney disease, heart disease, hypertension, and other similar health problems, are found in fish food products. Id. [54] Notably, Table 3-46 does not provide any data for gray whale meat, blubber, or oil.	Comments noted. With respect to Footnote 54, the whale products referenced in DEIS Table 3-46 do not contain gray whale products because such products are not hunted and readily available for analysis by the USDA.

Sort #	Commenter Code	Comment	Response
148	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Fundamentally, despite the Makah's claims to the contrary, NMFS concludes in the DEIS that "there are no data to suggest that current diets of individual Makah members sufficiently lack (the) nutritional benefits" ascribed to whale products. DEIS at 4-259. Furthermore, as admitted by NMFS, "there is insufficient information to conclude that the lack of fresh whale products under the No Action Alternative would be expected to negatively alter current dietary conditions for any tribal member." Id.	Comments noted.
149	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to adequately evaluate the potential impact of environmental contaminants from whale products on the health of Makah Tribal members:</u> There are a number of chemical compounds in the environment, including in the marine environment, which can have direct lethal effects or insidious sub-lethal effects on individual animals. Sub-lethal effects include impaired reproductive, metabolic, and immune functions. DEIS at 3-178. Such chemicals include organochlorines (e.g., DDT, PCB, dioxins, furans), heavy metals (e.g., copper, mercury, lead), and newly emerging chemicals (e.g., flame retardants). Id. The three heavy metals of greatest concern to cetaceans are mercury, cadmium, and lead. DEIS at 3-179 (citing O'Shea 1999). The health of a gray whale is not always indicative of its contaminant load. For example, as revealed in the DEIS, the mean concentrations of PCBs (1200 µg /mg) and DDTs (520 µg/mg) in the blubber of gray whales that stranded in 1999 were well below levels measured in gray whales harvested in Russian waters (PCBs 630 µg/mg and DDT 150 µg /mg). DEIS at 3-373. Furthermore, the concentrations of chlordanes, DDTs, dieldrin, hexachlorobenzene, mirex, and PCBS in gray whales collected during Russian hunts in the Bering Sea in 1994 were two to three times lower than those measured in stranded gray whales collected over the 1990s in Washington. Id. Such contaminants also occur and are documented in the diets of native subsistence populations. DEIS at 3-372. In determining the potential risk for members of the Makah Tribe to be exposed to contaminants, their existing and ongoing exposure to such toxins must be considered. For the Makah, due to their high consumption of seafood products, including finfish and shellfish, it is likely that they are exposed to high levels of contaminants. This risk is also linked to the level of contaminants in gray whales. While gray whales are generalist feeders, their reliance on bottom feeding to acquire energy-rich amphipods exposes them to various contaminants that may settle to the ocean floor. Their pelagic prey may also contain contaminants through bioaccumulation or as a consequence of the contaminant loads in the waters in	These introductory comments are noted.

Sort #	Commenter Code	Comment	Response
		Washington State. Indeed, as noted in the DEIS, a number of "researchers have documented concentrations of organic and inorganic contaminants in the tissue (blubber, muscle, organs, etc.) of the gray whales proposed for hunting by the Makah." DEIS at 3-378 (citing numerous studies). Importantly, as noted in the DEIS: "...concentrations for some of these contaminants in whale blubber can be quite high, resulting in quite low 'allowable consumption rates.' For example, the unweighted average PCB concentration for the 11 gray whale blubber samples in Table 3-47 is 44 µg/kg. While the Washington State Department of Health has not developed screening levels for gray whale blubber, this value – combined with the estimated per capita blubber consumption rates in the Tribe's needs statement (approximately 20-25 grams/day…) and other values applied by the Washington Department of Health (e.g., an 8-oz [227-gram] meal size) – yields a calculated 'allowable consumption rate' of 0.43 meals of blubber per month." DEIS at 3-374. Notably, as also explained in the DEIS, this example is based on non-cancer endpoints and if cancer endpoints were used, the allowable consumption rates would be lower. Id. While the concentration of persistent organic pollutants in whale blubber is typically higher or comparable to those in other tissues, heavy metal concentrations are typically higher in muscle tissues compared to blubber. Mean metal concentrations (in µg/kg dry weight) found in gray whales, as reported in the DEIS, range from 0.4 to 0.86 cadmium, 3.1 to 4.1 copper, 305 to 1,009 iron, 0.6 to 1.11 lead, 0.33 to 0.8 manganese, 0.145 mercury, 1.39 nickel, and 120 to 279 zinc. Considering that contaminants are already found in foods presently consumed by the Makah, including fish and shellfish, as well as store-bought food, whether adding whale products will have a positive or negative effect is unclear. Since, as NMFS admits, no database is available to "compare the amount of contaminants currently being consumed by the Makah Tribe with the amount of contaminants found in fresh whale products," it is "difficult to determine the net change in contaminants to which tribal members would be exposed." DEIS at 4-257. Nevertheless, since whale products, particularly blubber, "would likely contain higher levels of certain contaminants (e.g., PCBs) than other foods consumed by the Makah," id., NMFS cautions that whale products may exceed levels that trigger human health concerns based on guidelines published by state	

Sort #	Commenter Code	Comment	Response
		and federal agencies. Id. Similarly, NMFS reports that "changes in the quantity of freshly harvested whale consumed would probably not appreciably change the potential for food-borne illness to occur in Makah tribal members." DEIS at 4-258.	
150	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	There are several deficiencies in the analysis of the impact of environmental contaminants in the DEIS. First, NMFS has failed to disclose sufficient data to evaluate the relevant impacts of such contaminants on the Makah if they are allowed to hunt whales. Not only are there apparently no data on the current contaminant loads in Makah tribal members from their high-fish diet, but NMFS provides no data on the contaminant profiles of the fish species and other food products typically consumed on the Makah reservation.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
151	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Second, although NMFS refers to state and federal food safety standards in the DEIS, it fails to identify those standards, fails to provide any reference to them so that interested stakeholders could examine them, and fails to compare those standards, with the sole exception of the PCB example provided above, to the concentration of contaminants documented in gray whales.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
152	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Third, many of the studies cited in Tables 3-47 and 3-48 are also rather dated, which calls into question the accuracy of the documented concentrations in terms of what may be found in gray whales today.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption, which cites updated research on contaminants in gray whales.
153	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Despite these deficiencies, to be precautionary, particularly with regard to the health of Makah tribal members and recognizing that NMFS concedes that consuming whale products may trigger health concerns; NMFS should deny the MMPA waiver application on health grounds alone. Surely NMFS does not want to authorize a gray whale hunt when there is a distinct possibility that consumption of products from the hunt could compromise human health.	The MMPA waiver provisions establish the criteria for judging a waiver application. Health risks are not among the criteria.
154	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to adequately evaluate the precedential impacts of the issuance of a waiver to the Makah Tribe:</u> One of the key issues emphasized in the Anderson opinion was the potential for a Makah whale hunt to create the precedent for other whale hunts in the United States and around the world. In evaluating this potential impact, NMFS considers the potential change in the number of requests for MMPA waivers to permit the killing of marine mammals in US waters (other than	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		whales) and for regulatory action to permit the killing of whales in US waters. DEIS at 4-260.	
155	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The DEIS identifies a number of US tribes between the Aleutian Islands and California who hunted gray whales and/or used drift whales for subsistence as part of their cultural and religious traditions. These tribes include the Aleuts, Koniag, Chugash, Tiglit, Haida, Tsimshian, Nootka, Makah (including the Ozette), Quileute, Klallam, and Chomash. DEIS at 3-176. However, this list is incomplete, as it does not include any tribes that live on the east or Gulf coasts that may have historically hunted whales.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
156	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS concedes the fact that Northwest Indian tribes have previously expressed an interest in killing marine mammals, that an authorization of a Makah gray whale hunt could revive the interest of the Makah or other tribes in hunting marine mammals, and that it could increase interest by non-Indians in sport or commercial hunting of marine mammals. DEIS at 4-261. Despite this concession, NMFS largely dismisses the potential for an increase in waiver requests if the Makah's MMPA waiver is granted, claiming, for example, that "history suggests that there is little interest by other native groups to seek authorization to harvest whales." Id. This conclusion may be misplaced, however, since both the Makah and other US coastal tribes, including those on the east and Gulf coasts, may simply be waiting for the outcome of the Makah waiver application before proceeding with their own request for whales or other marine mammals. While there is no evidence yet that this will occur, tribes with an interest in obtaining a waiver would not help their own cause – or the cause of the Makah to obtain a waiver to kill gray whales – if they were to prematurely announce their intent before the current process ended. Such an announcement would support the argument that the Makah Tribe's waiver application has had a significant precedential impact, thereby supporting a denial of the waiver. Many tribes, particularly in the Northwest, have expressed a desire to kill seals and sea lions, given the perceived conflict with fisheries, particularly salmon fisheries. The Northwest Indian Fisheries Commission recently opined that "harbor seal and sea lion populations must be brought back into balance with the reality of today's ecosystems, which cannot support their steadily increasing numbers."[55] It is myopic for NMFS to conclude that the outcome of the Makah Tribe's waiver application will have no influence on the likelihood of these tribes applying for their own waivers. Even the Makah Tribe may choose to pursue additional waivers if its whaling waiver is obtained, considering that it ceased	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		authorizing tribal members to take any marine mammals in 2005 as a result of the Anderson opinion. DEIS at 3-215. [55] See http://nwifc.org/2015/04/10158/	
157	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, the recent decision in United States v. Washington opens the door to a significant increase in MMPA waiver requests. In that case, initiated by the Makah Tribe to determine the boundaries of the usual and accustomed fishing grounds of the Quileute and Quinault tribes, the court concluded that "'fish as used in the Treaty of Olympia encompasses sea mammals and that evidence of customary harvest of whales and seals at and before treaty time may be the basis for the determination of a tribe's U&A." United States v. Washington, No. C70-9213, slip op. at 78 (W.D. Wa. July 9, 2015; Attachment 7).[56] This is now a legal precedent defining a treaty right to fish to encompass the hunting of marine mammals, including cetaceans. Therefore, the Coalition concludes that MMPA waiver applications are very likely to increase. Admittedly, the ruling in United States v. Washington, issued on July 9, 2015, was not available to NMFS when it prepared the DEIS, but it now represents new information that must be considered as NMFS continues with the NEPA and MMPA waiver processes. [56] In the opinion, the court provides significant details as to the history of whaling, sealing, and fishing by both the Quileute and Quinault tribes. It also identifies several other tribes that also had a tradition of whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
158	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS concludes that "it is also unlikely that other countries could use authorization of a Makah whale hunt under Alternatives 2-6 as leverage for increasing commercial or scientific whaling." DEIS at 4-267. To support this conclusion, NMFS cites to the skirmish between Japan and the United States over the Alaskan bowhead whale quota in 2002. While it is true this situation did not result in a "fundamental change in the United States position" on commercial or scientific whaling, it did result in the United States voting in favor of Japan's small-type coastal whaling proposal at a special meeting of the IWC called to address, in particular, the bowhead quota. In that case, though the US vote for small-type coastal whaling did not practically benefit Japan (as there were sufficient no votes to block the proposal even with the United States voting in support), it was clearly a psychological victory for Japan given by the United States in order to secure the bowhead whale quota. To think that Japan would not attempt to block a US ASW quota in the future to compel a change, even temporary, in a US position at a future IWC meeting is naïve.	Comment noted.

Sort #	Commenter Code	Comment	Response
159	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Admittedly, the Makah ASW request may not provide Japan with the same leverage over the United States as did the bowhead whale quota. This is because the Makah ASW quota is for a small number of whales and, if blocked, the repercussions are not as significant for the Makah as are the implications for Alaska Natives. The Makah, as Japan is well aware, have not regularly engaged in whaling for nearly 90 years (and potentially as long as 165 years) and have access to a variety of other foodstuffs. Conversely, the bowhead quota is for a larger number of whales for which the 11 Alaskan whaling villages have a genuine nutritional, subsistence, and cultural need.	Comments noted.
160	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, the suggestion that ASW was not a consideration in the effort to construct an agreement leading up to the 2010 IWC meeting that, if approved, would have undermined the commercial whaling moratorium is also without merit. The principal reason the US ASW quotas were not challenged at the 2007 meeting, held in Anchorage, AK, is because the late Senator Ted Stevens negotiated an agreement, believed to be unwritten, with Japan. In its simplest terms, that agreement ensured that Japan did not object to the United States quota request, particularly its request for bowhead whales, at the Anchorage meeting in exchange for US leadership in the process that led to the proposed "deal" to lift the commercial whaling moratorium, which was soundly rejected at the 2010 IWC meeting.	Comment noted. The comment does not provide evidence to support the assertions made. Please also see the response to frequent comment # 4 regarding the precedential effect of a waiver domestically and internationally.
161	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Finally, NMFS' dismissal of the potential adverse precedent that Makah whaling could have on other IWC countries seeking whaling opportunities for their own people, including aboriginal people, is in error. Fundamentally, the mere fact that the United States was able to secure a quota for the Makah in 1997, given that the Tribe did not qualify (and still does not qualify) for an ASW quota, has already substantially weakened the ASW criteria within the IWC. NMFS even admits that the Makah whale hunt is different from other aboriginal subsistence hunts because of "the Tribe's 70-80 year hiatus in whaling." DEIS at 4-268. While approval of the Makah quota as recently as 2012 has not been explicitly used by any country to seek IWC approval to allow its own people to engage in whaling, this may occur in the future. Indeed, considering that the Makah hunt has been prevented from occurring as a result of legal action, if NMFS is able to ultimately permit the Makah to begin to actively use the IWC-approved quota, this could be the trigger that other countries are waiting for to exploit the 1997 decision.	Comment noted. The DEIS fully analyzes and does not dismiss potential precedential effects of Makah whaling (see Subsection 4.17.3.2.3, International Regulation of Whaling). As the commenter acknowledges, to date approval of the Makah quota has not led to additional requests for ASW quotas by other parties to the ICRW. We reviewed recent IWC actions and confirm that no additional requests have been made since the DEIS was published in 2015 (i.e., other than those countries that typically have done so - the U.S., Russian Federation, Denmark, and St. Vincent and the Grenadines). Please

Sort #	Commenter Code	Comment	Response
			also see the response to frequent comment # 4 regarding the precedential effect of a waiver domestically and internationally.
162	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	This does not mean that the damage done by the United States to the ASW standards in 1997 cannot be reversed. This is possible, but only if the US denies the Makah Tribe's MMPA waiver request and does not pursue another gray whale ASW quota for the Makah at any future IWC meetings. This would not erase the adverse precedent set in 1997, but it would return some integrity to the IWC's ASW standards.	Comment noted.
163	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>NMFS has failed to fully disclose all relevant information regarding the cumulative impact of the proposed hunt and to adequately analyze such impacts:</u> NEPA requires federal agencies to evaluate the cumulative impact of any proposed action or other alternatives on the environment. Under NEPA, a "cumulative impact" is defined as an "impact on the environment which results from the incremental impact of the action when added to the past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. DEIS at 5-1 and 40 CFR § 1508.7. Much of the information contained in the cumulative impact analysis (CIA) section of the DEIS overlaps with information regarding other threats to gray whales. Consequently, those issues are addressed together in this section of the comment letter. The geographic and temporal scope of the CIA included the entire range of ENP gray whales over an indefinite time period. DEIS at 5-2/5-3. These provide an appropriate scope for the CIA although, considering that WNP gray whales are known to emigrate into the ENP region and that one or more could theoretically be killed as a result of the hunt, not including the WNP range in the CIA is in error. DEIS at 5-2. Surely, if a Makah hunt resulted in the death of a WNP gray whale then understanding the impact to a critically endangered population of gray whales given other existing and increasing threats would be relevant and should have been included in the CIA. In its analysis of the CIA, NMFS ostensibly evaluated past, present, and reasonably foreseeable actions in the following categories: harvest of gray whales, shipping, military exercises, fisheries, tourism, marine energy and mining projects, scientific research, natural mortality, climate change and US government policy. DEIS at 5-4. The background portion of the analysis simply confirms that these activities will continue in the future and will impact gray	As noted in DEIS Section 5 (Cumulative Effects), guidance from the Environmental Protection Agency underscores that the proper spatial scope of the analysis should include geographic areas that sustain the resources of concern. Importantly, the geographical boundaries should not be extended to the point that the analysis becomes unwieldy and useless for decision-making. In that DEIS section we also noted that our analysis of cumulative impacts discusses possible effects on WNP whales where appropriate; however, we did not include the geography of the Western North Pacific in our analysis area because it is not within the primary range of ENP whales that are the focus of the proposed action and action alternatives. If new information supports expanding the range of our analysis we will do so in a subsequent NEPA analysis. The comment provides no information to demonstrate how effects of past,

Sort #	Commenter Code	Comment	Response
		whales to some degree. NMFS then attempts to evaluate the actual cumulative impacts of these different actions in the section 5.2 of the CIA but its analysis is woefully inadequate. Consequently, it is of no surprise that NMFS concludes that nearly all of the 15 environmental factors evaluated will not result in a significant cumulative impact. The only exceptions to this is for the environmental justice and ceremonial and subsistence resources factors where NMFS concluded that Makah Tribe would experience negative cumulative effects if Alternative 1 (the No Action Alternative) was chosen. DEIS at 5-43, 5.44.	present, and reasonably foreseeable future actions would combine with the proposed action to cause effects beyond those analyzed in Chapter 4, Effects of the Action.
164	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	For some actions analyzed, NMFS claims that information was not available (e.g., from the Canadian, Russian, or Mexican governments) to assess certain actions under the control of those countries that may impact gray whales or their habitat. NMFS provides no information about the effort made to obtain such information, causing the Coalition to question whether NMFS adequately attempted to secure such evidence by, for example, contacting the relevant government agencies. Nevertheless, NMFS has failed to comply with the NEPA requirements as to unavailable and incomplete information, which further undermines the sufficiency of its CIA. This error must be corrected in a revised analysis either by obtaining the missing information or providing the requisite evaluation of the relevance of the information to the environmental impacts of the proposed action as required by NEPA.	The comment does not explain what information is lacking or how it would inform the decision-maker or be relevant to decision-making.
165	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Similarly, the CIA provides no evidence that NMFS contacted relevant state or provincial agencies to obtain information about past, present, and reasonably foreseeable state-approved actions that may impact gray whales and their habitat. The definition of "cumulative impact" explicitly includes actions by non-federal agencies. Yet, NMFS has apparently limited its analysis to those actions authorized and/or undertaken by federal agencies. In California, for example, the California Coastal Commission (CCC) is responsible for approving projects that may impact coastal resources, yet there is no indication that NMFS reached out to CCC for information relevant to the CIA. Washington and Oregon have agencies similar to the CCC that review and approve coastal projects. At a minimum, NMFS must contact all appropriate state agencies in Alaska, Washington, Oregon, and California to seek information about coastal projects authorized at the state level that may impact gray whales. It must also contact authorities in British Columbia, Canada and in the state of Baja California Norte and Baja California Sur to seek out information from them to include in the CIA. In addition, NMFS should compile a list of all of the relevant IHAs, LOAs, and other authorizations (as published in the Federal Register) that it	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. The comment cites potential sources of information but does not describe how this information might affect the analysis.

Sort #	Commenter Code	Comment	Response
		has issued at least over the past five years in order to include that information in the CIA.	
166	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While many of the individual projects authorized by NMFS (or by other countries or agencies) may not, independently, pose any substantive threat to gray whales, when considered together - as is the entire purpose of the CIA - the impacts become significant. Merely asserting that certain actions will continue into the future and that they will or will not result in cumulative impacts - as NMFS has done in the DEIS – entirely ignores the purpose of a CIA.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
167	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	That purpose is to combine all of the past, present, and reasonably foreseeable future action that may impact, in this case, gray whales and to subject them to a comprehensive and scientifically robust analysis to determine how, when combined, will impact gray whales today and into the future. Such an analysis cannot be based merely on speculation and opinion but rather, must be credible with predictions or projections about how present and future actions will effect gray whale populations and their habitat. Qualitative conclusions are not entirely sufficient in a legitimate CIA unless they are confirmed through a quantitative analysis. While there is no required methodology for conducting a CIA, a method that would be advisable in this case would involve a modelling exercise to quantify the potential short and long-term cumulative impacts of the various impacts in order to predict potential outcomes under different scenarios	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
168	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS has not engaged in such an analysis in the DEIS. Indeed, the foundation of its CIA is speculation and opinion without any substantive underlying analysis. In many cases, while NMFS acknowledges current and future impacts, it doesn't take the next step to assess the cumulative impact of such threats on gray whales and their habitat or, what analysis it provides is deficient. Until NMFS provide a legitimate CIA in a revised analysis it must not continue the current decision-making process.	Comments noted.
169	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	For the remainder of this section, the Coalition provides a summary of some of the relevant present and future threats to gray whales. While NMFS has included many of these in the DEIS, in many cases the information is inadequate or incomplete. In other instances NMFS has ignored an existing or future threat that it should have considered.	This introductory comment is noted.
170	Schubert (Animal Welfare	<u>Harvest of gray whales</u> As discussed in this comment letter, permitting a new intentional take of gray whales by granting the Makah Tribe's request for an MMPA waiver is	As noted in the DEIS, authorization of a Makah tribal hunt would be unlikely to result in a net change in the

Sort #	Commenter Code	Comment	Response
	Institute)_Letter Only_7-31-15	biologically reckless. There are too many ongoing threats to the species throughout its range, including in the PCFG region, to purposefully allow additional take. For WNP and PCFG, such take is particularly alarming given their small population sizes. Indeed, even NMFS concedes that "killing even a few animals per year (especially over an extended period of time) from the relatively small PCFG could have long-lasting impacts for a group of whales whose population dynamics are not well understood." DEIS at 5-3. Furthermore, since so little is known about the long-term implications of Arctic ecosystem changes attributable to climate change, there is no guarantee that the ENP gray whale population is secure.	mortality of ENP gray whales as Russian ASW hunters would harvest any IWC quota not used by the Makah Tribe (Subsection 4.4. 2.1, Change in Abundance and Viability of the ENP Gray Whale Stock). Potential impacts on WNP and PCFG whales are discussed elsewhere in responses to these comments.
171	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The CIA in the DEIS, had it been done objectively and through a quantitative assessment of the combined threats to gray whales and their habitat, would have concluded that the cumulative impacts are substantial. Conversely, based on its deficient analysis, NMFS found that when adding potential impacts of a gray whale hunt under Alternatives 2 through 6 to past, existing, and future levels of disturbance then "reasonably foreseeable future actions would not be expected to have cumulative effects on gray whales in the PCFG, local survey areas within the PCFG range, and individual gray whales. DEIS at 5-40. Of note, NMFS doesn't appear to make a CIA finding for ENP gray whales (nor for WNP gray whales which, in error, it neglected to consider in the CIA.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
172	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Shipping</u> The DEIS includes information about current shipping traffic and how it will increase throughout the range of the ENP gray whales in the future. DEIS at 5-8/5-9. It recognizes that this will increase risks to gray whales as a consequence of ship strikes, ocean noise, and potential fuel spills. Id. at 5-8. It finds that shipping is a reasonably foreseeable future action, but fails to engage in any legitimate quantitative analysis of the potential threats of shipping traffic to gray whales in relationship to the actions identified.	The information provided is sufficient to consider the effects of the proposed action when combined with past, present, and reasonably foreseeable future actions. Consistent with CEQ regulations at 40 CFR 1502.2(b), there is a sufficient description of anthropogenic impacts, including from shipping, in Subsections 3.4.3.5, Known and Potential Anthropogenic Impacts, and 5.1.3.2, Shipping, with citations to the literature, to support the analysis regarding the minor level of cumulative impact from potential hunting when combined with impacts

Sort #	Commenter Code	Comment	Response
			from shipping on gray whales. Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
173	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Military exercises NMFS largely discounts the potential cumulative impacts of military exercises (in waters of the US, Russia and Mexico). NMFS reports that it was unable to obtain any information about military activities conducted by Mexico and Russia within their respective Exclusive Economic Zones. For Canada, NMFS notes the role of Maritime Forces Pacific (MARPAC) in ensuring the training and operational readiness for the Royal Canadian Navy but claims that it could not find information detailing the types of training or testing that MARPAC conducts within the NMFS CIA analysis area. The failure of NMFS to obtain such information is an ideal example of a weakness in the CIA. It is improbable that if NMFS or the US State Department, on behalf of NMFS, sought the relevant information from Mexico, Canada, and Russia that those governments would not have responded at least to provide basic information about relevant military training activities in the analysis area. Without that information, the CIA is incomplete. As for the analysis of the impacts of military activities in US waters, NMFS evaluates the impacts of activities conducted within the Southern California Range Complex (SCRC), Northwest Testing and Training Range (NWTTR), and the Gulf of Alaska Range Complex (GOA). The potential impacts from these testing and training exercise include noise (from ships, explosives, sonar), direct harm (from ship strikes, projectiles, underwater explosions, consumption of expended materials), and indirect harm (hearing impairment and loss, disrupting communications, noise masking, behavioral impacts, general harassment). Instead of providing a credible analysis of these impacts, NMFS largely dismisses any significant threat to gray whales by citing to its relevant Biological Opinions for the different ranges and complexes. These Biological Opinion's generally conclude the overall impact from such exercises, which they concede will result in harassment (primarily Level B). Notably, for the SCRC, NMFS has authorized 15 Level A takes (through harassment) of ENP gray whales and, in addition, 15 whale injury, mortality, or serious injuries for 15 gray whales of which three, shockingly, can be WNP gray whales. Considering that this	The information provided in Subsection 5.1.3.3, Military Exercises, is sufficient to consider the effects of the proposed action when combined with past, present, and reasonably foreseeable future actions. Consistent with CEQ regulations at 40 CFR 1502.2(b), there is a sufficient description of military exercises in Subsection 5.1.3.3, Military Exercises, to support the analysis regarding the minor level of cumulative impact on gray whales. We will consider whether a final EIS would benefit from additional specific discussion of military exercises in Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts. The comment provides no information to demonstrate how effects of past, present, and reasonably foreseeable future actions would combine with the proposed action to cause effects beyond those analyzed in Chapter 4, Effects of the Action. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray

Sort #	Commenter Code	Comment	Response
		population of gray whale is critically endangered, that level of mortality or serious injury rate is excessive. Furthermore, relying on old Biological Opinions for this CIA is inappropriate. NMFS should have engaged in a new analysis of these impacts specific to gray whales and their habitat.	whale population in the face of climate change and other threats.
174	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	In general, for all gray whales subject to military testing and training activities, NMFS dismisses potential adverse impacts claiming that "any stress responses or disruptions of normal behavior patterns of gray whales would not continue long enough to have fitness consequences for individual animals because these whales are likely to have energy reserves sufficient to meet the demands of their normal behavioral patterns and the additional demands of any stress responses." DEIS at 5-15. Of course, NMFS provides no data to support its contention that gray whale exposure to such military training exercises will be only temporary nor has it disclosed evidence to substantiate the assertions that gray whales have sufficient energy reserves to both meet daily demands and to deal with acute or chronic stress impacts. NMFS must provide such data if it wants to ensure that its CIA is credible and legal.	The commenter cites a passage in the DEIS that describes a document that analyzes the likely responses of other large whales to military activities, and reasons that gray whales would be expected to have similar responses as other large whales. The comment cites no evidence suggesting why this would not be the case.
175	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	While NMFS concedes that in past Biological Opinions, WNP gray whales were not considered, it is evaluating impacts to that population in pending decisions regarding continuation of military testing and training activities in the NWTTR and the GOA ranges. In regard to the SCRC, a court recently ruled in favor of plaintiffs challenging a Biological Opinion prepared by NMFS to evaluate the impacts of the military's training and testing in that region. Conservation Council for Hawaii v. NMFS (2015 WL 1499589 at *48-50 (D. Hawaii Mar. 31, 2015). In particular, given the increasing body of scientific evidence documenting the adverse impact of ocean noise, including sonar and seismic testing, on marine mammals and other ocean species, this issue in particular warranted far greater analysis in the CIA. Indeed, surprisingly, while NMFS provides some information about ocean noise in the affected environment and environmental consequences sections of the DEIS, it virtually ignores the issue in its CIA. Not only can such anthropogenic noise directly harm whales through temporary or permanent hearing loss, but the behavioral implications of acute and chronic exposure to human-caused noise sources can cause behavioral changes that can have serious consequences to gray whales. This can include disrupting feeding and breeding activities, abandonment of preferred habitat, and avoidance reactions that may result in increased stress and have adverse bioenergetics consequences.	Section 3.4.3.6.5, Offshore Activities and Underwater Noise, examines the effects of noise conditions on existing environment to the extent necessary to support the cumulative effects analysis in Section 5.4, Gray Whales. Consistent with CEQ regulations at 40 CFR 1502.2(b), there is a sufficient description of military exercises in Subsection 5.1.3.3, Military Exercises, to support the analysis regarding the minor level of cumulative impact on WNP gray whales. We will consider whether a final EIS would benefit from additional specific discussion of military exercises in Subsection 3.4.3.6, Known and Potential Anthropogenic Impacts. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		Considering the increase in anthropogenic noise in the Pacific Ocean, including noise associated with military operations, and recognizing that climate change will increase human activities in the Arctic which, in turn, will increase noise impacts, NMFS must provide a far more substantive and scientifically robust evaluation of noise impacts in a revised document.	ENP gray whale population in the face of climate change and other threats.
176	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Fisheries NMFS acknowledges the adverse impacts of various fisheries on gray whales and concedes that reported fishery-related mortality is an underestimate of actual mortality. This is, in part, due to the lack of observer coverage in many of the west coast fisheries that are known to pose a risk to gray whales. For example, no observers are assigned to most of the Alaskan gillnet fisheries, including those in Bristol Bay known to interact with gray whales. DEIS at 41. Similarly, due to a lack of observer data for mortality in Canadian commercial fisheries, data is not available but NMFS estimates it to be approximately two whales per year. The DEIS contains no information about any commercial fishery-related mortality of gray whales in Mexico.	The DEIS reports and analyzes the best available information. The commenter suggests there may be other relevant information but neither provides it nor a source to obtain it. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
177	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Overall, NMFS reports a known, but minimum, estimate of commercial fishery-related mortality was 12.25 ENP gray whales between 2007 and 2011 (Carretta et al. 2014), or an average of 2.45 gray whale per year. DEIS at 3-195. This is limited to reported mortalities in US waters only indicating that the actual number is larger if mortalities in Mexico and Russia were included. NMFS provides some limited gray whale entanglement data for Mexico for 2013 where six gray whales were reported entangled in fishing gear. DEIS at 5-19. For Russia, NMFS reports that no data on gray whale entanglements were available, id., and apparently none could be obtained from Canada either. For PCFG gray whales, for the same period of time, the DEIS reports a mortality rate of one whale or 0.15 whales per year; figures that must be underestimates given the commercial fishing activity within the PCFG range. Punt and Moore (2013) estimate that reported strandings of gray whales represent only 3.9 to 13 percent of actual mortality. DEIS at 3-193. Consequently, average actual fishery-related gray whale mortalities in US waters may range from 18 to 62 animals annually.	Comments noted.
178	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS provides some limited gray whale entanglement data for Mexico for 2013 where six gray whales were reported entangled in fishing gear. DEIS at 5-19. For Russia, NMFS reports that no data on gray whale entanglements were available, id., and apparently none could be obtained from Canada either. For PCFG gray whales, for the same period of time, the DEIS reports a mortality rate of one whale or 0.15 whales per year; figures that must be underestimates given	Comments noted.

Sort #	Commenter Code	Comment	Response
		the commercial fishing activity within the PCFG range. Punt and Moore (2013) estimate that reported strandings of gray whales represent only 3.9 to 13 percent of actual mortality. DEIS at 3-193. Consequently, average actual fishery-related gray whale mortalities in US waters may range from 18 to 62 animals annually.	
179	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	When evaluating the cumulative impacts of this action in relationship to the hunt, NMFS should not use reported mortality rates as that will significantly underestimate actual mortality. Furthermore, while the reported mortality statistics above are for US fisheries, there is likely unreported mortality associated with other forms of mortality (i.e., ship strikes, sonar use, seismic testing). If the mortality rate from Punt and Moore is used to determine actual mortality for all types or reported mortality, the estimated number of whales lost due to human-caused mortality may be far higher than expected. Since gray whales are known to sink when they die, NMFS needs to identify unreported mortality rates for these other forms or mortality so that it can conduct a credible quantitative CIA as well as to determine if human-caused mortality exceeds PBR. This is precisely the type of analysis that NMFS should undertake in a comprehensive CIA.	It is unclear how one would report/identify unreported information suggested in this comment. We acknowledge in the DEIS and in the ENP gray whale SAR that reported strandings represent only a fraction of actual gray whale deaths (natural or human-caused). If better estimates become available we will evaluate them as part of our review of the tribe's waiver request. Please also see the response to frequent comment # 7 regarding the calculation and use of PBR for a PCFG mortality limit.
180	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	<u>Tourism</u> NMFS notes that the number of people engaging in whale-watching in the ENP increased from million in 1998 to over 3.3 million in 2008. DEIS at 5-20. Since 2008 the numbers have likely increased. NMFS also acknowledges that the activity of commercial whale-watching vessels and private recreational boats has increased concerns about potential effects on gray whales. DEIS at 5-22.	Comments noted.
181	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The Coalition concurs with this assessment. While whale-watching provides a unique opportunity for millions of people annually to enjoy whales in their natural habitat, to learn about marine species and marine ecology, and that whale-watching generates billions in revenue worldwide, it is not with potential risk to marine wildlife. Improperly or non-regulated whale-watching operations or even an excessive number of operators in a concentrated area can have adverse impacts on marine mammals and other species. This constitutes another threat to gray whales which has not been sufficiently studied to understand the full range of direct and indirect impacts to these animals. NMFS has also failed to quantify this effect in its CIA in order to better understand its impact in the context of other impacts on gray whales and their habitat. Instead of engaging in such an analysis, NMFS has concluded that	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		whale-based tourism is a reasonably foreseeable future action that will continue to impact gray whales throughout their range in the ENP. DEIS at 5-22. It does not appear that the CIA provides a determination as to the cumulative impacts to gray whales as a result of tourism when considered alongside the proposed hunt.	
182	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Marine energy and mining projects NMFS discloses information about active and proposed energy and mining projects within the range of the gray whale. For example, it notes the proposed construction of a number of Liquefied Natural Gas terminals (DEIS at 5-9) while also providing some data on oil spills particularly in Washington State waters. It provides a basic explanation of oil and gas development in the Arctic and both its role and the role of the Bureau of Ocean Energy Management in overseeing, authorizing, or permitting such projects.	Comments noted.
183	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	What it fails to do, however, is to engage in a credible analysis of the direct and indirect impacts of these projects on gray whales and their habitats. There's no serious analysis of the impacts of oil/gas exploration or production activities on gray whales (i.e., seismic testing, drilling noise, ship traffic), no substantive discussion of the lethal and sub-lethal impacts of oil on gray whales, and no assessment of the potential for a significant oil spill within the range of the gray whale or how such a spill would impact gray whales and their habitat. In the Arctic, since summer is the only time when drilling can be commenced, a spill associated with production processes would occur when gray whales are in the region. Given the controversy surrounding President Obama's recent decision to allow Shell Oil to drill in the Arctic, this emphasizes the need for a more complete analysis. The notion that such spills are unrealistic or unlikely due to the efforts made by the oil and gas companies to prevent such accidents is not (and never has been) cause for complacency particularly as a result of the Deepwater Horizon spill in the Gulf of Mexico several years ago.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
184	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Notably, NMFS failed to even disclose a mining project in Mexico that may significantly impact gray whales. Although not yet approved, a large phosphorous mining operation has been proposed in the Gulf of Ulloa between Apreojos and Cabo San Lazaro, Mexico. A summary translation of the first few paragraphs of the Environmental Impact Statement[57] prepared on the proposed mine states that: • The project is to be located within the Mexican EEZ in the Gulf of Ulloa, on the west coast of Baja California Sur between Apreojos and Cabo San Lazaro, about 22 km off the coasts.	In an April 11, 2016 press release the company advancing the project noted that "the recent decision by the Mexican Secretary of Environment and Natural Resources (SEMARNAT) regarding the "Don Diego" dredging and phosphate sand extraction project resulted in a denial of the application for an environmental license as presented."

Sort #	Commenter Code	Comment	Response
		• It is projected that 7 million tons of phosphates will be extracted each year for a period of 50 years, equal to a rate of 19,178 tons a day; the digging will be done 24 hour per day, 7 days per week or each year. • The EIS does not mention the total quantities of other materials that would also be removed and then returned to the ocean as waste. An analysis by Dr. Janette Murillo Jimenez, however, indicated that to produce the quantity of phosphate indicated 150,000 tons of sediment would need to be removed daily. "These quantities are so large that they would require more than one processing vessel, would generate a plume of sediment and waste, of which argillaceous particles would be left permanently in the water in the area due to the continual agitation." • The company seeking the permit, Exploraciones Oce nicas, S. de R.L. de C.V. (a subsidiary of a US company Odyssey Marine Exploration Inc, Omex) is a vessel salvage company which has no experience in submarine dragging, and even less in mining phosphates. In other countries in which similar proposals have been presented they have not been approved, and Namibia has a moratorium on such activities. This is due to concerns about fisheries. [57] The EIS can be accessed at: http://consultaspublicas.semarnat.gob.mx/data/expediente/bcs/estudios/2014/03BS2014M0007.pdf	(http://ir.odysseymarine.com/releasedetail.cfm?ReleaseID=964396). If such a project is ultimately approved and implemented it may be appropriate to consider in a final EIS.
185	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Furthermore, in a recent article published in Excelsior[58], a periodical in Mexico, Dr. Jorge Urban- Ramirez, head of the Marine Mammal Research Program from the Universidad Autónoma de Baja California Sur, noted that the project would impact the migratory route of gray whales which for millennia have traveled 10,000 kilometers from the Arctic Ocean, through the Bering and Chukchi Seas between Alaska and Siberia, to the Baja California, peninsula in order to rest and give birth. Dr. Urban-Ramirez, who is respected gray whale biologist with 32 years invested into the study of the species, states that "the underwater noise from the mining activity would mask the acoustic communication that exists between the whales principally in the Laguna complex at Bahia Magdalena, the closest point to the Don Diego (name of mining project) project, where every year a large number of gray whale calves are born," and that "the greatest potential damage is to the north where the mothers with calves will be precisely in the drag zone." While he reports that the noise generated by the mine, if it were allowed, would not kill gray whales, it would trigger a behavioral response that would cause them to divert from their normal migratory route which, in turn,	Comments noted.

Sort #	Commenter Code	Comment	Response
		would result in greater energy expenditures while also potentially adversely impacting the whale-watching tourism industry in the area. [58] See http://www.excelsior.com.mx/nacional/2015/01/18/1003281	
186	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Natural mortality NMFS notes the potential impacts of killer whale predation on gray whales but largely ignores the role of sharks as natural predators of gray whales, particularly gray whale calves. In addition, it does not sufficiently consider the potential impact of predation on gray whales in the context of the other threats and stressors on the population. For example, the delay in the south of the southbound migration, which is linked to ocean warming in the Arctic and the expansion of the gray whales' range, has led to an increase in births outside of the Mexican lagoons. Some births are now occurring in coastal waters as far north as central California. Gray whale calves born in these areas are more susceptible to predation than those born in the lagoons. NMFS has not quantified such impacts for the purpose of its CIA. Nor has it considered predation severity throughout the migratory range. Unimak Pass, Alaska, is an area where gray whales may be most susceptible to predation by killer whales, who take advantage of this relatively narrow passage way to kill gray whales. NMFS must provide a far more substantive analysis of the impact of predation on gray whales as both a separate threat to the species as well as in the context of a credible CIA.	The DEIS presents an extensive analysis of the status of the ENP gray whale population, more than sufficient to support an analysis of the effects of the proposed action considered alone and in combination with other past, present, and reasonably foreseeable future actions. Most of the individual factors mentioned in this comment are described and considered in the DEIS. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
187	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Climate change As previously noted, ocean warming caused by climate change is significantly impacting the Arctic. A regime shift is ongoing whereby a benthic driven ecosystem is transitioning into a pelagic system. This has significant potential implications to gray whales and their prey, including amphipods. As the composition and density of fish stocks increase in Arctic waters, benthic productivity is declining, forcing gray whales to expand their range. The consequences of this shift are documented in the scientific literature but, more recently, evidence of this shift is available in the form of an agreement between the US, Russian Federation, Canada, Norway, and Denmark (representing Greenland) to prevent unregulated commercial fishing in the Arctic. This agreement, signed on July 16, 2015 is a product of the regime shift in the Arctic linked to climate change. According to a press release issued by the US State Department about the agreement: The declaration acknowledges that commercial fishing in this area of Arctic Ocean – which is larger than Alaska and Texas combined – is unlikely to occur in the near future. Nevertheless, the dramatic reduction of Arctic sea ice	This introductory comment is noted.

Sort #	Commenter Code	Comment	Response
		and other environmental changes in the Arctic, combined with the limited scientific knowledge about marine resources in this area, necessitate a precautionary approach to prevent unregulated fishing in the area.[59] [59] Available at http://www.state.gov/r/pa/prs/ps/2015/07/244969.htm	
188	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The countries have agreed to initiate research in the region to better understand changes occurring to the Arctic. It is precisely this type of precautionary approach that must be applied in the context of the Makah hunt. Given the need to better understand the changing Arctic environment and what it means to whales and other Arctic and sub-Arctic species, permitting direct lethal take of gray whales at this time is reckless.	The comment does not address an alleged deficiency with the DEIS. The DEIS evaluates the implications of various hunt scenarios and uncertainties associated with changing climate and conditions in the Arctic. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
189	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Another threat to gray whales linked to climate change is ocean acidification. NMFS provides some information about this threat in the DEIS. It notes, for example, that ocean acidification can change the chemical composition of ocean water, which will decrease its ability to absorb sound, thereby making the oceans even noisier than they are at present. DEIS at 3-198. While this could cause both direct and indirect adverse impacts on gray whales, the fact that ocean acidification will reduce the abundance and types of shell forming organisms, "many of which are important in the gray whales diet," DEIS at 3-197, is also a significant concern. While gray whales are expanding their range to find additional food sources, such an expansion will be irrelevant if potential prey species are eliminated or reduced as a consequence of climate change.	The DEIS examines likely effects of ocean acidification on gray whales (Subsection 3.4.3.6.11, Climate Change and Ocean Acidification and Subsection 5.1.3.9, Climate Change and Ocean Acidification). Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
190	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Climate change is also increasing human activities in the Arctic, including oil and gas exploration and development and shipping traffic. Both of these activities also can adversely impact gray whales directly and indirectly as well as by impacting their habitat.	The DEIS examines likely effects of climate change on gray whales (Subsection 3.4.3.6.11, Climate Change and Ocean Acidification and Subsection 5.1.3.9, Climate Change and Ocean Acidification). Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
			ENP gray whale population in the face of climate change and other threats.
191	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	NMFS provides some information about hypoxic zones in the DEIS but its analysis is deficient. While it notes that such zones are now increasingly linked to climate change (as well as associated with poor land management activities), it fails to disclose where such zones exist within the ENP gray whale range, if the zones are increasing in size, if they are more prominent in certain seasons, or what direct or indirect impacts they have on gray whales and gray whale prey. Nor has NMFS adequately consider these [hypoxic] zones in the CIA.	Consistent with CEQ regulations at 40 CFR 1502.2(b), there is a sufficient description of future ocean conditions in Subsection 5.1.3.9, Climate Change and Ocean Acidification, to support the analysis regarding the minor level of cumulative impact on gray whales.
192	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	What NMFS failed to address in its assessment of climate change in the CIA is the predicted "strong" El Nino event for the upcoming winter season.[60] Considering that this prediction was made by NOAA, it is troubling that it was not addressed in the CIA. During a previous "strong" El Nino in 1997-1998, the ENP gray whale population was significantly and adversely impacted as a result of substantial mortality. During and after that event, ENP population estimates declined from over 20,000 whales in the late 1990s to approximately 16,000 in the early 2000s. While no one can predict if this predicted El Nino will have similar impacts, the precautionary principle mandates that this potential be considered in management decisions. [60] See https://www.climate.gov/news-features/blogs/enso/june-el-ni%C3%B1o-update-damn-torpedoes-fullspeed-ahead	The DEIS considers the potential for future events such as the one that caused the mass stranding of gray whales in 1999/2000 (Subsection 5.1.3.8, Natural Mortality).
193	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	Finally, NMFS fails to discuss "the blob," a warm water anomaly in the Northeast Pacific that has led to significant ecological destruction. Bond et al. (2015)(Attachment 8). <u>US government policy</u> This issue was addressed previously in this comment letter. No further comments are necessary.	We will consider updating this information in the final EIS.
194	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**<u>Additional Comments:</u>** <u>The environmental consulting firm used by NFMS to prepare the DEIS has an unacceptable conflict of interest</u>: NMFS hired Parametrix, a Washington state-based environmental consulting firm, to prepare the 2008 and 2015 DEIS documents. In 2008, AWI and other NGOs raised concerns that Parametrix had a conflict of interest, as it had done work for the Makah Tribe (e.g., on the Cape Flattery Scenic Byway Corridor	Consistent with CEQ regulation 40 CFR 1506.5 and the NOAA NEPA Handbook (see 82 FR 4306, January 13, 2017), we independently reviewed all contractor-prepared documents and took full responsibility for their content, considered the experience and expertise of the individuals at

Sort #	Commenter Code	Comment	Response
		Management Plan). In 2008, Parametrix had a contract with NMFS and the Makah Tribe simultaneously. Appendix C-22. NMFS dismissed these concerns, claiming that: 1) Parametrix and its subcontractors signed disclosure statements affirming "that there is no conflict of interest by being employed by both the Tribe and NMFS (id. at C-23); 2) due diligence reviews by NMFS of Parametrix's role as a contractor for the Tribe did not pose a potential for conflict (id.); and 3) "no biased information could be inserted into the DEIS under our sole supervision." Id. NMFS also noted that producing an EIS is the responsibility of the Federal action agency and that it did "not consider the relationship between Parametrix and the Tribe to have compromised the integrity of Parametrix's work product." Id. These statements do not reassure the Coalition that Parametrix does not have a conflict of interest and that its role in preparing NEPA documentation for the Makah hunt did not compromise the objectivity and integrity of the 2008 and now the 2015 DEIS documents. In the list of preparers of the DEIS (DEIS at 8-1/8-2), NMFS fails to include the affiliations of all but two of the 27 people identified. One person whose affiliation was disclosed was the DEIS project manager for Parametrix and the other is a NMFS employee. Independent research conducted by the Coalition reveals that of the remaining 25 people identified, 12 are employed by NMFS, nine are (or were) employed by Parametrix, and four were employed elsewhere. Beyond mere affiliation, however, an examination of the Parametrix website (http://www.parametrix.com/) reveals the following description of who the firm serves: Parametrix has served more than 50 tribes, pueblos, and rancherias. We support tribal governments' long-term visions, concern for future generations, and efforts to strengthen their sovereignty. Integrity and trust are the foundation of our efforts to serve tribes and provide the highest level of client service. We frequently assist tribal clients with infrastructure improvements, economic development, environmental planning and protection, and comprehensive land use planning—all critical to enhancing the quality of life in tribal communities and creating economic self-sufficiency for members and business. We often assist tribes in identifying and obtaining grant funding through our understanding of BIA processes, other governmental funding programs, and innovative partnerships. We are proud of the relationships we have built with our tribal clients and are committed to growing and nurturing these relationships in the future.	Parametrix who performed the work, prepared a specific scope of work, requested and received documents disclosing conflicts of interest, and stayed closely and extensively involved with the contractor's product. We have complied with NEPA regulations at 40 CFR 1502.17 pertaining to preparers of an EIS which state: "The environmental impact statement shall list the names, together with their qualifications (expertise, experience, professional disciplines), of the persons who were primarily responsible for preparing the environmental impact statement or significant background papers, including basic components of the statement (§§ 1502.6 and 1502.8). Where possible the persons who are responsible for a particular analysis, including analyses in background papers, shall be identified. Normally the list will not exceed two pages." As is allowed by Federal law (40 CFR 1506.5c), we employed a contractor to assist in preparation of the 2008 and 2015 DEISs, under the supervision of NMFS staff, and using a competitive and documented process to select Parametrix. The contractor disclosed that it also had a contract with the Makah Tribe to assist in the development of the Cape Flattery Tribal Scenic Byway Scenic Corridor

Sort #	Commenter Code	Comment	Response
		(accessed at http://www.parametrix.com/who-we-serve/tribes-pueblos-rancherias) This webpage includes a picture of Parametrix employees and Makah Tribal officials. See Figure 7. It is not just a picture that causes concern, but Parametrix's support for "tribal governments' long-term visions" and "strengthen[ing] their sovereignty," which suggests an inherent bias in favor of the Tribe's interests. Such support is admirable, but not for a consulting firm supposedly providing an objective and scientifically sound work product evaluating the environmental impacts of Makah whaling. Figure 7: Lower left image is of a Parametrix project on the Makah reservation. Available at http://www.parametrix.com/who-we-serve/tribes-pueblos-rancherias Given the close past and present ties between Parametrix and the Makah Tribe, the use of Parametrix to prepare the DEIS was a poor choice and raises serious questions about the credibility of the content and impartiality of the analysis. While this error cannot be undone, NMFS must cease its relationship with Parametrix and either engage in an internal reevaluation of the content and analysis in the DEIS or hire a new environmental consulting firm with no ties to the Makah or other Native American tribes to perform such a reevaluation.	management plan. After the unauthorized hunt in September 2007, members of the public raised questions about additional work Parametrix was performing for the Tribe. When questioned by NMFS about the additional work, Parametrix provided information on the details of the subsequent contract, and affirmed that it had obtained the work for the Tribe in a competitive process. Also as required by law, Parametrix and its subcontractors signed disclosure statements prepared by NMFS as affidavits that there is no conflict of interest by being employed by both the Tribe and NMFS (40 CFR 1506.5c). We accepted the disclosure statements in good faith, and conducted due diligence reviews of Parametrix's role as a contractor for the Tribe. We concluded that there was no potential for conflict to occur, and further, no biased information could be inserted into the DEIS under our sole supervision. Producing an EIS is the responsibility of the Federal action agency (40 CFR 1506.5(a)(c)). We are responsible for the content and process. We do not consider the relationship between Parametrix and the Tribe to have compromised the integrity of Parametrix's work product, and in any event are confident that in exercising our oversight we have ensured the document is a product of our analysis.

Sort #	Commenter Code	Comment	Response
195	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	The Makah Tribe's promulgation of its 2013 Makah Whaling Ordinance raises concerns about the integrity of the DEIS process: Included in the DEIS is a 2013 Makah Whaling Ordinance that was enacted by the Makah Tribe in August 2013. While the Makah Tribe can adopt any ordinances it deems appropriate, the adoption of a whaling ordinance in 2013 is odd. Considering that the present DEIS would not be published for another 20 months, that the NEPA and MMPA processes that must be completed to determine if the Makah Tribe will receive a waiver could take several years, and that, without the waiver, the Makah Tribe cannot whale, it seems unusual for the Tribe to expend the time, energy, and resources to develop and promulgate a whaling ordinance. While this may simply represent a choice made by the Makah Tribe, it could also reflect the Makah Tribe's understanding that it will receive a waiver and will be allowed to resume whale hunting. If NMFS has tacitly or expressly conveyed any guarantees to the Makah Tribe to cause them to develop such an understanding, it means the outcome of this planning process has been predetermined, in violation of NEPA. As NMFS may recall, in Metcalf v. Daley (214 F.3d 1135 (9th Cir. 2000)), the appellate court found in favor of the plaintiffs because NMFS entered into a cooperative agreement with the Makah Tribe days before it published its Final EA and Finding of No Significant Impact. The court held this action predetermined the outcome of the NEPA process. The facts here are different, but the concern is the same. While it is unknown if NMFS suggested, recommended, or directed the Makah Tribe to adopt a whaling ordinance in 2013, this issue warrants some discussion and explanation by NMFS.	Throughout development of the DEIS, NMFS has maintained contact with the Makah Tribe regarding its request, as it would with any applicant, and also as it would with any Tribe pursuant to Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments.
196	Schubert (Animal Welfare Institute)_Letter Only_7-31-15	**Conclusion:** Based on the foregoing evidence and analysis, NMFS must deny the Makah Tribe's request for an MMPA waiver application and terminate the NEPA process. There is no other legal option. It is time for this 20-year effort to end. The Makah Tribe does not qualify for an IWC-approved ASW quota and NMFS cannot issue an MMPA waiver to allow a Makah hunt without violating the law. Furthermore, as exhaustively demonstrated in this letter, the DEIS is woefully inadequate—failing to satisfy the requirements of NEPA. The purpose and need statements are invalid, NMFS has not considered a reasonable range of alternatives, it has failed to disclose all relevant information, and its analysis of the environmental consequences of the hunt is neither complete nor accurate.	Comments noted.

Sort #	Commenter Code	Comment	Response
		If NMFS, despite the overwhelming evidence, makes a preliminary determination to issue the MMPA waiver, the Coalition will participate in the process in order to demonstrate conclusively that issuance of the waiver is illegal and that, therefore, the Makah's whale hunt cannot be allowed. Thank you in advance for considering this information. Should you have any questions or require additional information, please contact me at dj@awionline.org or, by telephone, at (609) 601-2875. Sincerely, DJ Schubert Wildlife Biologist cc: Dr. Rebecca Lent, Executive Director, Marine Mammal Commission Attachments: Attachment 1: C. Wold and M. Kearney. 2015. The Legal Effect of Greenland's Unilateral Aboriginal Subsistence Whale Hunt. American University International Law Review. Vol. 30, Issue 3, Article 5. Attachment 2: Lang, A. R., Calambokidis, J., Scordino, J., Pease, V. L., Klimek, A., Burkanov, V. N., Gearin, P., Litovka, D. I., Robertson, K. M., Mate, B. R., Jacobsen, J. K. and Taylor, B. L. 2014. Assessment of genetic structure among eastern North Pacific gray whales on their feeding grounds. Marine Mammal Science, 30(4), 1473–1493. doi:10.1111/mms.12129 Punt, A.E. 2015. An Age Structured Model of Exploring the Conceptual Models Developed for Gray Whales in the North Pacific. SC/SC65b/BRGx. Attachment 4: Øen, E.O. Killing efficiency in the Icelandic fin whale hunt 2014. Report to the Directorate of Fisheries in Iceland, February 19, 2015. Wildlife Management Service-Sweden. Attachment 5: Kuczaj, S. 2007. Considerations of the Effects of Noise on Marine Mammals and other Animals. International Society for Comparative Psychology. Attachment 6: Conservation Council of Hawaii v. United States Attachment 7: United States v. Washington Attachment 8: Bond, N.A., Cronin, M.F., Freeland, H., and Mantua, N. 2015. Causes and impacts of the 2014 warm anomaly in the NE Pacific. Geophysical Research Letters. 42.	
197	Anderson (Green Vegans)_7-31-15	Dear Mr. Stone, Please accept these comments submitted on behalf of Green Vegans | The New Human Ecology, for the 2015 DEIS Regarding the Makah Tribe's Request to Hunt Eastern North Pacific Gray Whales. Green Vegans is a nonprofit 501(c)(3) organization. We will begin with an opening statement and then follow with specific remarks that include new, relevant information from the scientific	The introductory comments numbered 197 through 205 are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		literature we believe should be cited in this DEIS. Please note we are listing citations as they are sourced, so they will not all follow traditional formatting. <u>Opening Statement</u> Green Vegans finds a number of improvements in the 2015 edition of the serial DEIS and earlier Environmental Assessments. However, we must respond to a number of critical areas that include, but are not limited to, the following: • The Northern Puget Sound population of eleven or so gray whales has been effectively ignored throughout the DEIS despite their high fidelity to state waters and their importance to the ecosystem. Alternatives 2, 5, and 6 put them at risk.	
198	Anderson (Green Vegans)_7-31-15	• Whales cannot be killed humanely.	
199	Anderson (Green Vegans)_7-31-15	• Dietary needs and the Needs Statement do not address the need for informed decisions. Adding high fat whale products to a Standard American Diet (SAD) and stating this will cure any number of food-derived health issues is misleading at best. Reforming dietary habits is a challenge in many cultural settings.	
200	Anderson (Green Vegans)_7-31-15	We find it hard to comprehend that the federal government is passively enabling the increase in consumption of whale products containing toxics that will not pass the Washington State health guidelines. We would think this would be prominent in impacts listed under alternatives 2 - 6.	
201	Anderson (Green Vegans)_7-31-15	• The MMPA intent to minimize disturbance and lethal take of marine mammals must determine the lowest level of "takes", including zero, regardless of the IWC quota. The MMPA Waiver process and the DEIS should not use the IWC quota as the baseline for alternatives. This is essential if a Waiver decision is approved.	
202	Anderson (Green Vegans)_7-31-15	• We do not agree with the confounding of the ICRW Schedule definitions of strike and take with the U.S. Whaling Convention Act and the Marine Mammal Protection act.	
203	Anderson (Green Vegans)_7-31-15	• Carrying capacity is discussed without clear conclusions. We've some newer, peer-reviewed publications to add to the discussion.	

Sort #	Commenter Code	Comment	Response
204	Anderson (Green Vegans)_7-31-15	• Climate change and acidification are minimized and seen as being in the future instead of imminent. We have additional data from the scientific literature and ask their inclusion.	
205	Anderson (Green Vegans)_7-31-15	Green Vegans selects Alternative 1: No Action, because it will prevent harm to both gray whales and the Makah people in addition to other reasons in our comments.	
206	Anderson (Green Vegans)_7-31-15	Specific Remarks 1) The Northern Puget Sound gray whales. Unlike the PCFG, these whales do not remain throughout the summer but arrive in March and leave by June 1. Photo identification demonstrates they continue their northward migration after that date and have been identified well to the north of the PCFG thereafter. That they have found a niche in Northern Puget Sound during the migration does not diminish their importance to the NPS ecosystem in and around Possession Sound. With a fidelity return of at least twenty-five years for one whale, they are a biological constant for the ecosystem and a dependable mainstay for the commercial success of the whale watching industry. Yet, Alternative 2, 5 and 6 would allow whaling while the NPS whales are transiting to their seasonal habitat. The loss of one NPS whale out of eleven is unacceptable. The thousands of feeding pit scars attest to their major role in the community of species in this region. This must be stated in the DEIS presentation before decisions are made an alternative chosen.	As described in the DEIS in Subsection 3.4.3.4.1, PCFG Population Structure, these whales "are typically seen only in the spring (especially in northern Puget Sound), are less likely to be seen in multiple years and regions, and likely represent migratory animals (Calambokidis et al. 2002; Calambokidis et al. 2003; Calambokidis et al. 2004a; Calambokidis 2008; Calambokidis et al. 2009a)." They are not recognized as a marine mammal population stock or a feeding aggregation. According to Cascadia Research Collective's website, "The North Puget Sound gray whales, also known as the "Sounders," represent roughly a dozen individual whales, part of the larger population of the Eastern North Pacific gray whales." We will continue to evaluate the PCFG via the SAR process. In any event, if there are a dozen whales showing spring site fidelity in northern Puget Sound, mixed with the larger migrating ENP herd during the spring

Sort #	Commenter Code	Comment	Response
			migration through the hunt area, there would be a very small chance that a tribal hunt of at most 7 strikes would strike one of these 12 whales out of a herd of 27,000.
207	Anderson (Green Vegans)_7-31-15	2) MMPA Section 3; "Definitions (4) The term 'humane' in the context of the taking of a marine mammal means that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved." The failure of the MMPA to reflect today's sensibilities should not lead NOAA/NMFS to accept the obvious suffering of whales as they are killed. There is no reliable way to achieve instantaneous unconsciousness in whaling. Given the MMPA applies to many species of marine mammals, the ability to quickly kill a smaller individual from one species is not as formidable as doing so for a ten ton or larger whale. Regulatory decisions must account for this discrepancy in not being able to prevent immense fear and physical suffering. Killing whales is innately inhumane as lengthy suffering is unavoidable. The approximate eight minutes it took the juvenile gray whale to die at Makah hands in 1999 was deemed by NMFS/NOAA to be a success. What were the criteria? Here is how that suffering unfolded: https://www.youtube.com/watch?v=cGmc1-fbs5U The addition of darting and shoulder guns with penthrite enhancement may or may not shorten the time to death, but the DEIS assumes an average of three explosions inside the gray whale's body will be required. The violence waged by our human species, across cultures, against individuals from other species is so terribly ingrained in us and NOAA/NMFS, that that norm obscures what must change. Our collective human ecologies of violence have gone on long enough. No matter how you try to reduce the suffering, it will remain. There is no practicable way to kill a whale so his or her suffering is equal to that of a sea otter killed by gunshot. The "no action" alternative is the only choice that recognizes killing whales cannot be done humanely.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
208	Anderson (Green Vegans)_7-31-15	3) Dietary Needs and toxics in whale meat. The nutrition profile chart in DEIS Section 3.16 does not support a nutritional necessity of whale edibles. Though there are a few beneficial nutritional differences at the levels proscribed by the tribe's request of four whales annually, this would be overwhelmed by the increased toxic contaminant intake that the Washington State Department of Health will not recommend because of its lack of safety.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.

Sort #	Commenter Code	Comment	Response
		See: Section 3.16 - General nutritional components of whale meat76 and other protein sources are compared in Table 3-46. Nutritional data are from the United States Department of Agriculture National Nutrient Database for Standard Reference (U.S. Department of Agriculture 2011). With the exception of whale oil and blubber, whale products have a similar nutritional profile (e.g., calories, protein, fat, and calcium) as other finfish, shellfish, wild game, and domestic meats. Whale oils and blubber provide a richer source of energy (calories) than other food types listed in Table 3-46, and whale meat has higher levels of iron. Whale oil is a good source of vitamin E (an antioxidant) and whale meat is a good source of selenium, both of which may play a role in protecting against the toxicity of certain seafood contaminants like mercury (Arnold and Middaugh 2004). Overall, however, it is difficult to compare essential nutrients and minerals of whale products directly to other protein sources because the former have not been studied extensively. Marine mammal food products are rich with many of the same nutrients found in commonly consumed seafood products (fish and shellfish), and, in the case of some minerals and vitamins, marine mammal products provide an even richer source. AND However, concentrations for some of these contaminants in whale blubber can be quite high, resulting in quite low "allowable consumption rates." For example, the unweighted average PCB concentration for the 11 gray whale blubber samples in Table 3-47 is 440 µg/kg. While the Washington State Department of Health has not developed screening levels for gray whale blubber, this value - combined with the estimated per capita blubber consumption rates in the Tribe's needs statement (approximately 20-25 grams/day; Renker 2012) and other values applied by the Washington Department of Health (e.g., an 8-oz [227-gram] meal size) - yields a calculated "allowable consumption rate" of 0.43 meals of blubber per month. This level would likely result in a 'no consumption' recommendation by the Washington State Department of Health. The lowest PCB concentration observed in gray whale blubber (137 µg/kg) would yield an allowable consumption rate of 1.34 meals of blubber per month, which would likely result in a recommended maximum of one 8-oz (227 gram) meal per month (D. McBride, Washington State Department of Health, pers. comm., September 30, 2014). While the number of blubber samples is not large and it is possible that PCB concentrations may vary by the area/depth of blubber sampled on each animal, these are the best data available for our analysis. Few measurements of metal concentrations are available for blubber or muscle of gray whales, and	

Sort #	Commenter Code	Comment	Response
		those available are from stranded whales (Mendez et al. 2002; Ruelas-Inzunza and Paez-Osuna 2002; Rueles-Inzunza et al. 2003). Metal concentrations typically are higher in muscle tissue compared to whale blubber... Additional data: Persistent organochlorine pesticides and heavy metals in organs of grey whale from the Bering Sea. Tsigankov, VYu 1 1 Dal'nevostochnyj federal'nyj universitet, ul. Oktyabr'skaya, 27, 690950, Vladivostok Russia; 2012; Transactions of the Pacific Research Fisheries Centre. Vol 170; 202-209. ISSN: 1606-9919 **A needs statement does not trump a toxicological profile that will harm the Makah. Given NEPA is required to consider environmental justice in the impacts of its alternatives, then the agency must choose Alternative 1, no action.**	
209	Anderson (Green Vegans)_7-31-15	4) NOAA/NMFS should take a different approach with the confounding of the ICRW Schedule definitions of "strike" and "take" with the U.S. Whaling Convention Act and the Marine Mammal Protection act. The IWC quota does not specify how many strikes are associated with the Makah hunts. The way the agency is working around "strikes" is perhaps mitigated to an extent by some of the alternatives.	Comments noted. It is unclear what the comment means by "working around 'strikes.'" The comment is correct that the IWC schedule sets a harvest (or "take") limit on gray whales, not a strike limit. The alternatives in the DEIS do set strike limits. It's not clear from this comment why it might be a problem for the alternatives to include strike limits, and to define strike in the same way that strike is defined by the IWC schedule.
210	Anderson (Green Vegans)_7-31-15	The DEIS, as a result, describes alternatives in which there are possible large numbers of strikes in scenarios so complex that the Makah will need "game officials" to make calls on what can and cannot be done. Though the DEIS appears to downplay this, it fails to account for "takes" by harassment as defined by the MMPA) during whale-killing attempts. As noted in the DEIS, there is a clear history of the Makah chasing and harassing gray whales along the shores of the Olympic Peninsula for hours at a time. Why does the NMFS mention that harassment approaches are "takes" under the MMPA (see 2.3.2.2.2 , for instance) and then skip over to the definitions of takes defined by the International Whaling Commission (IWC) and Whaling Convention Act (WCA) when the whole point of this DEIS is to fulfill the requirements of the MMPA? Makah whaling activities cause harassment and displace PCFG gray whales from	The purpose of the DEIS is to analyze potential impacts of alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA, not to explore or resolve legal debates. The DEIS describes the effects of specific activities that would occur under each alternative, regardless of how those activities and effects might be characterized under

Sort #	Commenter Code	Comment	Response
		feeding, socializing, and resting areas and are takes under the MMPA. The NMFS must use the MMPA definition of "take" throughout the DEIS because this is a Waiver to the MMPA.	any particular legal or regulatory regime.
211	Anderson (Green Vegans)_7-31-15	In a related problem, there needs to be a threshold on the number of wounds allowed since there seems to be no evidence presented in the DEIS about the impacts of wounds to the gray whales other than anecdotal comparisons such as to tracking "tags" (swelling). We cited a paper on wound outcomes in gray whales, perhaps in 2005. We cannot find it at this time but more needs to be done in the FEIS to use data about wounds that break the skin. Waiting until a harpoon toggle head enters and then falls out before being cited as a strike does not appear to be supported by the information in the DEIS.	Consistent with these comments, except for the tribe's proposal (Alternative 2), all of the action alternatives count struck and lost (i.e., wounded) whales against the calculated limits on PCFG whales. The commenter does not provide any new information on the impact of wounds on gray whales and the DEIS provides best available information on this issue. If we obtain or review new information regarding the wound issue identified in this comment we will incorporate it into our decisionmaking as appropriate.
212	Anderson (Green Vegans)_7-31-15	5) Climate Change get's too little discussion in the DEIS. The rapid pace and changing ideas of what is to come regarding climate in a complex array of ecosystems that support gray whales should be reason to limit the time length of any permit given under alternatives. Permits, if given, should be for single, not multiple years.	This comment raises the concern that future predictions of gray whale viability are uncertain in the face of global climate change. Alternative 6 of the DEIS limits the term of a waiver to 10 years, which would allow for an assessment of any ongoing effects of climate change on gray whales after a set period of years.
213	Anderson (Green Vegans)_7-31-15	We offer these papers for your consideration to expand on the many variables triggered by climate change and their impacts on Arctic food webs and gray whale prey. We believe there should be many more considerations discussed given their as-not-yet-clear outcomes. Weydmann, A., Soreide, J.E., Kwasniewski, S. and Widdicombe,S. 2012. Influence of CO2-induced acidification on the reproduction of a key Arctic copepod Calanus glacialis. Journal of Experimental Marine Biology and Ecology 428: 39-42. Brown A1, Thatje S. 2015. The effects of changing climate on faunal depth distributions determine winners and losers. Glob Chang Biol. Jan;21(1):173-80. doi: 10.1111/gcb.12680. Epub 2014 Aug 1 A. Yamamoto, M. Kawamiya1, A. Ishida1, Y. Yamanaka1, and S.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. We have examined the cited papers, which do not change the conclusions in the DEIS.

Sort #	Commenter Code	Comment	Response
		Watanabe. 2012. Impact of rapid sea-ice reduction in the Arctic Ocean on the rate of ocean acidification. Biogeosciences, 9, 2365– 2375, 2012. www.biogeosciences.net/9/2365/2012/ doi:10.5194/bg-9-2365-2012	
214	Anderson (Green Vegans)_7-31-15	The DEIS habitually infers the permitting for Makah gray whaling is in the context that ecosystems will not change enough in the short term to impact the decisions in this DEIS/Waiver process. However, that is not something the DEIS should assume. Here is an example why: Mathis, J.T., J.N. Cross, W. Evans, and S.C. Doney. 2015. Ocean acidification in the surface waters of the Pacific-Arctic boundary regions. Oceanography 28(2):122–135, http://dx.doi.org/10.5670/oceanog.2015.36. Popova, E. E., Yool, A., Aksenov, Y., Coward, A. C., and Anderson, T. R.: Regional variability of acidification in the Arctic: a sea of contrasts, Biogeosciences, 11, 293-308, doi:10.5194/bg-11-293-2014, 2014. David C, Lange B, Rabe B, Flores H (2015) Community structure of under-ice fauna in the Eurasian central Arctic Ocean in relation to environmental properties of sea-ice habitats. Mar Ecol Prog Ser 522:15-32 Thomas A. Okey, Hussein M. Alidina, Veronica Lo, Sabine Jessen. 2014. Effects of climate change on Canada's Pacific marine ecosystems: a summary of scientific knowledge. Rev Fish Biol Fisheries (2014) 24:519–559 DOI 10.1007/s11160-014-9342-1 S. Elizabeth Alter et al. 2015. Climate impacts on transocean dispersal and habitat in gray whales from the Pleistocene to 2100. A. Yool, E. E. Popova1, A. C. Coward, D. Berni2, and T. R. Anderson. Climate change and ocean acidification impacts on lower trophic levels and the export of organic carbon to the deep ocean. Biogeosciences, 10, 5831–5854, 2013 www.biogeosciences.net/10/5831/2013/ doi:10.5194/bg-10- 5831-2013	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. We have examined the cited papers, which do not change the conclusions in the DEIS.
215	Anderson (Green Vegans)_7-31-15	6) Section 3.4.3.3.4 - ENP Status, Carrying Capacity, and Related Estimates Comment: The dance between evidence for estimates of much higher populations in the past and the possible differences between carrying capacity then versus now is not settled. The DEIS must not dismiss this because there are conflicting assumptions and data for carrying capacity. The current science reflects the belief that gray whales are dietarily flexible enough to advantage an increase in pelagic foraging opportunities as benthic food sources decline in robustness. We think it important to make distinctions between likely changes closer to shore along those further at sea. Near-shore benthic communities will face possible increases in fresh water from melting glaciers for instance. We offer these studies believing they should be considered and cited in the FEIS. This paper claims there's plenty of prey for gray whales, far more than the current population – M. P. Heide-Jørgensen, K. L. Laidre, D. Litovka, M. Villum Jensen, J.	The DEIS reviews and does not dismiss information regarding possible higher abundance of North Pacific gray whales in the distant past, and explains NMFS's conclusion that the ENP is currently at carrying capacity (Subsection 3.4.3.1.3 Population Exploitation, Protection, and Status). Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale

Sort #	Commenter Code	Comment	Response
		M. Grebmeier, B. I. Sirenko. 2012, Identifying gray whale (Eschrichtius robustus) foraging grounds along the Chukotka Peninsula, Russia, using satellite telemetry. Polar Biol (2012) 35:1035–1045 DOI 10.1007/s00300-011-1151-6 Susan V.Schonberg, JanetT.Clarke, KennethH.Dunton. 2013, Distribution, abundance, biomass and diversity of benthic infauna in the Northeast Chukchi Sea, Alaska: Relation to environmental variables and marine mammals. Deep-Sea Research; II102(2014)144–163 K. H.Dunton, J. M.Grebmeier, J.H.Trefry. 2014. The benthic ecosystem of the northeastern Chukchi Sea: An overview of its unique biogeochemical and biological characteristics. Deep-Sea ResearchII102(2014)1–8 http://www.int-res.com/articles/meps/111/m111p171.pdf	population in the face of climate change and other threats.
216	Anderson (Green Vegans)_7-31-15	7) Comment: Though greatly improved, the DEIS does not do justice to the opposition to Makah whaling proposals at the IWC. It took years of U.S. delegation pressure and hiding under the shadow of the Russian Federation's ASW ongoing request for the Chukotka people. We believe this should be presented clearly as reflected in a Mother Jones report: The IWC's dryly written meeting report speaks volumes about the extent of opposition to the United States' plea: "France... asked how subsistence requirements could arise after 70 years of non-whaling.... The Netherlands expressed concern at the widening of the scope of whaling activities.... The People's Republic of China...regretted that the request was not completely in accordance with the IWC definition of aboriginal subsistence.... Oman asked why the Makah, who had survived without whaling for 70 years, could not continue to survive without whaling.... Australia questioned whether IWC nutritional subsistence criteria had been met.... Chile expressed its doubts.... The People's Republic of China and New Zealand had similar concerns on continuity and need, a position shared by Mexico...." Japan, however, "commended the USA's presentation and expressed understanding of the welfare of the Makah." — Mother Jones | Richard Blow | September/October 1998	DEIS Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah, describes the IWC deliberations that have resulted in the most recent joint requests by the U.S. and Russian Federation. Please also see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
217	Anderson (Green Vegans)_7-31-15	8) Section 2.4.6 reads, In reviewing public comment on the 2008 DEIS, we identified another alternative hunting method not considered in the scoping process or draft EIS. That alternative is the use of an all-motorized hunt. We included this element under Alternative 3 to allow consideration of whether use of an all motorized hunt might expand hunting potential to other times of year and areas farther offshore, might improve the welfare of individual whales by decreasing time to death or the proportion of whales struck and lost, and/or might improve hunter or public safety.	We agree it would be important to monitor a hunt if one is permitted. Real time video monitoring may not be technically feasible but we would explore all options.

Sort #	Commenter Code	Comment	Response
		Comment: If an alternative is chosen that includes off-shore hunting and killing of whales, there must be an unedited, continuous visual and audio documentation created that will readily available for public viewing in real time and for review of all attempted and successful hunting efforts. This level of transparency is essential for public trust and freedom of information without having to ask for it after the fact.	
218	Anderson (Green Vegans)_7-31-15	9) Section 2.4.7 – Alternative Compensation. Comment: This should not be dismissed as an alternative. It is no more speculative than how the tribe will react to one or more of the Alternatives or combinations thereof.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
219	Anderson (Green Vegans)_7-31-15	10) Comment: Alternatives 2 through 6 are dependent on the use identifying marks matched to research photo libraries before most strikes occur. Has this been tested "on the water" in real time in simulated whaling conditions? If not, this must not be the basis for a whaling management plan nor a NOAA/DEIS method for controlling the hunt outcomes and impacts. If yes, can we see the data indicating the likelihood of this working given so much depends on it?	We are not aware of such real-time testing, and agree that this alternative would need to rely on highly distinctive markings (which are not uncommon for certain gray whales).
220	Anderson (Green Vegans)_7-31-15	11) Comment: Just as there is consideration for increasing the impact value for any female member of the PCFG struck / killed and landed, it is important to calculate added value for each PCFG/OR-SVI gray whales based on the number of years they have been re-sighted. This would reflect their value to the ecosystem and support of the PCFG population. For example, a PCFG/OR-SVI whale sighted over five years would have X value more than one sighted for three years.	Comments noted, but we are not aware of a scientific basis for such a sighting-based 'weighting' scheme.
221	Anderson (Green Vegans)_7-31-15	12) Comment: "Harvest" as it is used in the DEIS is a term of humane-washing. Given this is a fact- based exercise about impacts to gray whales and others, we ask that term be replaced with" harpooning" and "shooting" gray whales because this is the accurate description at the core of the DEIS.	The DEIS glossary defines "harvest" as to kill and land a whale. The suggested replacement terms are incomplete for this purpose. The use of the term "harvest" in the DEIS is consistent with terminology used by fish and wildlife management agencies and by the International Whaling Commission in its definition of subsistence use.
222	Anderson (Green Vegans)_7-31-15	**Conclusions** We support Alternative 1, the No-action Alternative that would not authorize a Makah gray whale hunt.	Comments noted.

Sort #	Commenter Code	Comment	Response
		Wrapped around U.S. regulatory structures, the Treaty of Neah Bay and our nations part in the ICRW is a rapidly changing Earth of our own doing. That change is happening so quickly that past agreements and regulatory assumptions are rapidly becoming unable to be adaptive to the changing ecosystems. It is Green Vegans' contention that we stop seeing everything from an anthropocentric interest and move to the biocentric responses Earth requires of us. Imagine what would have happened had we not challenged the Makah proposal to kill gray whales. How many whales from the Pacific Coast Feeding Group would have been killed, how many of the 140 Western Gray whales would the Makah have harmed because of a treaty created in a world and ecosystem that no longer exist biologically? What have we not yet learned and will destroy in our ignorance because of being forced by this treaty to attack whales? The context here is more than a treaty, cultural identities carried from the past, and NMFS ignoring the certainty that they—none of us—control the juggernaut called climate change we together have unleashed. It is about launching yet another volley of violence against this planet already ravaged by 7.3 billion people. Nothing is certain now, not for gray whales, not for us. There are so many of us that Earth now experiences us as a species far more than our respective cultures. The highest purpose of any culture and its human ecology is to adapt to the ecosystem in which it lives. None of us is succeeding in that—not in our various cultures and not as individuals. The NMFS feels constrained by its Congressional mandate and a treaty neither of which is current enough to be adaptive in stopping the increased instability of ecosystems. Tellingly, NMFS is itself under the Department of Commerce. However, that is no reason to minimize in the DEIS the volumes of data about climate change that show how precarious are the ecosystems in which gray whales live. Given the climate change emergency underway and the fear and suffering caused by violent attacks against gray whales, we do not trust or accept a treaty right to harass, displace, harpoon, shoot, and kill gray whales. Like it or not, the Makah tribe is part of a world that has changed in its relationships with ecosystems and individuals from other species including gray whales. Harpoons and penthrite grenades are the last thing we need as cultures to adapt to ecosystems under attack from all of us. It's time to work together and do what Earth requires of us – create new human ecologies that are nonviolent	

Sort #	Commenter Code	Comment	Response
		and do not exploit individuals from other species who have taken to bringing their calves right up to vessels – to be harpooned? On behalf of Green Vegans, we thank you for this opportunity to comment on the Makah DEIS proposal to kill gray whales. Will Anderson, President Green Vegans | The New Human Ecology	
223	Anderson (Green Vegans)_Suppl_8-2-15	**<u>SUPPLEMENT TO:</u> Comments Submitted on the Draft Environmental Impact Statement Regarding the Makah Tribe's Request To Hunt Eastern North Pacific Gray Whales** Sent via Makah2015DEIS.wcr@noaa.gov and Steve.Stone@noaa.com Dear Mr. Stone, Please accept these supplemental comments submitted on behalf of Green Vegans | The New Human Ecology, for the 2015 DEIS Regarding the Makah Tribe's Request to Hunt Eastern North Pacific Gray Whales. We submit additional sources of new information not cited in the DEIS.	These introductory comments are noted.
224	Anderson (Green Vegans)_Suppl_8-2-15	a) In our comments dated 8/31/2015, we noted that carrying capacity for gray whales is discussed without clear conclusions. There is a wait-and-see approach regarding changes in pelagic foraging opportunities versus benthic. Given the rate of change and the complexity of ecosystems and their processes, we note there is a lack of inventorying habitat condition and correlation to importance of use by gray whales. Rather than broad-brushing the Chuckchi and Bering Seas with generalities, a more detailed presentation of their habitat already described by peer-reviewed literature would provide a more accurate indicator of the carrying capacities of specific areas and the total. The FEIS needs added a thorough review of the literature that describes known biological and chemical states and trends of ecosystems used by gray whales. For example, the following paper states in part (abstract) that, "It is likely that the abundant benthic biomass is more than sufficient forage to support the current gray whale population. The use of satellite telemetry in this study quantifies space use and movement patterns of gray whales along the Chukotka coast and identities key feeding areas." Heide-Jørgensen, M. P. et al. 2012 Identifying gray whale (Eschrichtius robustus) foraging grounds along the Chukotka Peninsula, Russia, using satellite telemetry. Polar Biol (2012) 35:1035–1045. DOI 10.1007/s00300-011-1151-6 (http://staff.washington.edu/klaidre/docs/HJetal_2012.pdf)	Subsection 3.3, Marine Habitat and Dependent Species, provides the information the commenter suggests is lacking. Consistent with CEQ regulations at 40 CFR 1502.2(b), there is a sufficient description of marine habitat and species, with citations to the literature, to support the analysis regarding the minor level of impact on these resources. When an impact is likely to be minor, it is not necessary to present the detailed information suggested by the comment.

Sort #	Commenter Code	Comment	Response
		The DEIS must include the best available evidence that indicates a definitive inventory, with specificity, of gray whale foraging areas. There are recent papers that declare biologically important areas (BIA) for cetaceans in the U.S. and the arctic. The areas described therein would be a feasible template for tracking the specifics of K for gray whales by area as well as trends expected for sea ice loss, temperature changes, and other environmental changes that drive prey availability and gray whale viability. See, Clarke, J.T. et al. Biologically Important Areas for Cetaceans Within U.S. Waters – Arctic Region. Aquatic Mammals 2015, 41 (1), 94-103, DOI 10.1578/AM.41.1.2015.94 "In this assessment, we combined published and unpublished information to identify 16 Biologically Important Areas (BIAs) for bowhead whales, gray whales, and belugas in the U.S. Arctic. http://www.researchgate.net/publication/273123704_8._Biologically_Important_Areas_for_Cetaceans_ Within_U.S._Waters_--_Arctic_Region	
225	Anderson (Green Vegans)_Supl_8-2-15	b) Climate change and acidification are minimized in the DEIS and seen as being in the future instead of imminent importance. This overlaps our comments in "a". The value of specificity is demonstrated in, Evans, W. et al. 2013. Calcium carbonate corrosivity in an Alaskan inland sea. Biogeosciences 09/2013; 11(2):365-379. DOI:10.5194/bg-11-365-2014. (http://www.researchgate.net/publication/251437823_Ocean_acidification_and_biologically_induced_seasonality_of_carbonate_mineral_saturation_states_in_the_western_Arctic_Ocean) We are not comforted by assurances that whaling management plans and permitting (for up to several years) will be responsive enough to minimize risk. The lag time between research data acquisition and publishing as well as inadequate and inconsistent funding for research means changes detrimental to gray whale survival can go unnoticed for too long. The DEIS reflects complacency generated by belief some twenty thousand whales is a goal reached because of assumed K. See, Kristin L. Laidre, Harry Stern, Kit M. Kovacs, Lloyd Lowry, Sue E. Moore, Eric V. Regehr, Steven H. Ferguson, Øystein Wiig, Peter Boveng, Robyn P. Angliss, Erik W. Born, Dennis Litovka, Lori Quakenbush, Christian Lydersen, Dag Vongraven, Fernando Ugarte. Arctic marine mammal population status, sea ice habitat loss, and conservation recommendations for the 21st century. Conservation Biology, 2015; DOI: 10.1111/cobi.12474 (http://onlinelibrary.wiley.com/doi/10.1111/cobi.12474/abstract;jsessionid=D26B809F98BE14ABE2DF0 99C6AD266D0.f03t04)	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. We have reviewed these studies, which do not change the conclusions in the DEIS. We will consider whether they warrant inclusion in any final decision-making.

Sort #	Commenter Code	Comment	Response
		And, Bates, W. et al. 2009. Ocean acidification and biologically induced seasonality of carbonate mineral saturation states in the western Arctic Ocean. Journal of Geophysical Research Atmospheres (Impact Factor: 3.44). 01/2009; 114(C11). DOI: 10.1029/2008JC004862	
226	Anderson (Green Vegans)_Suppl_8-2-15	c) In the needs statement (Renker) there is a description of meat and oil yield from gray whales based on historic and research (Rice) accounts. This information is used to demonstrate the number of gray whales needed to fulfill claims of nutritional need (that we addressed in our July 31 comments). Two biases concern us. The first is that historic methods of rendering oil and meat from gray whales are likely less efficient than can be done today. To comply with the "waste" provisions of the ICRW and WCA, the FEIS should examine the rendering methods proposed by the Makah tribe, improve on them, and require reporting of results.	Neither the ICRW nor the WCA contain a 'waste' provision. Agency whaling regulations at 50 CFR 230.2 implementing the WCA define "wasteful manner" as "a method of whaling that is not likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve the whale." However, these regulations do not include standards for processing whale products.
227	Anderson (Green Vegans)_Suppl_8-2-15	There should be also an objective accounting of how "households" actually utilize that taken from gray whales as well as tribal freezer capacity and reliability. My (Will Anderson) concerns result from personal experience in seeing too much Bowhead whale pieces rotting in the sun in a coastal Alaska village decades ago.	Comment noted. We note that the Tribe has addressed the issue of waste in an Ordinance it adopted pursuant its to its waiver application to govern any hunt approved pursuant to its MMPA waiver application.
228	Anderson (Green Vegans)_Suppl_8-2-15	The second bias concerns the estimate of age and weight of landed gray whales. Describing the gray whale killed by the Makah at DEIS 1 – 38: "According to measurements taken by NMFS and tribal observers, the harvested whale was a non- lactating female that [who] (my re-emphasis) measured 30 feet, 5 inches (9.27 meters) long. Fluke width was 7 feet, 4 inches (2.2 m). The whale could not be weighed, but, based on gray whales taken by the Russian harvest of similar length and body condition, it was estimated to weigh approximately 5 to 7 metric tons. Age could not be determined either, but, based on similar lengths of whales taken in the Russian harvest, it was probably more than 2 years old." More recent data should have been used in the DEIS: Sumich, J.L et al. 2013. Revised estimates of foetal and post-natal growth in young gray whales (Eschrichtius robustus). J. CETACEAN RES. MANAGE. 13(2): 89–96, 2013 (https://archive.iwc.int/pages/terms.php?ref=3274&k=&search=%21collection15	We will consider the new information regarding age and weight estimations in any future decision-making.

Sort #	Commenter Code	Comment	Response
		&url=pages%2Fdownload_progress.php%3Fref%3D3274%26ext%3Dpdf%26k%3D%26alternative%3D1722%26search%3D%252 1collection15%26offset%3D0%26archive%3D0%26sort%3DDESC%26order_by%3Drelevance) "...Gompertz growth models are fitted to foetal and post-natal lengths at age, predicting mean lengths at birth in mid-January of 4.7m, 7.9m at weaning and 8.7m at one year. The late foetal diapause in growth of length is not supported by the available data. Two equations were derived for estimating body weights from the linear body dimensions of length and maximum girth. For biomass estimates, two equations based on length alone and on both girth and length are derived. A multiple least squares regression equation fit to 14 measurements of the same whale over 14 months of captive rehabilitation predicts mean body weights at birth of 1,100–1,200kg, 5,100–5,200kg at six months (weaning), and 6,700–6,800kg at one year of age." In the above calculations, the NMFS/DEIS description of the 1999 landed gray whales was up to 7 metric tons and was stated to be more than two years old. Sumich et al. state that, at that weight, the whale would have been a little over one year old (additional factor is they increased the weights by 6% to account for loss of body fluids at time of rendering). The lengths differed in the two calculations by approximately .57 meter (9.27 meters for landed 1999 whale and Sumich 8.7 meters for a one year old). It appears the field observation in Neah Bay in 1999 should be reviewed to see if corrections are necessary, including assumptions of age (it appears she was a younger whale) and by length was likely close to 7 metric tons, not the two tons less. The DEIS must give reasons if it does not both use the more recent Sumich modeling and revise the record for the 1999 Makah gray whale. Weight (calculated yields from gross weight) and age are both critical determinants in both age at time of death and claims for nutritional need—how many whales at what length will produce what amount of oil and fat.	
229	Anderson (Green Vegans)_Suppl_8-2-15	Had we the resources, Green Vegans would have produced far more newer papers that shed light on the confident assertions the DEIS makes about killing four whales and striking and harassing many more whales under alternatives. One example is a paper that describes the decline of fat content in gray whale prey because of climate change / ocean acidification. The papers we ask be included in the FEIS represent a far larger number of papers that must be considered. We do not have the resources to do that, but the obligations of NOAA/NMFS under NEPA and the MMPA have no such constraints.	The DEIS contains the best available information relevant to decision-making under the MMPA and WCA. In subsequent decision-making, we will again review the literature to ensure we have used all relevant information.

Sort #	Commenter Code	Comment	Response
		Thank you for considering these, our supplemental comments on the Draft Environmental Impact Statement Regarding the Makah Tribe's Request To Hunt Eastern North Pacific Gray Whales. Will Anderson, President Green Vegans | The New Human Ecology 206.715.6414 | will@greenvegans.org	
230	Arnold (CA Gray Whale Coalition)_7-30-15	**SUBMISSION BY CALIFORNIA GRAY WHALE COALITION ON MAKAH 2015 DEIS** The California Gray Whale Coalition objects to the DEIS on many grounds. Principally, in spite of an extension granted by NMFS, it is a misguided assumption of the part of the Agency to expect that non government organisations and the concerned public are able to :- a) deal with the sheer complexities of Alternatives suggested in this massive document.	We acknowledge that the DEIS is lengthy and contains some complicated subject matter, which is why we provided additional time for the public to provide comments. We have done our best to portray any complex subject matter by defining terms, following a consistent format when analyzing impacts across alternatives, supplying maps, graphs and summary tables, and using examples as appropriate.
231	Arnold (CA Gray Whale Coalition)_7-30-15	b) deal with the flaws, mistakes, inadequate and mis-information, out of date research and lack of any substantive examination of the cumulative impacts of Navy warfare program, seismic exploration, shipping, coastal development, climate change, ocean acidification as well as a five year whale killing proposal not forgetting the implications inherent in the International Whaling Commission's (IWC) considerations and quotas.	Comments noted.
232	Arnold (CA Gray Whale Coalition)_7-30-15	b) has the capacity to adequately critique these Alternatives and the complex mathematical equations.	We acknowledge that the DEIS is lengthy and contains some complicated subject matter, which is why we provided additional time for the public to provide comments. We have done our best to describe the basis for equations used in the DEIS (e.g., to calculate PCFG mortality limits) and included numerous tables, graphics, footnotes and examples to aid reviewers.
233	Arnold (CA Gray Whale Coalition)_7-30-15	c) adequately object to a proposal which is, in the Coalition's opinion illegal, given that the US government has sought a quota at IWC without any domestic legal approval.	Opinion noted.

Sort #	Commenter Code	Comment	Response
234	Arnold (CA Gray Whale Coalition)_7-30-15	**Objections** to the DEIS also involve :- * It is abundantly clear from the Makah needs statement that the tribe killed many species of whales and that Humpbacks made up almost 50% of the kill. There is absolutely no guarantees in the DEIS that the delisted Humpbacks and other whale species that may be delisted in the future will not be included in any quota. The Treaty provision on which the Makah rely does NOT specify any species of whale thus leaving open the potential to kill Humpbacks. Once a waiver is granted, the precedent is set.	The tribe's waiver request and our analyses are specific to hunting ENP gray whales, not other species. A separate MMPA waiver request and process would be needed to hunt other species and any hunt of large whales would require submission for review at the IWC.
235	Arnold (CA Gray Whale Coalition)_7-30-15	*** questions** as to the amount of taxpayers' funds that have been spent over the years by the Agency in attempting to satisfy the Makah tribe's insistence on questionable Treaty rights.	We do not deem it appropriate or useful to specify the costs associated with conducting the NEPA analysis itself as this falls within our Congressionally authorized work and general appropriation.
236	Arnold (CA Gray Whale Coalition)_7-30-15	*** questions** as to the visible bias of the Agency in previous DEIS's as well as the current one.	The NMFS staff who prepared the 2008 and 2015 DEIS documents were Northwest Region (subsequently West Coast Region) staff who had not been involved with prior agency actions regarding the Makah Tribe's requests to hunt gray whales. Other circumstances were also different from past NMFS' actions on the Tribe's request. In response to the Ninth Circuit decision in *Anderson v. Evans*, staff prepared an EIS rather than an environmental assessment, ensuring a hard look at potential environmental effects. Also in response to *Anderson*, the 2008 and 2015 DEIS used MMPA factors, among others, to inform the evaluation criteria so that agency decision-makers will have the necessary analysis to make MMPA determinations.
237	Arnold (CA Gray Whale	*** questions** how any whaler could possibly distinguish between male and female whales, WNP whales and PCFG whales.	Under DEIS Alternative 4, hunters would need to rely on cataloged

Sort #	Commenter Code	Comment	Response
	Coalition)_7-30-15		photographs of known male PCFG whales prior to making an approach.
238	Arnold (CA Gray Whale Coalition)_7-30-15	* **questions** the lack of any proper process which would allow proper identification of killed or targeted whales.	The DEIS describes how photo-identification would be used to determine whether any landed whale was a PCFG whale (see Subsection 2.3.2.2.3, Limits on Harvesting PCFG Whales).
239	Arnold (CA Gray Whale Coalition)_7-30-15	* **questions** over the astonishing fluidity of abundance estimates, maximum theoretical net productivity, recovery rates.	Estimates can and do change as new information and analytical techniques emerge. NMFS regularly reports on such information in the SAR.
240	Arnold (CA Gray Whale Coalition)_7-30-15	* **questions** over the lack of any objective discussion on the ramifications of a waiver, in particular the possibility of other tribes seeking the same rights	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
241	Arnold (CA Gray Whale Coalition)_7-30-15	* **questions** over the corruption of the IWC Aboriginal Subsistence quota by the US government in seeking a quota which quite obviously does not fulfil any of the IWC definitions of Aboriginal Subsistence Whaling.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
242	Arnold (CA Gray Whale Coalition)_7-30-15	* **questions** over the ramifications of the precedent set at the IWC by the US seeking to corrupt the ABSW definition, thus creating unknown precedents.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
243	Arnold (CA Gray Whale Coalition)_7-30-15	* A lack of objectivity in assessing the very real risks to the WNP and PCFG in allowing the Makah to kill gray whales.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
244	Arnold (CA Gray Whale Coalition)_7-30-15	* Failure to deal with orca predation. Failure to fund orca predation research which provides current estimates of the predation.	DEIS Subsection 3.4.3.1.6 (Natural Mortality) discusses some of the recent research pertaining to killer whale predation on gray whales. NOAA provided funding and/or had scientists co-author some of this research, for example: Matkin et al. (2007; Wade et al. (2007); Weller et al.

Sort #	Commenter Code	Comment	Response
			(2009); and Barrett-Lennard et al. (2011).
245	Arnold (CA Gray Whale Coalition)_7-30-15	* Lack of current population estimates. Given that NMFS is using thermal imagery for the first time to calculate the 2014-2015 population, the importance of baseline data using this imagery cannot be under-estimated.	The DEIS relied on the best available information. We anticipate receiving new population estimates prior to issuing a final EIS.
246	Arnold (CA Gray Whale Coalition)_7-30-15	* Leaving the responsibility of finding resources to adequately and objectively critique the DEIS as a result of the lack of objectivity by the Agency to the public and non government organisations.	We disagree that the agency lacks objectivity. Please see the response to comment #236 above.
247	Arnold (CA Gray Whale Coalition)_7-30-15	* Lack of any focus on the role of Gray whales in the marine ecosystem.	Please refer to DEIS Subsection 3.4.3.1.4 (Feeding Ecology and Role in the Marine Ecosystem).
248	Arnold (CA Gray Whale Coalition)_7-30-15	* Failure to take into account mega impacts of ocean acidification and increasing anoxic zones.	DEIS Subsection 3.4.3.6.11 (Climate Change and Ocean Acidification), Subsection 5.1.3.9 (Climate Change), and Subsection 5.2 (Water Quality) include our assessment of climate change impacts.
249	Arnold (CA Gray Whale Coalition)_7-30-15	**The California Gray Whale Coalition** makes the following comments in relation to the Makah DEIS 2015. The Coalition supports Alternative 1 – no kill -for the following reasons: **<u>Three different Gray Whale populations.</u>** Given the unknowns involved in identifying migrating ENP whales, PCFG whales and Western North Pacific whales, NMFS should be obliged to insist on waivers for all three populations as the risks to the PCFG group and the WNP whales by any Makah kill are unacceptable. The Coalition notes in support of our submission that the 2013 Stock Assessment Report (SAR) states:- "... the Task Force noted that WNP gray whales should be recognized as a population stock under the MMPA and NMFS intends on preparing a separate report for WNP gray whales in 2014. Because the PCFG appears to be a distinct feeding aggregation and may warrant consideration as a distinct stock in the future, separate PBRs are calculated for the PCFG within this report." The NMFS Stock Identification Task Force 2012 detailed the following response from scientists involved.	Comments noted, however the tribe is not seeking a waiver to hunt WNP gray whales and any waiver is specific to an identified stock (which the PCFG is not). Please also see the response to frequent comment # 6 regarding the need for waiver of the take moratorium for WNP and PCFG whales.

Sort #	Commenter Code	Comment	Response
		"Given that some whales identified in the WNP have been observed to migrate through U.S. waters to Mexico, in combination with the 1994 amendments to the MMPA requiring that SARs be published for all stocks of marine mammals in U.S. waters, the Task Force agreed to a high degree (79%) that a separate SAR should be developed in the future for the WNP stock of gray whales. Based on the differences found in mtDNA and nDNA between Sakhalin Island (WNP) and ENP gray whales, the Task Force unanimously (100%) agreed that it qualifies as a population stock under the MMPA and GAMMS guidelines."	
250	Arnold (CA Gray Whale Coalition)_7-30-15	**Legal issues.** The Coalition considers the Makah waiver application as frivolous and vexatious. This issue has tied up NMFS resources, legal resources, courts, scientists, environmental organisations and the concerned public for many years with the same outcome.	Comments noted.
251	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition considers the US Government acted ultra vires in seeking an aboriginal subsistence whaling quota for the Makah tribe at the International Whaling Commission. IWC approval of a quota could jeopardize the integrity of the new EIS planning process by pre-determining the outcome of the domestic planning effort in violation of U.S. federal law. The U.S. has, since 1997, submitted a combined gray whale quota request to the IWC with the Russian Federation in order to gain approval for the joint quota instead of allowing the Makah quota to be voted on independently. As well, the US has failed to advise delegates that under domestic legislation in the US, no waiver has been granted and the request for a quota has no domestic legal authority. Given that the IWC has no mechanism whereby it can investigate or enforce member governments' legislation or legal powers, the US has deliberately mislead the IWC and corrupted the entire process of aboriginal subsistence quotas. "The proposition that an administrative authority must act within the powers conferred upon it by the legislature may well be considered the foundation of Administrative Law. The primary purpose of administrative law, therefore, is to keep the powers of government within their legal bounds, so as to protect the citizens against their abuse." "When an administrative authority acts in contravention of mandatory rules stipulated in the legislation or does not comply with the principles of natural justice, such acts are liable to be rendered invalid on the ground of procedural ultra vires."[1]	We disagree. The Makah request to whale involves international and domestic review. Domestic legal review under the MMPA is separate and distinct from the IWC process. The DEIS describes the concerns of IWC members and the process leading to a combine U.S.-Russian request for a gray whale ASW quota (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). Further the U.S. has kept the IWC apprised of the status of domestic review of the tribe's request. For example, the IWC's 2012 annual report describes the U.S. response to a delegate's inquiry by confirming that its proposal to update catch limits was subject to domestic legal requirements including the evaluation of an EIS under NEPA.

Sort #	Commenter Code	Comment	Response
		[1] H.W.R. Wade & C.F. Forsyth, Administrative Law , [10th Edition, Oxford University Press, 2009 at p.4	
252	Arnold (CA Gray Whale Coalition)_7-30-15	A careful read of the Treaty with the Makah (dated l855) raises important questions as to the interpretation of the relevant provision but also the likelihood of not only an increase in any Gray whale quota if granted to the tribe, but the potential for other whale species to be taken. * See Appendix l from Makah Needs Statement "Article 4. The right of taking fish and of whaling or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States.	Please see the responses to frequent comments # 4 regarding precedential effect of a waiver internationally and domestically and # 8 regarding the Treaty of Neah Bay.
253	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition assumes that if the Makah is granted a waiver, it follows that all citizens of the United States would have the right to kill whales.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
254	Arnold (CA Gray Whale Coalition)_7-30-15	If a waiver is granted to the Makah and efforts to delist the Humpback Whales continue, an interpretation of this ancient treaty could readily be attributed to not only Humpback whales but other whale species as they are delisted. In other words, how would any waiver be made specific to Gray whales and ensure that other species, listed or delisted, were not included in the future?	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
255	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition notes Article 9. "the said Indians acknowledge their dependence on the Government of the United States, and promise to be friendly with all citizens thereof, and they pledge themselves to commit no depredations on the property of such citizens." The waiver represents a depredation of the property of all citizens of the United States and does not constitute a friendly act.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
256	Arnold (CA Gray Whale Coalition)_7-30-15	Further- Article 10 states:- "the above tribe is desirous to exclude from its reservation the use of ardent spirits and to prevent its people from drinking the same, and therefore it is provided that any Indian belonging thereto who shall be guilty of bringing liquor into said reservation, or who drinks liquor, may have his or her proportion of the annuities withheld from him or her for such time as the President may determine." There is nothing in the Treaty which acknowledges the need to kill whales to prevent alcohol consumption or problems associated with alcoholism. If the Makah tribe continue to rely on this very old out-dated Treaty, then the tribe and the Federal Government should take account of all provisions. Thus,	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		tribe members who consume alcohol should be dealt with as set out under Article 10.	
257	Arnold (CA Gray Whale Coalition)_7-30-15	Article 12 states:- " the said tribe agrees to free all slaves now held by its people, and is not to purchase or acquire others hereafter." Selectively taking Article 4 as justification for a return to whaling has no logic. Clearly the entire Treaty is out-date, irrelevant, and cannot be used to support killing whales.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
258	Arnold (CA Gray Whale Coalition)_7-30-15	Given that all citizens in the United States are prohibited from killing whales, permitting the Makah to kill whales is deceptive, dishonest and unacceptable.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
259	Arnold (CA Gray Whale Coalition)_7-30-15	The DEIS states that the tribe wishes to kill whales for ceremonial and subsistence purposes. Once again, the Coalition points out that there is nothing in the Treaty of Neah Bay, no Article or sentence which supports the killing of whales for ceremonial and/or subsistence purposes. Under the Table ES-1, the Coalition notes:- "All action alternatives are likely to have beneficial impacts on traditional knowledge and activities." Like what? What benefits are listed under the Treaty Articles? Does the DEIS suggest that killing whales will enhance traditional knowledge of 1855? **Either NMFS relies on ALL Articles of the Treaty or none. To selectively interpret Article 4 as a legitimate claim to kill whales is baseless.**	Opinion noted. Please also see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
260	Arnold (CA Gray Whale Coalition)_7-30-15	As a signatory of the Bonn Convention, the Coalition asserts that the US is violating its obligations which include:- **RECOGNIZING that the States are and must be the protectors of the migratory species of wild animals that live within or pass through their national jurisdictional boundaries;** **CONVINCED that conservation and effective management of migratory species of wild animals require the concerted action of all States within the national jurisdictional boundaries of which such species spend any part of their life cycle;** The relevant provision dealing with subsistence users cannot be interpreted to include the Makah who have not whaled for almost a century.[2] [2] c) the taking is to accommodate the needs of traditional subsistence users of such species.	The U.S. protects whales and other migratory species under a variety of laws including the WCA, MMPA, ESA, and NEPA and these laws have been followed in the process of reviewing the tribe's request (see DEIS Subsection 1.2, Legal Framework).
261	Arnold (CA Gray Whale	The Coalition expresses concern over the failure of the US government to consult with the Canadian and Mexican governments in relation to the proposed Makah kill. These governments should have input into the proposal. Given that PCFG	The U.S. reports regularly to the 87 other member governments of the IWC (including Mexico). Although

Sort #	Commenter Code	Comment	Response
	Coalition)_7-30-15	whales have been identified and photographed in northern British Columbia, west Vancouver Island, and southern Vancouver Island, the lack of consultation with the Canadian government as to the impacts on these whales must be addressed.	Canada withdrew from the IWC in 1982, the U.S. and Canada cooperate closely on a range of environmental issues and initiatives (e.g., both countries are founding members of the Arctic Council). In addition, information regarding waiver-related actions by the U.S. are readily available to all interested parties via federal portals (e.g., www.regulations.gov) and the media.
262	Arnold (CA Gray Whale Coalition)_7-30-15	**PCFG whales.** The Marine Mammal Institute of Oregon State University sums up the importance of the PCFG whales to the State. "Gray whales are an iconic feature of the Oregon coast, with thousands of tourists coming annually to visit Oregon's beautiful lookouts, headlands and beaches to spot migrating and seasonally resident gray whales. These resident whales do not make the full migration to the Bering or Chukchi seas in Alaska, but rather spend May through October feeding at various coastal locations between northern California and SE Alaska. **Little is known** about how short- term (i.e., water temperatures, upwelling strength, local prey dynamics) and long-term environmental variation (i.e., ENSO cycles, oceanographic regime, long-term productivity) effect the distribution, habitat use, and health of this population of gray whales.[3]" The Coalition strenuously objects to any killing of the PCFG group of whales as any loss will be significant. As well, the measures outlined in the DEIS contain zero protection for these whales substituting measures based on highly questionable PBR estimates. [3] Marine Mammal Institute, Oregon State University	Contrary to the commenter's assertion, all of the action alternatives include provisions designed to provide varying levels of protection for PCFG whales. Please also see the response to frequent comment # 7 regarding calculation and use of PBR for a PCFG mortality limit.
263	Arnold (CA Gray Whale Coalition)_7-30-15	Noting that the 2013 NMFS Stock Assessment Report (the most current available) states:- "not all whales seen within the PCFG area at this time (June l-November 30) will be PCFG whales and some PCFG whales will be found outside of the PCFG area at various times during the year. (IWC 2012)" An ability to identify PCFG is not only difficult but scientific research indicates the Group should be regarded as an independent management unit. This concern is also noted in the 2013 Stock Assessment. "Frasier et al (2011) found significant differences in mtDNA haplotype distributions beteween PCFG and ENP gray whale sequences, in addition to differences in long-term	Comments noted. Based upon the SAR process and best available science, some of which is noted in this comment, NMFS does not recognize the PCFG as a stock. Please also see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		effective population size, and concluded that the PCFG qualifies as a separate management unit under the criteria of Moritz (l994) and Palsboll et al.(2007)." Further research is cited below indicating that the PCFG should not, under any circumstances be killed. "Concern for PCFG whales has arisen in part from recent interest in the resumption of whaling by the Makah Tribe in northwest Washington, an area used by virtually all migrating whales as well as by foraging whales considered part of the PCFG. The current proposal by the Makah Tribe includes time/area restrictions designed to reduce the probability of killing a PCFG whale by focusing hunt effort on the much larger group of whales migrating to/from feeding areas further north. However, PCFG whales are present during the migratory season, and it is impossible to ensure that no PCFG whales would be killed. However, significant differences in estimates of long-term effective size and mtDNA haplotype frequencies were identified between the two groups. These results suggest that matrilineally directed fidelity plays a role in use of this area, and the authors concluded that the PCFG should be recognized as a distinct management unit (Frasier et al. 2011)[4]" And further:- Lang et al. (2011) evaluated biopsy samples from California to southern Vancouver Island in the PCFG and ENP samples from whales sampled north of the Aleutians and also found significant mtDNA halpotype frequency differences. These two studies provide the strongest evidence to date that the Pacific Northwest whales might be sufficiently isolated to allow maternally inherited mtDNA to differ from the overall ENP population.[5] From Cascadia Research :- Although uncertainty remains, our results indicate that it is plausible that the PCFG represents a demographically independent group and suggest that caution should be used when evaluating the potential impacts of the proposed Makah harvest on this group of animals. Continued monitoring of the PCFG, including the collection of additional photographs and genetic samples, is warranted.[6] At the NMFS Stock Identification Workshop in 2012, the following comment was made in the report. "After review of results from photo-identification, genetics, tagging, and other studies within the context of the GAMMS guidelines (NMFS 2005) there remains a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the PCFG. Consequently, the Task Force was unable to provide definitive advice	

Sort #	Commenter Code	Comment	Response
		as to whether the PCFG is a population stock under the MMPA and the GAMMS guidelines." [4] A Lang et al Assessment of genetic structure among eastern North Pacific Gray whales on their feeding ground Marine Mammal Science. April 2014 Vol. 30 [5] John Calambokidis, Jeffrey L. Laake, Amber Klimek, Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1998-2010 (SC/M12/AWMP2-Rev) [6] http://www.cascadiaresearch.org/reports/Lang%20et%20al.%202014%20EGW%20stock%20structure.pdf	
264	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition notes at Section l.0 under Table 1-1 Summary of the Makah's proposed action.. "Cease hunting in any year if the number of harvested whales exceeds an allowable catch bycatch level based on matches in the National Marine Mammal Laboratory's photographic identification catalog for PCFG gray whales (2)." Yet footnote 2 states:- "The National Marine Mammal Catolog does not maintain a comprehensive PCFG catalog. Rather, a non-government organization, Cascadia Research Collective, maintains a database of photographically identified ENP gray whales." So, on the same page, the DEIS contradicts itself and confuses the reader. Clearly, the Table should have stated that there is NO photographic identification catalog is readily available.	Both the footnote to Table 1-1 and Footnote 2 in Subsection 2.3.2.2.3, Limits on Harvesting PCFG Whales, clarify that Cascadia Research Collective manages the photographic database of ENP whales.
265	Arnold (CA Gray Whale Coalition)_7-30-15	It would appear the DEIS is suggesting that any whale killed which may be a PCFG whale would be identified post killing. This is not an action which provides any adequate protection for the PCFG whales.	The action alternatives in the DEIS have various measures aimed at protecting PCFG whales, including season limits, strike limits, and mortality limits. Under these alternatives, whales that are struck and landed would be compared to photo-ID catalogs and allocated as appropriate to the applicable mortality limit. Whales that are struck and lost would be counted as PCFG whales in proportion to their presence in the area
266	Arnold (CA Gray Whale Coalition)_7-30-15	As well, the instruction above which states that hunting must cease in any year " if the number of harvested whales exceeds an allowable bycatch level etc) is entirely unclear. How many "harvested" whales will be killed and identified before "an allowable bycatch level for PCFG " is established. What is the purpose	We understand this comment to refer to Alternative 2, which is the Tribe's proposal. The DEIS definitions note that the "allowable bycatch level" as

Sort #	Commenter Code	Comment	Response
		of using the term " allowable bycatch level"? Surely the PBR is the most relevant calculation. The Coalition notes that the term ABL is consistently introduced through the DEIS, further confusing the public.	defined in the Makah Tribe's waiver request is the number of whales from the PCFG that may be taken incidental to a hunt directed at the migratory portion of the Eastern North Pacific stock of gray whales. Under Alternative 2, the ABL would be calculated using the MMPA's PBR approach but the minimum population estimate would be is calculated from the number of previously seen whales in the Oregon-Southern Vancouver Island survey area.
267	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition is aware that the PCFG whales can remain in the area much longer than indicated in the DEIS. "There are 200-300 "seasonal resident" Gray whales that spend the spring, summer, and fall feeding from California to SE Alaska. In Washington, Gray whales were once thought to be strictly seasonal travelers along the outer coast. We now know that these waters are more than just a stop on a migratory route for some. Two small groups of Grays often turn east into Washington's inland waters, usually during the spring northern migration. Some of them stay all summer. The first group seems to know where the best feeding grounds are. From ten to twelve Grays return most years to northwestern Whidbey Island or southeastern Whidbey Island and Port Susan, Camano Island, feeding on ghost shrimp and tubeworms for several months. In recent years (2008-2009) more gray whales have been reported feeding in more areas around Whidbey Island, including Holmes Harbor and along Whidbey Naval Air Station and Joseph Whidbey State Park near Oak Harbor. They also appear to be arriving earlier - some in January - and staying later - some not leaving until July. "[7] [7] Orca Network	The DEIS reports the best available information on the timing, distribution and abundance of PCFG whales.
268	Arnold (CA Gray Whale Coalition)_7-30-15	**Photographic ID.** Given that not all PCFG whales have been photographed or catalogued and given the complexity of identification detailed below, the ability of Makah whalers to properly identify WNP and PCFG whales is totally inadequate and unacceptable. How would Makah whalers be provided with access to any photographic catalog ? Would they paddle their canoes to shore and drive to Cascadia ? Or the National Marine Mammal Laboratory ? Or visit with Dr Jorge Urban in La Paz on	The comment opines the photographic catalogues are inadequate but does not identify the asserted deficiencies. Nevertheless we note the commenters' concerns and note the following information provided in the Tribe's application and the DEIS addressing these concerns. The Makah

Sort #	Commenter Code	Comment	Response
		the internet ? Or where ? What training would be provided that would allow Makah whalers to photograph and identify whether any PCFG had been killed ? Would NMFS offices in the region carry any catalog ? If so, what photographs would be included ? How recent would they be ? The following excerpts from scientific research teams photographing and identifying WNP whales and PCFG whales gives important descriptions of the skills involved. It is obviously a task for experts. **"Photo-identification surveys** In 2002 and 2003, photographs were taken using 35mm single-lens reflex cameras equipped with telephoto lenses, such as a Canon EOS 630 with a 70-210mm zoom lens, a Canon EOS 3 with a 75-300mm image stabilized zoom lens, and a Nikon N90S with a fixed 300mm f/4 telephoto lens. Both Fuji Neopan 1600 black and white print film and Fuji Provia 100F and 400F color slide film were used for photographing the gray whales. The film was developed commercially and the negatives were sent to the Cascadia Research Collective (CRC) for cataloging and comparing the images with photographs in their collection. In 2005, a Nikon D-70 digital camera with a 70-300mm zoom lens was used to photograph gray whales. The images were transferred to DVDs and sent to the CRC for identification and matching. Gray whales are identified by their natural markings on the left and right sides of the whale, especially in the region around the dorsal hump, an area routinely exposed during the whale's surfacing. The photographs were compared with others taken that year in other locations and with a catalog maintained by CRC of gray whales photographed in previous years and in subsequent years up to 2008 along the west coast of the United States and British Columbia, Canada. At CRC, the photographs were compared by at least two matchers to identify the whale. As a final check on the matching, the relative spacing between the knuckles along the dorsal ridge behind the dorsal hump was measured and compared. The Kodiak gray whale photographic images were also analyzed by the Coastal Ecosystem Research Foundation who discovered additional matches. [8]" And further: - **MATERIALS AND METHODS** Photo-identification images of 181 Sakhalin gray whales (the Sakhalin catalog, hereafter SAK catalog)collected off Sakhalin Island (Area 1 in Fig. 1)	have a marine mammal biologist who regularly surveys for gray whales and provides photographs for inclusion in the catalogs maintained by Cascadia Research Collective and NMML. While the tribe would be responsible for submitting hunt-related digital photographs (e.g., via e-mail or internet drive) for comparison to cataloged whales, it would be NMFS' responsibility to ensure the adequacy of catalogs and to oversee the actual comparisons to determine if photographs or other data (e.g., tissue samples) of hunted whales match with a cataloged whale.

Sort #	Commenter Code	Comment	Response
		between 1994 and 2009 by a joint Russia-U.S. research program (Weller et al. 1999, 2002) were compared to a catalog of 1064 'Pacific Northwest gray whales' (hereafter, PNW catalog) identified by Cascadia Research Collective and collaborators working in U.S. and Canadian waters from California to Alaska (Area 2 in Fig. 1) primarily between 1998 and 2009 (Calambokidis et al. 2002, 2010). The PNW catalog focuses on gray whales that feed during summer and fall in coastal waters between northern California and the Gulf of Alaska, referred to as the Pacific Coast Feeding Group (PCFG), but also includes some migrating whales identified in the spring (March to May) during their northward passage to high-latitude feeding grounds. Of the 181 whales in the SAK catalog, all were represented by a right side dorsal flank image, and 179 were associated with a left-side dorsal flank image. Of the 1064 whales in the PNW catalog, 845 were represented by a right-side dorsal flank image, and 898 were associated with a left-side dorsal flank image. Each individual in the SAK catalog was compared in numerical order to all individuals in the PNW catalog as follows. First, the left-side dorsal flank of each individual in the SAK catalog was compared to the left-side dorsal flank of all individuals in the PNW catalog. This process was then repeated using the right-side dorsal flank and ventral aspect of the tail flukes. Comparisons were made by a single analyst (A.K.), but resulting matches were confirmed by 3 independent researchers skilled in gray whale photo-identification (including A.L.B. and J.C.). Similarly, photo-identification images of 181 whales in the SAK catalog were compared to an online catalog of 2514 'Laguna San Ignacio gray whales' (hereafter, the LSI catalog) identified between 2006 and 2010 in Baja California, Mexico (Area 4 in Fig. 1).This assessment was not comprehensive or systematic, as was the case for the PNW catalog, because the LSI catalog represented a collection of 'annual working catalogs' rather than a single multi-year catalog of known individuals. Thus, the comparison to the SAK catalog reported herein was undertaken opportunistically. A single analyst (A.L.B.) conducted the appraisal, with identified matches confirmed by additional observers (including D.W.W.).[9] Clearly the Makah whalers do not have the expertise to identify photo ID of whales and this lack of expertise and any proper protocol addressing this lack in the DEIS provides further reasons why the Makah waiver must be refused. The Coalition says it would be impossible for any whaler to be able to discern the difference between a living male or female whale out on the water. To suggest that the PBR be equal to one half of the estimated 2.7 for male whales for a female PCFG is ridiculous.	

Sort #	Commenter Code	Comment	Response
		[8] Movements and diet of gray whales (Eschrichtius robustus) off Kodiak Island, Alaska, 2002-2005 (SCMll/AWMP2)Merrill Gosho, Patrick Gearin, Ryan Jenkinson Jeff Laake, Lori Mazzuca, David Kubiak, John Calambokidis, Will Megill, Brian Gisborne, Dawn Goley Christina Tombach James Darling and Volker Deecke. [9] Movement of Gray Whales between the western and eastern north Pacific : Endangered Species Research Vol. 18: 193–199, 2012 Published online September 12 :David Weller et al.	
269	Arnold (CA Gray Whale Coalition)_7-30-15	The PCFG whales would be a prime target for any Makah whalers. Six PCFG whales were recorded at locations either inside (or adjacent to) the Makah Tribal U&A Fishing grounds during five months (Feb., apr., may, sep., Dec.).[10] The IWC Sub-Committee detailed PCFG whales in Makah whaling grounds. "Seven whales had sssm locations either inside the Makah whaling grounds or adjacent to them. two of these whales had continuous ars locations in the Makah tribal area, for 1 and 2.5 days respectively. three whales, while not having ars locations in the Makah area, had sssm locations there on 2, 4 and 5 days respectively. a sixth whale had one ars location near the southern edge of the Makah area. a seventh whale travelled to areas north of the Olympic peninsula, but we did not receive enough tag locations to confirm its occurrence in the Makah area. Locations of tagged whales in or near the Makah tribal area occurred in six months (february, april, may, august, september and December), including those that overlap with migratory timing of eastern North Pacific gray whales (December, february, april and may)."[11] The Navy Marine Species Monitoring Final Report confirms the close proximity of PCFG whales to the shore:- " In conclusion, the whales that were tagged showed very strong preference for shallow, near-shore habitat and never ventured far from shore. They did not appear to use any canyons or underwater features preferentially, and were rarely, if ever, found in the NWTRC more than 19 km from shore."[12] [10] Report of the Workshop on the Rangewide Review of the Population Structure and Status of North Pacific Gray Whales. J cetacean res. manage.l6(Suppl.) 2015 [11] La Jolla Workshop, April 2015 Annex F Report of the Sub-Committee on Bowhead, Right and Gray Whales [12] http://www.navymarinespeciesmonitoring.us/files/9413/8255/0256/ Mate_2013_Final_ report-Offshore_gray_whale_tagging_in_Pacific_NW_1.pdf	Comments noted.
270	Arnold (CA Gray Whale Coalition)_7-30-15	**The PBR Saga.** The Coalition notes that the minimum population of 18,07 in 2011 is used as the Nmin in the 2013 SAR PBR but the maximum theoretical net productivity rate has increased from 3.2% to 6.25% and the one half equation	This comment misinterprets the information in the NMFS SARs. Please see the response to frequent comment # 7 regarding the calculation

Sort #	Commenter Code	Comment	Response
		now set at 3.1%. There is no evidence to support a doubling of the rate of increase of the ENP Gray Whale population as the minimum population remains the same. Furthermore, the suggested doubling of the maximum theoretical net productivity rate is biologically impossible in the time period.	and use of PBR for a PCFG mortality limit for a detailed response.
271	Arnold (CA Gray Whale Coalition)_7-30-15	The default maximum theoretical productivity rate is 0.04 for cetaceans. This value is used as a default in the absence of species specific information. A recovery factor of 0.5 should be used for stock of an indeterminate status. The following excerpts from SARs detail the Rmax from previous assessments in comparison to the significant changes made in the DEIS to the maximum theoretical net productivity rate. The table below is a summary of PBRs l997-2007 **PBR Equations for NMFS Stock Assessment Reports** PBR = Nmin x 0.5Rmax x FR Nmin=min pop. Est. Rmax=maximum theoretical net productivity rate FR = recovery factor 1997 PBR = 432 animals (21,597 x 0.02 x 1.0) 2000 PBR = 575 animals (24,477 x 0.0235 x 1.0) 2002 PBR = 575 animals (24,477 × 0.0235 × 1.0) 2005 PBR = 417 animals (17,752 x 0.0235 x 1.0) 2007 PBR = 417 animals (17,752 x 0.0235 x 1.0). **SAR 2011** **Current Population Trend** The population size of the Eastern North Pacific gray whale stock has been increasing over the past several decades despite an unusual mortality event in 1999 and 2000. The estimated annual rate of increase, based on the unrevised abundance estimates between 1967 and 1988, is 3.3% with a standard error of 0.44% (Buckland et al. 1993); using the revised abundance time series from Laake et al. (2009) leads to an annual rate of increase for that same period of 3.2% with a standard error of 0.5%(Punt and Wade 2010). **CURRENT AND MAXIMUM NET PRODUCTIVITY RATES** The abundance time-series has been revised (Laake et al. 2009), so estimates of productivity rates must be based on the revised time-series. Using abundance data through 2006/07, an analysis of the Eastern North Pacific gray whale population led to an estimate of Rmax of 0.062, with a 90% probability the	This summary of information from NMFS gray whale SARs is noted.

Sort #	Commenter Code	Comment	Response
		value was between 0.032 and 0.088 (Punt and Wade 2010). This estimate came from the best fitting age- and sex-structured model, which was a density-dependent Leslie model including an additional variance term, with females and males modeled separately, that accounted for the mortality event in 1999-2000. NMFS has decided to use the lower 10th percentile of that estimate of 0.040. This has the interpretation that there is a 90% probability that the true value of Rmax is greater than 0.040. Therefore, the Rmax for Eastern North Pacific gray whales is the same as the default value of 0.04. Therefore, NMFS will use an Rmax of 0.040. Number of stranded gray whales recorded along the west coast of North America between 1990 and 2006 (data from Brownell et al. 2007. **POTENTIAL BIOLOGICAL REMOVAL** Under the 1994 reauthorized Marine Mammal Protection Act (MMPA), the potential biological removal (PBR) is defined as the product of the minimum population estimate, one-half the maximum theoretical net productivity rate, and a recovery factor: PBR = NMIN× 0.5RMAX× FR. The recovery factor (FR) for this stock is 1.0, the value for a stock estimated to be above MNPL and therefore not depleted. Thus, for the Eastern North Pacific stock of gray whales, PBR = 360 animals (18,017 × 0.02 × 1.0). **SAR 2013.** "The PBR level for the ENP stock of gray whales is calculated as the minimum population size (l8,017) times one half of the maximum theoretical net population growth rate (1⁄2 x 6.25 = 3.1%) times a recovery factor of l.0 for a stock above MNPL (Punt and Wade 2012) or 559 animals." **2010 SAR** **CURRENT POPULATION TREND** The population size of the Eastern North Pacific gray whale stock has been increasing over the past several decades despite an unusual mortality event in 1999 and 2000. The estimated annual rate of increase, based on the unrevised abundance estimates between 1967 and 1988, is 3.3% with a standard error of 0.44% (Buckland et al. 1993); using the revised abundance time series from Laake et al. (2009) leads to an annual rate of increase for that same period of 3.2% with a standard error of 0.5% (Punt and Wade 2010) **POTENTIAL BIOLOGICAL REMOVAL**	

Sort #	Commenter Code	Comment	Response
		Under the 1994 reauthorized Marine Mammal Protection Act (MMPA), the potential biological removal (PBR) is defined as the product of the minimum population estimate, one-half the maximum theoretical net productivity rate, and a recovery factor: PBR = NMIN x 0.5RHFR. The recovery factor (FR) for this stock is 1.0, the value for a stock estimated to be above MNPL and therefore not depleted. Thus, for the Eastern North Pacific stock of gray whales, PBR = 360 animals (18,017x 0.02 x1.0). Overall, the population increased (nearly doubled in size) over approximately the first 20 years of monitoring, and then has fluctuated for the last 30 years around its average carrying capacity. This is entirely consistent with a population approaching K.	
272	Arnold (CA Gray Whale Coalition)_7-30-15	**THEREFORE..** The PBR for the PCFG should be: - 173 x 0.02 x 0.5 = 1.73 whales As the Coalition believes a recovery factor of 0.1 is more appropriate for this small population with so many unknown factors existing, the PBR for the PCFG should be:- 173 x 0.02 x 0.1 = 0.34 - Based on a recovery rate of 0.1 this figure exceeds the PBR recovery rate of 0.1.	We disagree with the commenter's values for Rmax and the recovery factor used in the PBR equation. The DEIS relied on Carretta et al. (2014), which represented the 2013 gray whale SAR. Since publication of the DEIS, NMFS has released a 2014 SAR (Carretta et al. 2015) and a 2018 SAR (Carretta et al. 2019) for ENP gray whales. The 2013, 2014, and 2018 SARs all use the same Rmax for the PCFG as for the ENP as a whole, because the PCFG is not recognized as a separate stock and is part of the larger ENP. The SARs also use a recovery factor of 0.5 based on uncertainty regarding stock structure and internal versus external recruitment levels. During completion of the 2013, 2014, and 2018 SARs, there were no suggestions from the Scientific Review Group, the Marine Mammal Commission, or public reviewers, that the recovery factor should be 0.1, as suggested by this comment, nor does the commenter provide any analysis to support the

Sort #	Commenter Code	Comment	Response
			use of such a recovery factor. The most recent SAR (2018 SAR, Carretta et al. 2019) contains the best available information pertaining to PBR levels for ENP gray whales, including the PCFG. That SAR states "The potential biological removal (PBR) level for PCFG gray whales is calculated as the minimum population size (227 animals), times one half the maximum theoretical net population growth rate (½ x 6.2% = 3.1%), times a recovery factor of 0.5 (for a population of unknown status), resulting in a PBR of 3.5 animals per year. Use of the recovery factor of 0.5 for PCFG gray whales, rather than 1.0 used for ENP gray whales, is based on uncertainty regarding stock structure and guidelines for preparing marine mammal stock assessments which state that “Recovery factors of 1.0 for stocks of unknown status should be reserved for cases where there is assurance that Nmin, Rmax, and the kill are unbiased and where the stock structure is unequivocal” (NMFS 2005, Weller et al. 2013). Given uncertainties in the external versus internal recruitment levels of PCFG whales, the equivocal nature of the stock structure, and the small estimated population size of the PCFG, NMFS will continue to use the default recovery factor of 0.5 for PCFG gray whales."

Sort #	Commenter Code	Comment	Response
273	Arnold (CA Gray Whale Coalition)_7-30-15	The Coalition notes that although the SAR 2013 states: " that total ship strike serious injury and mortality of gray whales observed in the PCFG range and season during this same period is 0.52 or 0.2 whales per year. The total annual human caused mortality and serious injury of PCFG gray whales during the period 2007 to 2011 from commercial fisheries (0.15/yr), ship strikes, (0.1/yr) and illegal hunts (0.2/yr) totals 0.45 annual. This does not exceed the PBR level of 2.7 whales for this population." This statement is contradicted by the following analysis. " The results of the analysis were summarised in Table 2 of Scordino and Mate (2012) with estimated annual human-caused mortality (bycatch and ship strike combined) of 1.845 PCFG whales (analysis assumed California whales in summer were PCFG whales) and 4.555 ENP/WFG whales.[13]" The number of ship strikes is also contradicted by Washington Department of Fish & Wildlife's 2012 Annual Report. "Reports of deaths from ship strikes average about 1-2 per year, although this is likely an under-estimate. " Strandings are also under-reported. Washington Department of Fish & Wildlife's 2012 Annual Report states: "Strandings of gray whales are more common than for any other large whale in Washington and Oregon (Norman et al. 2004), with an average of 4.7 (range of 2 to 11) individuals per year in Washington during the past decade (NOAA Fisheries, unpublished data). Three strandings of gray whales occurred in Washington in 2012 (NOAA Fisheries, unpublished data)." These levels of strandings and ship strikes are not reported in the most current SAR or the DEIS and obviously make a significant difference in calculating the PBR ensuring a zero result. [13] IWC SC66a 8 Report of the 2nd Workshop on the Range Wide Review of the population structure and status of North Pacific Gray Whales.	The WDFW report cited in this comment does not provide data or a citation for the assertion regarding 1-2 deaths from ship strikes per year. The Scordino and Mate (2012) analysis cited in the comments relies on different assumptions and a much longer time period than what is employed in the SAR. The SAR notes that "NMFS uses guidance from previous serious injury workshops, expert opinion, and analysis of historic injury cases to distinguish serious from non-serious injury" and acknowledges that "[a]dditional mortality from ship strikes probably goes unreported because the whales either do not strand or do not have obvious signs of trauma." If the agency were to determine that corrections should be made to estimates of human-caused mortality then we would expect that to be conveyed in the SAR and subjected to peer review (e.g., by the Scientific Review Group) and public comment.
274	Arnold (CA Gray Whale Coalition)_7-30-15	**WNP Gray Whales** " If the recovery factor for calculating PBR is set to 0.1, and discounting the estimate for the proportion of the population that may be migrating through U.S. waters and the proportion of time (months out of a year) they are in U.S waters, then the 5-year PBR estimate is between 0.1 and 0.6 animals, depending on different assumptions about the amount of mixing between the WNP and ENP. Thus, if a WNP whale were to be struck during the 5-year period, PBR would be exceeded."[14] **NOTING**	Comments noted.

Sort #	Commenter Code	Comment	Response
		The western gray whale is listed as critically endangered, as designated by the IUCN; the most recent estimate of its population size is N = 179 for the age 1+ population (Cooke et al., 2014; IUCN 2014) **NOTING** Additionally, at least 12 members of the Western North Pacific stock have been detected visiting waters from off Vancouver Island to Mexico since 2004 (Mate et al. 2011, Weller et al. 2012 [14] NMFS Stock Identification Task Force 2012	
275	Arnold (CA Gray Whale Coalition)_7-30-15	**ORCA PREDATION.** As any studies on orca predation have not been funded for some years, it is impossible to determine the current extent of mortalities. Given the number of calves in the last season, predation is likely to be high. Climate change impacts are driving the Gray Whales further north seeking prey and anecdotal evidence indicates that transient orcas are pursuing the whales into new habitat. **SWFSC WEBSITE.** "Preliminary estimates have suggested that predation by mammal-eating "transient" killer whales may be responsible for mortalities constituting up to 35% of the average annual calf production of California Gray Whales (Barrett-Lennard et al. 2005), but there is substantial uncertainty about assumptions underpinning this estimate. Nonetheless, it is clear that if the "transient" killer whale population continues to increase in the eastern Pacific (Ford et al. 2007), the potential for impact on gray whales will also increase.	DEIS Subsection 3.4.3.1.6 (Natural Mortality) discusses some of the recent research pertaining to killer whale predation on gray whales. NOAA provided funding and/or had scientists co-author some of this research, for example: Matkin et al. (2007; Wade et al. (2007); Weller et al. (2009); and Barrett-Lennard et al. (2011).
276	Arnold (CA Gray Whale Coalition)_7-30-15	**CLIMATE CHANGE.** The 2013 SAR states that: "ocean acidification could reduce the abundance of shell-forming organisms (Fabry et al. 2008, Hall-Spencer et al. 2008), many of which are important in the gray whales' diet (Nerini l984, Moore and Huntington 2008). Ocean acidity and the exponential increase in anoxic zones pose significant threats to the whales. Over the next five years of the proposed kill, the likelihood of gray whale habitat and prey experiencing major changes is significant. **<u>APPENDIX l – From Makah Needs Statement</u>** Using a very conservative estimate the five whales caught at Nootka Sound" would have provided between 16.25 and 37.5 metric tons of blubber, and could have provided a similar amount of meat, depending on whether or not the	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. Comments summarizing information from the Makah Needs Statement are noted.

Sort #	Commenter Code	Comment	Response
		California gray or the larger humpback whale was taken" (Huelsbeck 1988_b:3).This huge quantity of meat and blubber could have provided between 32.5 and 150 kg.of edible whale product per person for a village with a population of 500 individuals (Huelsbeck 1988b:4). Certainly the number of whales taken by all Makah crews varied from year to year. A minimum of 67 whales were "represented by the bones recovered from the late prehistoric level" at Ozette (Huelsbeck 1988a:7), constituting a huge quantity of food products and raw material. Based on historic documents, Huelsbeck estimates that whalers of the Yuquot band,a nu.ca.nu.=group, "would have averaged 5 whales per year"(1988:157). Densmore reports a much higher success rate for historic Makah whale hunters. "In old times the average catch for a whaler was one or two whales a year, but a man often caught four and occasionally five in a season" (1939:63). Wilcox (1895:20) provides a more conservative appraisal of the Makah whale hunt for the years 1889-1892. His figures indicate that the Makah Tribe averaged 5.5 whales per year (as cited in Huelsbeck 1988:152) at a time when the cetacean population had already been severely impacted by other, non-Makah whaling interests. Makah whale hunting capitalized on the annual northerly migration of the gray whale, and the availability of the humpback in their waters. Archeological data corroborate Makah oral history in this regard. In the Ozette Collection, 50.51% of the whale bones identifiable by species were that of the gray, while another 46.51% came from the humpback (Huelsbeck 1988a:4). The remainder of the sample contained finback, right, sperm and killer whales. Huelsbeck interprets the archaeological and ethnohistorical data to indicate that the finback and right whales were hunted from time to time, while the sperm and killer whales "probably represent drift whales" (1988a:6), although some Makah families have oral traditions which involve hunting these species.	
277	Arnold (CA Gray Whale Coalition)_7-30-15	**CONCLUSION** **The California Gray Whale Coalition opposes any slaughter of the Gray Whale by the Makah Tribe and expresses its concern over the poor quality of the DEIS, its length and complexity which do not serve the rights of the public who oppose an unnecessary slaughter of majestic whales.**	Opposition noted. The purpose of an EIS is to develop information for the decision-maker and the public, in particular information about the difference in impacts on the human environment between the proposed action and the alternatives, including no action. We acknowledge that the DEIS is lengthy

Sort #	Commenter Code	Comment	Response
			and contains some complicated subject matter, which is why we provided additional time for the public to provide comments. The commenter does not identify which DEIS elements they consider to be of poor quality.
278	Arnold (CA Gray Whale Coalition)_7-30-15	**Any precedent set by granting a waiver will have ramifications at the IWC, with other tribes and almost certainly lead to future requests for waivers for Humpbacks and other species.** **Sue Arnold** **CEO** **California Gray Whale Coalition** **Palo Alto CA** **7/30/2015**	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
279	e_Abels_7-26-15	**I firmly believe there should be no whaling at all.** **Climate Change:** As you know phytoplankton is one of the first steps in the food chain of the ocean. As NOAA states there was a large die off in Antarctica due to the decrease in general health of oceans. Pelagic species depend on water temperatures and were profoundly affected by El Nino and La Nina which was characterized by increased water temperatures. During that time there was an "unusual mortality event" in gray whales. Most looked like it was due to "starvation related to climatically based decline in prey availability.." NOAA further states that "regional climate can have a dramatic affects on its flow (current). Currents affect productivity." El Nino with increased water temperatures and decreased productivity 1997-1998 "profoundly affected the productivity and marine ecology of the region". In an article Ocean Warming's effect on Phytoplankton/NASA satellite Data Show How Global Climate Change Hurts Marine Food Chain by Jane Kay, "Decrease phytoplankton consume less CO2, aggravating a cycle that can lead to even more warming." The EPA website shows NOAA data that ocean temperatures have steadily increased and "will continue". Temperatures have been highest in last 30 years than ever before. One graph shows temperatures increased 0.5-1 degrees on the West Coast from 1901-2014. During the same time frame in the Bering Sea an increase of 1.5-2 degrees. National Geographic article by Christine	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		Dell'Amore- "Since 1970's, the ice has retreated by 12% per decade worsening after 2007, according to NASA. May 2014 represented the third lowest extent of sea ice during that month in the satellite record, according to the National Snow and Ice Data Center." "Ice loss is accelerated in the Arctic because of a phenomenon known as the feedback loop: Thin ice is less reflective than thick ice, allowing more sunlight to be absorbed by the ocean, which in turn weakens the ice and warms the ocean even more, NASA says." National Snow and Ice Data Center states, "Arctic sea ice extent for June 2015 was third lowest in the satellite record. June snow cover for the Northern Hemisphere was the second lowest on record...." "Ice extent remains below average in the Barents Sea as well as in the Chukchi Sea continuing the pattern seen in May. Air temperatures were above average over much of the Arctic Ocean (2-3 degrees). June snow cover was especially low over Alaska and Western Canada due to changes in the jet stream." U.S. Geological Service Ice Projections: mid to late 21st century Chukchi Sea will be ice free 5 months of the year and the Bering Sea will be ice free 8.5 months of the year. The DEIS states that grays are opportunistic feeders, but with a decrease or elimination of one food source means more competition for remaining food resources for other species. The DEIS refers to the grays increase diet of small crustaceans. It also states, "the increase acidification cause changes in abundance and types of shell-forming organisms- important part of grays diet." In the DEIS, "Organisms will continue to live in the oceans wherever nutrients and light are available, even under conditions arising from ocean acidification. However, from the data available, it is not known if organisms at the various levels in the food web will be able to adapt or if one species will replace another. It is also not possible to predict what impacts this will have on the community structure and ultimately if it will affect the services that the ecosystems provide. Without significant action to reduce CO2 emissions into the atmosphere, this may mean that there will be no place in the future oceans for many of the species and ecosystems that we know today. This is especially likely for some calcifying organisms." The DEIS states that increased ocean acidification has an impact on ocean noise resulting in a decrease in sound absorption resulting in a "noisier" ocean. Decreasing sea ice will likely increase human activity in the arctic resulting in more noise in their feeding ground. As NOAA states grays are sensitive to sounds associated with oil and gas exploration. NOAA also states this increase in activity	

Sort #	Commenter Code	Comment	Response
		"means more oil spills and ship strikes" in their feeding grounds. Oil will also kill their prey species. The one thing that struck me repeatedly in reading the DEIS, other government websites and news articles was 4 little words "from the data available". Warming oceans, shrinking ice and ocean acidification pose great and immediate threats to not only gray whales, but the ocean itself. You state in the DEIS the grays have changed their feeding ground from the Bering Sea to the Chukchi Sea. Where do they go when that area can't support them? The DEIS also speculates that with the shrinking ice the grays could repopulate the Atlantic Ocean. If they do make that move what does that mean for the population in the Pacific? NOAA has to know with all the fires in the West and no change in human behavior these next few years will probably demonstrate an increase in ocean temperatures. Given the clear unknowns here that even NOAA demonstrates I think it would be short sighted and dangerous to allow the killing of any whales, but particularly the greys since their feeding grounds are in the Arctic. It also seems that much more research is needed on the health of the ocean and it's food chain. A side note is, given the incredibly small population of bowhead whales, how can you possibly say it is ok to hunt them?? Whales can't change their behaviors, diet or where they live. Humans can change their behaviors, adapt to a changing environment and evolve! Sometimes they just need a nudge in the right direction.	
280	e_Abels_7-26-15	**Economic Impact:** The DEIS quotes the Makah as stating their hotel bookings increased during the whale hunt. Clallam County also saw an increased activity during the whale hunt season. Also the DEIS states that it was due to reporters and protesters. IT WAS NOT TOURISM. People avoided the area due to the whaling. Webster defines tourism as: "the practice of traveling for recreation, the activity of traveling to a place for pleasure." None of us were there for pleasure I can tell you that!!! You can't use this "boost in tourism during the hunt" as your argument!! Especially, when NOAA themselves say the uptick was due to reporters and protesters. Delete this part of your argument. The DEIS states that there were a "few" people there to observe the hunt. When whale watching is a billion dollar industry, can you seriously use this as part of your argument???? People want to see live happy whales, not whales being repeatedly harpooned and shot.	The DEIS does not attempt to make arguments but to present and analyze facts. While the comment takes issue with the inclusion of reporters and protestors as "visitors" under the analysis of economic impacts from tourism, it does not take issue with the data provided in the DEIS regarding economic impacts from those visitors.

Sort #	Commenter Code	Comment	Response
281	e_Abels_7-26-15	You also state the whale was shot twice and died. BULL! We were there. The whale was harpooned several times and then shot at repeatedly. Not humane, not quick and nobody wanted to see that.	DEIS Subsection 1.4.2 (Summary of Recent Makah Whaling - 1998 through 2014) recounts the events associated with the gray whale killed by Makah hunters in 1999. That description relies on a report by a NMFS observer/biologist (Gosho 1999) and describes that the whale was subjected to three harpoon throws and four rifle shots (two of which missed). The commenter provides no additional information to support the assertion in this comment.
282	e_Abels_7-26-15	The DEIS also stated that people were disgusted with the news stations for showing the footage on TV. Again, if people were complaining about seeing it on TV how can you argue that people would show up to see it in person????? The DEIS states that visiting and fishing permits in Neah Bay increased from 6405-10,678 from 2007-2011. Can I point out the fact that there was no sanctioned whaling then?? The DEIS states "Many people travel to the coast to watch the annual migration of California Gray Whales," Yes, at La Push where they have a welcoming ceremony for the whales and show the whales respect. The DEIS states the attractions in Neah Bay are: Makah Museum, Sport fishing and guided tours, vehicle sightseeing tours, beach activities, camping (attendance 2341 in 1999 7206 in 2011 again no whaling), hiking is popular for wildlife viewing (live happy wildlife not wildlife being tortured and killed).." Can you reasonably argue that these activities won't be affected by whaling? Whaling itself will be a deterrent, but the collateral effect of protesters will make people think again about going out to Neah Bay. The DEIS states that tourism accounts directly for 8% of the employment. What is the indirect employment from tourism? Sport fishing is a big part of the Makah tourism income. "Sport fishing mostly offshore in whale hunt zone." The DEIS states that it would be infrequent brief interruptions to the sports fishermen. These disruptions may be enough to encourage them to go elsewhere.	The DEIS does not assert that whaling would have no impacts on the activities identified in this comment but instead reports that all of the action alternatives are likely to have a mix of beneficial and adverse impacts on tourism and on-scene and media observers. Section 4 of the DEIS notes that "[g]iven the likely influx of visitors coming to Neah Bay to observe, protest, or report on the hunt, or to participate in tribal ceremonies and celebrations, it is reasonable to expect there would be a short-term increase in tourist-related business activity associated with these visitors. Any short-term effect is likely to be minor, and may diminish as more hunts occur" and that "[o]ver the long term, there is no information suggesting that the hunts in 1999 and 2000 had any lasting effect on tourism in Clallam County or Neah Bay. Thus, while a whale hunt might attract visitors to

Sort #	Commenter Code	Comment	Response
			the Neah Bay area, it is likely that any positive effect would be short-term and minor."
283	e_Abels_7-26-15	The DEIS states that the cost of law enforcement was $91,670 PER DAY including the Coast Guard. Why are taxpayers being burdened with the cost of the Makah's hunt???? Where is the cost of NOAA going through litigation and doing this DEIS?? These tax dollars would be better spent elsewhere. These costs should be paid by the Makah. They want to kill whales, let them pay for it. No taxpayer funded whale hunts.	We do not deem it appropriate or useful to specify the costs associated with NMFS conduct of its normal business as this falls within our Congressionally authorized work and general appropriation.
284	e_Abels_7-26-15	The DEIS states "fluctuations in the reservation's natural resources, commercial fishing, tourism and sport fishing continue to present challenges to the Tribe's ability to ensure reliable incomes.." First this speaks to their inability to manage their resources. There are no deer on the reservation, because they killed them all without allowing the population to recover. They logged their land with reckless abandon. Whaling isn't going to improve any of these challenges and they can't be trusted to manage their whaling activities. They proved that when they had an unauthorized hunt that killed, likely, a resident whale since they killed it in the Strait. It would be interesting to compare tourism to La Push against tourism in Neah Bay. One pro whale the other pro whaling. I can say that all the people I know who go to the Olympic Peninsula I give them the same speech, "You will love the Hoh Rainforest and if you want ocean and whales go to La Push. Stay out of Neah Bay."	Comments noted.
285	e_Abels_7-26-15	**False Claims and Inaccuracies:** The DEIS quotes Keith Hunter (not a Makah tribal member), "all dissent regarding whaling was healed the day the whale was killed." Where do I begin? Alberta Thompson was a courageous and honorable Makah Elder. I will always have great respect for her. She frequently told us how she was threatened and bullied while on the reservation. The day the whale was killed there was "no opposition by tribal members" because Alberta was thrown off the reservation and forced to live elsewhere. Many other Makah members came to us and discussed their opposition to the hunt, but were intimidated into silence. One afternoon staying at Snow Creek, a Makah member stood on an overlook above the campground and fired their .22 over our campers. The police were called and the shell casings were found. At the public hearing in Port Angeles several activists were threatened. My impression is that the pro whaling faction can be pretty intimidating.	Comments noted.

Sort #	Commenter Code	Comment	Response
286	e_Abels_7-26-15	The DEIS states that many tribes support the Makah. They support their "right" not whaling. Many tribes asked them to not go whaling.	The comment provides no evidence to support the assertion made.
287	e_Abels_7-26-15	The DEIS blames "antiwhaling activists for targeting Muckleshoot, Puyallup and Tulalip tribes for supporting the Makah hunt." Once and for all this was a protest about the action of whaling, not against the Makah. I was one of the many protesters who was in the area regularly and involved regularly. There was 1 person who suggested going after tribal casinos. It was immediately shot down because we were about stopping the action of whaling. Going after other tribes or their assets was inappropriate, unnecessary and counterproductive. This person was separated from the antiwhaling community. The DEIS also blames the antiwhaling activists for death threats to a tribal school?? This is news to me. The DEIS can't hold the antiwhaling activists accountable for all the wingnuts in society. So don't paint us with the same brush. This does speak to the "negative social affects" the hunt has had and will have. The antiwhaling protesters went to great lengths to monitor and censor words and actions on our side. To be respectful even in the face of some very harsh words and physical threats. We have no control over other members of society who do have inappropriate thoughts and decide to express them.	Comments noted. The discussion provided in the DEIS is based on a Seattle Times article by Janet Burkitt (1999) titled "Sound Tribes Feel the Impact of the Hunt" which noted that "Yesterday, the Puyallup Tribe's Chief Leschi School was evacuated after an unidentified caller claimed that a bomb had been planted there in retaliation for the tribe's support of the Makahs' whale hunt."
288	e_Abels_7-26-15	The only racism I witnessed was when I was standing on the road protesting near Neah Bay. Multiple youth would drive by and yell, "White people smell like wet chickens!" I'm sure it was an attempt to bait someone into saying something. They were disappointed when we waved and smiled. I personally always found that statement funny. Cluck Cluck!	Comments noted.
289	e_Abels_7-26-15	Another misrepresentation was that the Makah stayed and butchered the whale that they killed. We have video of NMFS and Inuit members butchering the whale on the beach. You can hear them ask, "Where are the Makah?" If this was a ceremonial/cultural hunt, why did they leave and why were Makah youth doing backflips off the dead whale. Their ancestors showed more respect to the whales that were sacrificed to aid in their survival.	We disagree with the commenter's assertion that we misrepresented the butchering of the whale killed in the 1999 hunt; the DEIS notes the following: "The whale was butchered following tribal ceremonies" "Tribal members removed almost all edible portions of the meat and blubber from the whale by midnight"

Sort #	Commenter Code	Comment	Response
			"Tribal members flensed small portions of meat the next day to prepare the skeleton for a museum display" "Tribal members consumed the meat and blubber during tribal ceremonies" Subsection 1.4.2 Summary of Recent Makah Whaling — 1998 through 2014
290	e_Abels_7-26-15	**International Impact:** In the DEIS the only argument against the precedent setting effect of the Makah hunt to Japan's proposed coastal/cultural whaling was that if they haven't done it yet they aren't going to. Really?? Did it cross your minds at any point that maybe they are waiting for all the litigation to settle to see where it all shakes out? I found it interesting the day the Makah killed the whale that there were multiple cars heading to Neah Bay with Japanese passengers.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
291	e_Abels_7-26-15	Given the Makah were offered money by Japan to kill whales and FOIA documents showing they wanted a processing plant to sell the whale meet, there is more to this than NOAA appears ready to disclose (or admit to).	The comment provides no evidence to support the assertions made. Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
292	e_Abels_7-26-15	It is note worthy that the only way the Makah could get a quota was not on their own merits, but only if they were shackled to the bowhead quota. Also, outside the IWC meetings and behind closed doors. Interesting. 80 year absence in whaling is hard to argue being so necessary to their subsistence.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
293	e_Abels_7-26-15	**NOAA/NMFS bias:** There is an inherent bias by NOAA/NMFS towards the Makah. FOIA documents demonstrated that NOAA gave the EA to the Makah first to edit, change the science and then put out for public comment. This bias was a pivotal argument in our lawsuit. I look at NMFS in Neah Bay as having Stockholm	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
		Syndrome. They only hear one side of the argument repeatedly over a protracted period of time and they start to believe it and accept it as fact. It's human nature, you can't avoid it. I look at NOAA as the Republican Party. If you tell a lie often enough it starts to sound true. NOAA repeatedly goes to the IWC and argues on behalf of the Makah to obtain a quota. So if NOAA/NMFS argue on behalf of the Makah and change the science for the Makah then you believe it and agree with it. So any outside argument against it will be automatically dismissed. It was interesting that the Makah (and non-Makah) who favor whaling are quoted in the DEIS, but no quotes from the antiwhaling community and sadly Alberta passed away so her voice is silent. You will probably argue that this whole DEIS was because of the antiwhaling activists. Our perspective was never put in the DEIS, especially, with regards to the criticisms and accusations against the antiwhaling activists. We weren't given equal time. We were also misrepresented in the DEIS and accused of things we didn't do. Again, demonstrates bias.	
294	e_Abels_7-26-15	**Some final thoughts:** In 2000 I had several Congressmen and Senators, local and federal, who were willing to cede Makah traditional land back to the Makah in exchange for not whaling. There would have been no amendments to their Treaty, just an agreement to not whale. The Makah just had to say yes and the deal would have gone to the appropriate committees to be finalized. Assistance was offered to the Makah repeatedly to start ecotourism and to start a whale watching operation which, as stated in the DEIS, is a $2 billion industry. We offered many ideas to promote the Makah and increase tourism. If the Makah had offered a whale watching trip that incorporated a "mock" whale hunt and ceremony, I would be all over that. Take the canoe out and throw a non-lethal harpoon at the whale then wish it well on its journey, I would pay good money to see that!! The DEIS speaks to the Makah's continued challenges for reliable income. First, welcome to our crappy economy. Second, whaling isn't going to help that. Third, the antiwhaling activists stand at the ready to help the Makah if they abandon whaling.	This comment makes factual assertions but does not provide supporting evidence that would allow us to consider the information asserted. Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
295	e_Abels_7-26-15	Given the changing climate and not knowing what happens next I feel it's a bad idea to hunt whales. The great whales were on the brink of extinction due to human hunting and now I fear because of how we treat our environment. When I repeatedly see "from the data available" it tells me that far more research is needed. In medicine they say rule number one, "is first do no harm". NOAA needs to embrace that philosophy.	Comments noted.

Sort #	Commenter Code	Comment	Response
296	e_Abels_7-26-15	In 1979 Congress found, “marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic.” Congressional Record, V. 147, Pt. 9, June 26, 2001 to July 16 2001 refers to whales as “among the most intelligent animals on Earth, and they play an important role in the marine ecosystem...The right policy is to protect whales around the globe....” The link below is a great example of the intellect of whales: http://www.goodhousekeeping.com/life/a33456/beluga-whale-boy-funny-video/	Comments noted.
297	e_Abels_7-26-15	I’ve been to the breeding lagoons in San Ignacio. We were in a small boat, shut off the engine to float and watch whales. It wasn’t long that we were approached by a mother and calf. The calf wanted to stay away, but the mother nudged the whale towards the humans. Of course, we were quite animated in our excitement. The mother rolled on her side and watched the goofy humans go nuts over the calf. The calf seemed to enjoy being rubbed by the humans. A little while later the mother nudged the calf away from us and moved off. Kind of struck me like the Mom was saying, “Ok junior, we have things to do. Time to go.” Another adult spy hopped next to the boat. She was so huge and was leaning over our boat. She started to drop down back into the water. I was terrified that she was going to take us out. However, she gently moved over, glided down and missed us. She had an awareness of us. Another juvenile came over and gently pushed our boat then spy hopped next to us. Then nudged us and spy hopped. Again, she seemed to have an awareness of how fragile we were and seemed to respond to our squeals of delight. What other animals in the wild “play” with humans? What other animal in the wild “encourage” their young to interact with humans?? For all we are doing to the whales, they continue to show us a humanity humans don’t deserve! Sandra Abels Please do not publish my contact information.	Comments noted.
298	Greene (Makah Tribe)_7-31-15	Dear Mr. Stone, The Makah Indian Tribe submits the following comments on the National Marine Fisheries Service, West Coast Region's February 2015 Draft Environmental Impact Statement (DEIS) on the Makah Tribe request to hunt gray whales pursuant to its treaty right secured in the 1855 Treaty of Neah Bay. The Tribe's comments focus on aspects of the DEIS alternatives which could deprive Tribal members·of reasonable and viable hunting opportunities. The Tribe also submits three documents it prepared over the past several years analyzing legal issues that have arisen during the EIS process. While these documents have been submitted to NMFS previously, we want to ensure they are	Comments noted.

Sort #	Commenter Code	Comment	Response
		part of the record for the EIS and NMFS' decision on the Tribe's application for a waiver under the Marine Mammal Protection Act. The Tribe's comments are narrowly focused and should not be construed as agreement with or endorsement of other information or analyses in the DEIS. <u>Comments on Hunt Restrictions in DEIS Alternatives</u> The Tribe's waiver request proposes a hunt which would enable it to resume treaty whaling and take an average of four gray whales per year. To address conservation and other concerns, the Tribe proposed a season lasting six months (December through May), excluding hunting during summer months, when whales would be most readily available and easily hunted. The Tribe also proposed to limit the area of the hunt to waters of the Pacific Ocean, excluding the Strait of Juan de Fuca where whales could most easily be hunted. In addition, the Tribe proposed an annual limit on strikes and struck and lost whales of seven and three, respectively, and proposed an additional limit on bycatch or PCFG whales using a PBR-based formula, which could end the hunt in any year before the annual limits on strikes or struck and lost whales were reached. Notwithstanding these and other restrictions described in the Tribe's waiver application, the Tribe believed its proposed hunt would provide reasonable and viable hunting opportunities for its members, keeping in mind the extensive physical and spiritual preparation required to hunt whales. The Tribe came to this conclusion because it believed its proposal would provide a realistic opportunity to harvest an average of four whales and up to five whales in a year, as described in its waiver request. The Tribe's proposed hunt was analyzed in detail by the International Whaling Commission's Scientific Committee from 2010 through 2013, with a particular emphasis on the impacts to PCFG whales, and the IWC concluded that the hunt satisfied the conservation standards of the IWC. These standards are similar in many respects to the standards under the MMPA.	
299	Greene (Makah Tribe)_7-31-15	The Tribe is concerned that several restrictions included in DEIS alternatives 2 through 6 would impose substantial limits beyond those proposed by the Tribe and impede the Tribe's objective of providing reasonable and viable hunting opportunities for its members. The Tribe describes key areas of concern below, noting that this is not an exhaustive list, and requests that NMFS consult with the Tribe before determining whether to include such restrictions in proposed regulations governing the Tribe's hunt.	Comments noted. Alternative 3, the offshore hunt, was included to explore whether an offshore hunt would have different impacts on PCFG whales, in response to public comments.

Sort #	Commenter Code	Comment	Response
		• Offshore Hunt. Alternative 3 analyzes a hunt that would take place at least five miles from shore. The Tribe does not consider the offshore hunt to be a viable hunt for several reasons. Recent surveys by the Tribe's marine mammal biologist out to eight miles from shore indicate that gray whales are far less available during the winter and spring at distances greater than five miles than they are closer to shore. Beginning in 2011, the Tribe conducted surveys following two general routes through the Makah ocean U&A. The first route traveled southbound between one and three miles from shore and northbound five miles from shore. The Tribe also conducted surveys in a "'sawtooth" pattern, extending out to sea some seven to eight miles and returning to nearshore locations (commonly identified by sea lion haulouts). This same pattern was repeated several times between Tatoosh Island and Sea Lion Rock (47° 59.58' N, 124° 43.45' W). The results of these surveys are depicted in Table 1, which shows that from 2011 through 2014, only 30% of the gray whales sighted in the Tribe's surveys were present greater than five miles from shore during the December through May time period. Table I. Gray whales observed by year by distance from shore (Dec-May, 2011-2015). Including 2015 sightings, where a large number (>100) of gray whales were sighted in the vicinity of Tatoosh Island (i.e., less than two miles from shore), the percentage of whales sighted in the past five years (2011-2015) greater than five miles from shore would be approximately 15% (Table 1). The data, which are mapped in Attachment 1[1], suggest that the greatest probability of sighting a whale during this time period occurs within three miles of shore. 1 The map depicted in Attachment 1 includes gray whale sightings in the Strait of Juan de Fuca. These sightings outside of the Tribe's proposed hunting area are not included in the data in Tables 1 and 2. Table 2. Gray whales observed by month by distance from shore (2011-20I5). These data demonstrate that it will be more difficult to find gray whales greater than five miles from shore in the winter and spring even if, as the DEIS assumes, the Tribe were to use motorized vessels in the hunt. In two of the years, no whales were sighted greater than five miles from shore (Table 1), and in no	

Sort #	Commenter Code	Comment	Response
		years were whales sighted this distance from shore during May when weather conditions are more likely to be favorable (Table 2). [1] The map depicted in Attachment I includes gray whale sightings in the Strait of Juan de Fuca. These sightings outside of the Tribe's proposed hunting area are not included in the data in Tables I and 2.	
300	Greene (Makah Tribe)_7-31-15	The efficiency of a canoe-based hunt, the Tribe's preferred method, would be even lower than a motorized hunt due to slower travel speeds.	Comment noted.
301	Greene (Makah Tribe)_7-31-15	There also does not appear to be any identifiable conservation benefit to either PCFG or WNP gray whales by restricting the hunt to areas five miles from shore. As the DEIS describes, the scant data regarding the presence of such whales in the offshore hunt area required NMFS to assume that they are available in the same proportion as in areas within five miles. (DEIS 4-22, 4-92, 4-96 to 4-97) Thus, the DEIS concludes that there is a similar risk to WNP whales from the offshore hunt and the Tribe's proposed hunt (DEIS 4-92) and that PCFG whales would remain viable under either alternative (DEIS 4-96).	We agree that, with respect to the offshore hunt alternative (Alternative 3), there are limited data regarding the offshore distribution of WNP and PCFG whales.
302	Greene (Makah Tribe)_7-31-15	• Struck and Lost Limit less than three. Either as an express limit or through the operation of a PCFG mortality or bycatch limit, some alternatives could result in a struck and lost limit less than three, which would in practice be rounded down to one or two struck and lost whales per year. A hunt which could end after a single struck and lost whale (or even after two struck and lost whales) would not be conducive to establishing the regular hunting opportunities for multiple whales per year that the Tribe seeks (and which are necessary to justify the extensive preparation required of Tribal whalers). Particularly as the Tribe resumes hunting after the hiatus since the successful 1999 hunt, a hunting opportunity where a single mistake or accident (or even two mistakes or accidents) could end whaling for the entire year for all tribal members, does not realistically allow for the Tribe to reinvigorate its whaling culture and meet its subsistence needs.	Comments noted.
303	Greene (Makah Tribe)_7-31-15	Moreover, such a restrictive struck and lost limit does not appear necessary to conserve PCFG whales, as demonstrated by the IWC's analysis of the Tribe's proposed hunt with its struck and loss limit of three whales. (DEIS 3-157 to 3-161 and 4-66 to -67)	Comments noted. Ultimately NMFS must make a decision on the tribe's request based on the standards under the MMPA and WCA.
304	Greene (Makah	• A Short Hunting Season (or a Season Restricted by Severe Weather). Alternative 5 would restrict the hunt to two three-week periods in December and May in an effort to reduce impacts to both PCFG and WNP	While we recognize that short hunting seasons could make it more difficult for the tribe to hunt whales, the

Sort #	Commenter Code	Comment	Response
	Tribe)_7-31-15	whales. A hunting season measured in weeks rather than months is unlikely to allow the Tribe to harvest multiple whales per year and could discourage Makahs from making the substantial commitments of time and resources necessary for a whaling crew to adequately prepare for and conduct a successful hunt.	report from the 2000 hunt (Gearin and Gosho 2000) demonstrates that the tribe was not discouraged and was able to launch multiple hunting expeditions in a single week during which the tribe approached 25 whales and made two strike attempts.
305	Greene (Makah Tribe)_7-31-15	Limiting hunting seasons to mid-winter when dangerous weather is likely (such as in December) compounds the problem of a short season. As with a hunt restricted to one or two struck and lost whales per year, the Tribe does not believe that a hunting season with restrictions like those in Alternative 5 would enable it to conduct a viable hunt.	Comment noted; DEIS subsection 3.15.3.2.2 (Description of Weather and Sea Conditions in the Project Area) notes that "[i]nclement weather during November to March would likely result in only 5 to 7 days with favorable conditions per month (on average) during that period, followed by an increase to 13 to 23 days per month in April and May."
306	Greene (Makah Tribe)_7-31-15	• Harvest of only one whale per year or an Intermittent Hunt. Some alternatives could have the effect of limiting the hunt to a single harvested whale per year through the operation of a PCFG mortality limit using a fraction of the PBR calculated for the PCFG. Alternative 4 would result in a likely maximum harvest of one whale per year (DEIS 4-28), while Alternative 5 could result in a multi-year hiatus in the hunt if a PCFG whale is landed (DEIS 4-32). A hunt limited to the harvest of a single whale per year or a hunt that could occur less frequently than every year would not achieve the Tribe's objective of a viable hunt and could discourage Makahs from committing the time and resources necessary to adequately prepare to whale.	Comment noted; DEIS subsection 4.10.3.4.2 (Subsistence Use) acknowledges that "[b]ased on the high percentage of Makah residents desiring whale products for consumption and use, limiting the number of whales harvested to one would likely not meet the Makah's need for whale products." The DEIS also considers the impact of alternatives on the management goal of avoiding local depletion of PCFG whales.
307	Greene (Makah Tribe)_7-31-15	Furthermore, the fractional PBR used in these alternatives does not appear necessary to conserve PCFG whales based on the IWC's analysis of the Tribe's proposed hunt, which does not utilize such a restriction to limit the impact to PCFG whales.	Comments noted. Ultimately NMFS must make a decision on the tribe's request based on the standards under the MMPA and WCA.
308	Greene (Makah	Even if the PCFG mortality limit were based on PBR without a fractional multiplier (e.g. Alternative 6), the hunt could still be severely restricted if the calculation of	We acknowledge and report on the utility of the IWC's modeling (see DEIS

Sort #	Commenter Code	Comment	Response
	Tribe)_7-31-15	human-caused mortalities changes from NMFS' current practice. The IWC's review incorporated a level of human-caused mortality 4.5 times greater than the current level utilized in the gray whale stock assessment report (SAR) and still found that the Tribe's proposed hunt satisfied the IWC's conservation standard. (Scordino and Mate, 2011; IWC/64/Rep 1 Annex E at 28) Thus, a somewhat higher level of human-caused mortality of PCFG whales than is currently accounted for the SAR should not pose a threat to the PCFG's viability.	Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates, and Subsection 4.4.2.3, Change in Abundance and Viability of PCFG Whales). Ultimately NMFS must make a decision on the tribe's request based on the standards under the MMPA and WCA
309	Greene (Makah Tribe)_7-31-15	Makah Analysis of Pertinent Legal Issues The Tribe submits three documents with these comments which explain the Tribe's position on pertinent legal issues that have arisen since the Tribe submitted its request in 2005. These documents were submitted to NMFS and other entities as part of the Tribe's ongoing analysis of the applicable law and scientific information relevant to its request to hunt gray whales. While the Tribe understands that the purpose of the EIS is to collect and analyze information regarding impacts and not to resolve legal issues, it wants to be sure that these documents are included in the administrative record for the EIS and any subsequent waiver process under the MMPA. The following documents are attached: • Attachment 2. Is the Pacific Coast Feeding Group of Gray Whales a "Population Stock" within the Meaning of the Marine Mammal Protection Act? (Oct. 5, 201 1). • Attachment 3. Letter to Stone and Ragen re analysis of the MMPA, the Tribe's treaty whaling right, and Kokechik Fishermen's Association v. Secretary of Commerce and other federal court decisions (Nov. 20, 2012). • Attachment 4. Comments on the 2014 Draft Stock Assessment Report for the Western North Pacific Stock o f Gray Whales (April 29, 20 15). The Tribe recognizes that new scientific information has become available since it prepared these documents. For example, new information regarding the PCFG provides further support for the Tribe's view, expressed in its October 5, 2011, memorandum, that the PCFG is not a population stock within the meaning of the MMPA. In addition, new information, particularly the results of the IWC's review of the Tribe's proposed hunt, provides further support for the Tribe's view, expressed in its November 20, 2012, letter, that its proposed hunt meets the criteria for a waiver of the take moratorium under the MMPA. Nevertheless, the Tribe believes it is important to include these documents in the	Comments and documents noted and reviewed.

Sort #	Commenter Code	Comment	Response
		record to provide a baseline for the Tribe's views regarding key legal issues that may arise in the waiver process. *** The Tribe sincerely appreciates the years of hard work that have gone into the preparation of the DEIS. The agency's thorough analysis of a tremendous amount of relevant scientific information is truly impressive. Please do not hesitate to contact me if you have any questions regarding the Tribe's comments. Sincerely yours, MAKAH TRIBAL COUNCIL [Greig W. Arnold for] Timothy J. Greene, Sr., Chairman Attachments	
310	Lent (Marine Mammal Commission)_7-31-15	Dear Mr. Stelle: The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Draft Environmental Impact Statement (DEIS) prepared by the National Marine Fisheries Service (NMFS) in response to the request by the Makah Tribe (the Tribe) to resume hunting gray whales. In its review, the Commission has considered the goals, policies, and requirements of the Marine Mammal Protection Act (the MMPA) and offers the following comments and recommendations. The Commission believes that the DEIS meets the requirements of the National Environmental Policy Act (NEPA) and responds to the major points raised in its 27 August 2012 letter concerning the Notice of Intent to prepare the DEIS. While the DEIS took considerable time to prepare, the Commission recognizes the extensive efforts made by NMFS to solicit input from the Tribe and from the public, and the careful attention given to describing the affected environment. The range of Alternatives analyzed in the DEIS is sufficient for the needs of NEPA, although the Commission notes that NMFS did not consider Alternatives that would authorize the take of more whales than under the Alternative proposed by the Tribe or apportioned to the United States under the catch limit adopted by the International Whaling Commission (IWC). The Commission agrees that there is little need for the EIS to consider higher take levels than are being sought or than are allowed under international law, but doing so could help decision-makers assess the relative impacts of the requested	Comments noted.

Sort #	Commenter Code	Comment	Response
		take level against other possible removal levels. Overall, the DEIS provides scientific, socio-economic, cultural, and other relevant information to help NMFS draft the proposed rule, and to inform parties to the rulemaking and others as they develop input on the six Alternatives considered and on other possible Alternatives as part of the regulatory process.	
311	Lent (Marine Mammal Commission)_7-31-15	**Background** The Makah Tribe submitted a request to NMFS in February 2005 seeking authorization under the MMPA to resume treaty-based hunting of eastern North Pacific (ENP) gray whales (Eschrichtius robustus) for ceremonial and subsistence purposes in the coastal portion of the Tribe's usual and accustomed (U&A) hunting and fishing area. NMFS prepared the 2015 DEIS to analyze various Alternatives, including the Tribe's proposed action (Alternative 2), and to consider the impacts on gray whales, including the ENP stock, the Pacific Coast Feeding Group (PCFG), and the western North Pacific (WNP) stock. In addition, the DEIS considers the potential impacts on marine waters, pelagic and benthic species, other protected species, and numerous aspects of the human environment.	Comments noted.
312	Lent (Marine Mammal Commission)_7-31-15	NMFS has thus far refrained from recognizing the PCFG gray whales as a separate population stock under the MMPA. However, the agency has calculated the Potential Biological Removal (PBR) level for this group of whales in the most recent Pacific Stock Assessment Reports (Carretta et al. 2015) and, in view of the uncertainty about these whales' population status, the DEIS has chosen to treat the PCFG as a stock for the purpose of the rulemaking. The Commission agrees with this precautionary approach.	The DEIS action alternatives capture a range of approaches to a stated goal of the tribe's application, which is to "avoid local depletion" of the PCFG. The NMFS gray whale SAR echoes this management goal in calculating and presenting a PBR for the PCFG. This is a precautionary approach, but is not the same as treating the PCFG as a stock for the purpose of this rulemaking. The tribe has requested a waiver of the MMPA take moratorium only for ENP gray whales, and any subsequent rulemaking by NMFS in this proceeding will apply only to the ENP gray whale marine mammal stock.
313	Lent (Marine Mammal	Similarly, the present state of understanding of gray whale movements and population structure throughout the North Pacific does not allow a definitive	We consider the SAR process as the appropriate mechanism for

Sort #	Commenter Code	Comment	Response
	Commission)_7-31-15	answer to the question of how the whales that migrate from East Asia to North America should be classified or categorized. A recent analysis for the IWC Scientific Committee concluded that more than a third (possibly many more than a third) of the gray whales that feed in summer off Sakhalin Island, Russia, migrate to North America in the autumn and likely overwinter in the Mexican breeding grounds along with the ENP stock before returning to Russia in the spring (IWC in press). The Sakhalin feeding group nevertheless shows very strong site fidelity to feeding areas in Russia, and genetic studies using both mitochondrial and nuclear markers have demonstrated significant differentiation between Sakhalin gray whales and ENP gray whales (Leduc et al. 2002; Lang et al. 2011; Weller et al. 2012). Therefore, until understanding improves, the Commission considers it appropriate for NMFS to treat these trans-oceanic migrants as a separate unit to conserve. In other words, WNP gray whales should effectively be treated as a stock for the purposes of assessment and management in the United States, and this is the approach being taken by NMFS in its Stock Assessment Reports as well as this DEIS. The Makah's request describes the history of whaling by the Tribe, noting that whaling began at least 1,500 years ago and was central to the Makah way of life until the early 20th century. Whaling contributed to the Tribe's subsistence needs and helped to shape and maintain social and cultural functions. The importance of whaling to the Tribe was reflected in the wording of the 1855 Treaty of Neah Bay, which explicitly reserves the Tribe's whaling rights – the only treaty with a U.S. tribe that does so. While the Tribe's engagement in whaling declined over the past century due to many factors – most of them beyond the Tribe's control – whaling remains a big part of the Makah's self-identity and traditions. The Commission notes that Tribal representatives have worked closely with the U.S. delegation to the IWC to ensure the recognition of Makah whaling as an aboriginal subsistence hunt. Moreover, the IWC has provided a catch limit (apportioned between Russia and the United States) so the Makah Tribe can take a small number of ENP gray whales.	designating population stocks of marine mammals under the MMPA and will continue to rely on that process for consideration of the best available scientific information in recognizing North Pacific stocks of gray whales. We note the comment regarding the tribe's treaty and whaling history.
314	Lent (Marine Mammal Commission)_7-31-15	**Primary Concerns** In reviewing the Tribe's request, particularly as it relates to the MMPA's waiver requirements (Sections 101(a)(3)(A) and 103), the Commission is primarily interested in the following issues, in order of importance: 1) Risk of killing or injuring a WNP gray whale (although from a legal perspective all types of unauthorized take, not just killing or injuring a whale, are of concern);	The DEIS presents action alternatives that enable agency decision-makers to evaluate these four issues.

Sort #	Commenter Code	Comment	Response
		2) Risk of having negative impacts on PCFG gray whales; 3) Ensuring that the ENP gray whale stock is at and remains within its optimum sustainable population; and 4) Balancing the Tribe's desire to use traditional hunting methods with the goals of achieving hunting efficiency and humaneness.	
315	Lent (Marine Mammal Commission)_7-31-15	**Analysis of Alternatives** The Commission's comments on each of the six Alternatives are presented below, focusing primarily on the four concerns noted above. Each of the Alternatives contains a number of elements that would have a bearing on these concerns, notably: (1) the timing and location of the hunt; (2) the cap on total take (primarily landings and strikes), including how that cap is apportioned between ENP and PCFG whales and the implications of taking a WNP whale; and (3) the hunting methods (e.g. type(s) of vessel, method(s) of propulsion, weapon(s) used). The Commission notes that the other potential impacts listed in the Summary Table ES-1 would be similar across all action Alternatives or be in proportion to the number of whales taken. The Commission provides its recommendations for the elements to be included in a final, preferred Alternative, based on review of the six Alternatives. **Alternative 1 - No Action Alternative** The No Action Alternative is basically the status quo, i.e., no hunting of gray whales by the Tribe would be allowed. As explained in the DEIS, the IWC has authorized, based on the joint request of the Russian Federation and the United States, a catch limit of 744 whales over the six-year period from 2013 to 2018, provided that no more than 140 whales are taken in any given year. Under a bilateral agreement, in the absence of a Makah gray whale hunt, or if the Makah hunt yields fewer whales than the number assigned to the United States, a transfer arrangement may be agreed such that the Chukotka Natives in Russia are allowed to take the "unused" portion of the U.S. allocation. Given the location of the Russian subsistence hunting, it is unlikely that any PCFG whales or WNP whales would be taken by Russia. However, there is a reasonable probability that the portion of the overall catch limit for ENP gray whales allocated to the United States would be harvested by Russia. Alternative 1 would deny the Tribe's request for a waiver, therefore rendering the community unable to conduct its treaty-recognized, traditional subsistence hunting activities legally, and this would further erode the Tribe's spiritual and cultural connection to whaling. As noted in the DEIS, the Makah	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		community's access to whale products would be limited to making use of drift (dead stranded) whales, to the extent that such use is allowed under applicable law. The cultural value of such usage would be limited given that the salvaging of drift whales is not a Makah traditional practice and is not the type of whaling right recognized in Article 4 of the Treaty of Neah Bay.	
316	Lent (Marine Mammal Commission)_7-31-15	**Alternative 2 - Makah Tribe's Proposal** Of the six Alternatives identified in the DEIS, Alternative 2 has the greatest potential impact on PCFG and WNP whales and therefore can be viewed as the least precautionary. A cap on the number of PCFG whales harvested (i.e. struck or landed) is based on a calculation of the PBR level for the PCFG, even though this group of whales is not yet formally recognized by NMFS as a separate stock. The PBR calculation in the Makah proposal uses a recovery factor of 1.0, which is less precautionary than the recovery factor of 0.5 used by NMFS in its most recent draft Stock Assessment Report owing to the uncertainty of whether the PCFG qualifies as a population stock under the MMPA and, if so, what its status is. While there is a cap on the number of whales that can be struck and lost (3 whales), these would not count against the PCFG cap. In addition, the PBR calculation used to establish the PCFG cap does not reflect sources of human-caused mortality other than whaling (e.g. fishing, ship strikes). The resulting average allowable annual take of 4 PCFG whales (and up to 5 in one year) is the highest of any of the Alternatives. Given that the hunt under Alternative 2 would be conducted during a period that includes the times when WNP gray whales are most likely to migrate through the Makah U&A hunting area, this Alternative also has the highest estimated probability of interactions with WNP gray whales, with near certainty that at least one of them would be approached, and a probability of around 35 percent that an unsuccessful harpoon attempt on a WNP would be made over a six-year period. The Commission believes that (a) the calculation used to determine a limit on removals should reflect the uncertainty surrounding the question of whether the PCFG is a population stock, (b) struck and lost whales, and the possibility that they are PCFG whales, should be accounted for in some way, and (c) all sources of human-caused injury and mortality should be considered in setting the cap for whaling. The Tribe proposed that the hunt be conducted with a combination of traditional and "modern" methods, using canoes and motorized vessels as well as harpoons and high-powered rifles. When a whale is targeted for harvest, a Tribal hunter in a canoe would attempt the first strike using a stainless steel harpoon	Regarding the uncertainty around whether the PCFG is a population stock, we note that the tribe's proposal, and all of the alternatives, include measures to protect against "local depletion." While a management goal to protect against "local depletion" is not necessarily the same as the MMPA management goal of avoiding "disadvantage" to a marine mammal stock (16 U.S.C. 1373(a)) it does focus on maintaining the PCFG as a functioning element of its ecosystem, within a "pseudo" OSP range. Regarding struck and lost whales, we agree that any management of a hunt should include a method of accounting for all mortality of PCFG whales. Regarding the observation that any management of a hunt should take into account all sources of human-caused mortality, this observation caused us to reconsider our analysis, because it did not account for human-caused mortality outside of U.S. waters, and a further investigation of that issue led us to conclude that we lack reliable information to estimate that mortality. Any future decision-

Sort #	Commenter Code	Comment	Response
		with a toggle point, which is secured to a rope with floats attached. This would be followed by a Tribal hunter on a motorized chase boat shooting the whale at close range with a high-powered, .50-caliber rifle. As noted in the DEIS, the .50-caliber rifle proposed by the Makah is more powerful than the .22 to .32-caliber rifles used by Chukotka Natives in Russia for hunting gray whales, and the .50-caliber rifle has been demonstrated to be effective in killing gray whales humanely. Alternative 3 (discussed below) proposes the use of a somewhat higher-caliber gun (0.577) than the .50-caliber rifle proposed by the Tribe. Although not included in the Makah proposal, the DEIS proposes in Alternatives 2 (as modified from the Makah proposal), 4, 5, and 6 the possible use of a hand-thrown darting gun or a shoulder gun to fire an explosive projectile into the whale (black powder or penthrite). The Commission believes that the .50-caliber rifle may be sufficient to address its concern that the hunting method strive to shorten the time to a whale's death, and avoid losing struck whales.	making would need to account for this consideration. We note the comment regarding tribes proposed weapon for killing whales.
317	Lent (Marine Mammal Commission)_7-31-15	**Alternative 3- Offshore Hun**t This Alternative is similar to Alternative 2, but differs in several respects. First, it would require whaling activities to be conducted further from shore, with initial strikes occurring at least 5 miles off shore. This proposed hunting-area restriction stems from public comment expressing concern about gun shots and other hunting operations occurring close to shore, possible disturbance of wildlife (including birds) on the shoreline and on rocks and islands, and impacts on PCFG whales, which tend to feed closer inshore. Alternative 3 is also more conservative (i.e., more risk- averse or precautionary – with regards to whale conservation) than Alternative 2 by establishing lower caps on the annual number of strikes (6 vs. 7), the annual number of struck and lost whales (2 vs. 3) allowed, and the number of PCFG whales that can be harvested (using a recovery factor of 0.5 vs. 1.0 in the PBR calculation), and by setting a specific cap on the number of female PCFG whales that can be harvested. Any struck and lost whales would be deducted from the harvest limit based on the proportion of PCFG whales in the Makah U&A area during that season. The probability of approaching a WNP whale is equivalent to that in Alternative 2, with slightly less likelihood of a strike or unsuccessful harpoon attempt given the lower number of strikes allowed. The Commission notes that this offshore requirement would significantly alter the very nature of the hunt since it would need to be conducted with motorized vessels only. The request by the Tribe is based on a strong interest in adherence to cultural traditions, and the use of canoes is an important aspect of	The DEIS explores the implications of the offshore hunt, including issues raised in these comments, in 2.3.3 Alternative 3 (Offshore Hunt); and 4.1.3 (Alternative 3, Offshore Hunt) (as well as in various resource-specific subsections in Section 4, Environmental Consequences).

Sort #	Commenter Code	Comment	Response
		their traditional hunting practices. Furthermore, hunting farther from shore in small vessels presents more risk to the hunters.	
318	Lent (Marine Mammal Commission)_7-31-15	The impacts on PCFG gray whales under this Alternative would be slightly less than Alternative 2, not only because of the distance from shore, but also because of the lower caps on mortality of PCFG whales as a whole and specifically on female PCFG whales, and because it accounts for struck and lost whales in proportion to the presence of PCFG whales in the hunting area.	Comments noted.
319	Lent (Marine Mammal Commission)_7-31-15	**Alternative 4 – Summer/Fall Hunt** The Summer/Fall hunt Alternative, which is exactly the opposite in timing to the Makah proposal, would virtually rule out any potential direct impacts on WNP gray whales, given what we currently know about the timing of their presence off the Washington coast. It is therefore the most precautionary Alternative in terms of avoiding WNP whales; however, it also would virtually ensure that the whales taken will be from the PCFG, since this would be the peak time at which the PCFG would be in the Makah U&A area. This Alternative also requires hunters to approach only known males. The higher PCFG interaction rate under this Alternative is also addressed through a stricter cap on the number of strikes and whales landed, counting all struck and lost whales against the PCFG cap, and reducing the cap by other known sources of human-caused mortality. While the Commission supports measures to minimize potential interactions with WNP gray whales, Alternative 4 would result in a very small number of whales harvested each year – a maximum of one gray whale. Furthermore, it is estimated that it would take the Tribal hunters around seven days to locate and strike a known male, according to the Makah's analysis that is supported in the DEIS. The Commission believes that other options for the timing of the hunt could better balance the desire to limit the possibility of WNP interactions with the potential impacts on PCFG whales.	Comments noted. The DEIS explores a split-season hunt (Alternative 5) to address the 'balance' raised in these comments.
320	Lent (Marine Mammal Commission)_7-31-15	**Alternative 5- Split-Season Hunt** The intent of the proposed split season is to avoid killing a WNP gray whale while still minimizing the chances of killing a PCFG whale. The cap on killing PCFG whales is limited to 10 percent of the PBR, calculated as under Alternative 3 (using a recovery factor of 0.5), resulting in a total mortality cap of 0.27 PCFG whales/year. Any whale struck but not landed would count against the mortality cap in proportion to the presence of PCFG whales in the Makah U&A area during that season. While the 10 percent of PBR cap is based on the practice in other situations under the MMPA (i.e., achieving the Zero Mortality Rate Goal for incidental lethal take in commercial fisheries and authorizing incidental serious	We note the Marine Mammal Commission's opinion that a PCFG cap of 10% of PBR would be overly restrictive for purposes of meeting the requirements of the MMPA and would severely hamper the ability of the Makah Tribe to conduct a traditional hunt.

Sort #	Commenter Code	Comment	Response
		injury and mortality of ESA-listed marine mammals in commercial fisheries), the Commission finds this cap to be overly restrictive for whaling by the Tribe, particularly given that the PCFG is not necessarily a separate stock, and is not listed under the ESA. This split-season Alternative would result in the lowest allowable whale harvest by the Makah, notably a maximum of one PCFG whale per year, but also with only one PCFG whale every five years. As noted in the DEIS, the Makah would have to accept a "hiatus" in whaling of up to four years after landing, or just striking and losing, one whale under this mortality cap. This alternative would severely hamper the ability of the Makah to conduct a traditional hunt as it could take place only every 3-5 years depending upon the estimated abundance of PCFG gray whales and the timing of the hunt. Any changes in the estimated abundance of PCFG whales would result in a modification of the cap. According to Calambokidis et al. (2014) (and the draft 2014 Stock Assessment Report, Carretta 2015) the current estimate of PCFG whales, excluding transient whales, is 209 (SE=15.4), which would yield the possibility of harvesting a whale every three years rather than every five years. The Commission notes that all Alternatives should be considered in light of a flexible cap as estimates of the PCFG population are modified through new research.	We agree with the Commission's recommendation that if a hunt is authorized, any limit on PCFG mortality should respond to changes in PCFG abundance.
321	Lent (Marine Mammal Commission)_7-31-15	**Alternative 6 -Different Limits on Strikes and PCFG Whales, and Limited Duration of Regulations and Permits** Alternative 6 is the same as Alternative 2 except that there would be a more restrictive limit on the number of strikes (3.5 per year), which would halve the probability of an encounter with a WNP gray whale. In addition, the PCFG mortality limit would be set as in Alternative 3, however reduced for other sources of human-caused mortality, for a total cap of 2.25 PCFG gray whales/year. All struck and lost whales would count against this cap. A limit on the number of strikes would likely curtail the Tribe's hunting activities, making it more challenging for the hunters to land a whale successfully. Nevertheless, the analysis of Alternative 6 results in an estimate of no more than four whales killed in a single year and seven over two years.	Comments noted.
322	Lent (Marine Mammal Commission)_7-31-15	Alternative 6 would also require that permits be limited to three years, and that the MMPA waiver period end after 10 years. The Commission believes that some form of ongoing review and flexibility in the regulations governing the hunt should be part of the final action should the waiver be issued, but that requiring a new rulemaking after 10 years may not be necessary.	Comments noted; DEIS Subsection 2.3.6 (Alternative 6 - Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits) addresses the "ongoing review and flexibility" aspects of this comment.

Sort #	Commenter Code	Comment	Response
			We will explore in future agency decision-making whether there are mechanisms that would allow us to streamline future rulemaking in the event the agency adopts time-limited regulations.
323	Lent (Marine Mammal Commission)_7-31-15	**Discerning the category of gray whale approached, struck, or harvested** The Commission is concerned about how the Makah whale hunt can be monitored in real or near-real time. In other words, the Commission is not convinced from the information provided in the DEIS that it will be feasible for the Makah hunters and hunt managers to discern quickly (within days) whether a given animal that was pursued, struck and lost, or landed was a WNP, ENP, or PCFG gray whale (this concern might also apply to sex determination in cases where there is a cap on the number of female PCFG whales that are allowed to be taken). The catalogues of PCFG and WNP whales appears to allow considerable ability to identify members of those groups even at a distance (including potentially the sex), but this assumes that at least one scientist with the requisite experience and skill is present with the whalers or that photographs sufficient to allow later identification of whales are taken by those who are present. This will be particularly important in determining which type of whale was approached or struck and lost.	Except in Alternative 4 (where strikes could only be made on a whale with unique markings/characteristics to make it readily identifiable in "real-time"), hunt regulations would require that photo-comparisons be made after a whale is encountered or killed. We have assurances from researchers familiar with the WNP and PCFG catalogs that matches to those catalogs could be achieved in a matter of hours or at most a few days.
324	Lent (Marine Mammal Commission)_7-31-15	**Commission Recommendations for Formulating the Elements of the Preferred Alternative** In making the recommendations below, the Commission notes that whatever Alternative(s) NMFS includes in its proposed rule will be subject to review and possible modification in the course of the rulemaking. Thus, at this stage, without hearing the testimony and arguments made by all of the parties to the rulemaking, it is not possible for the Commission to make definitive pronouncements of its eventual positions. However, at this juncture, the Commission recommends that NMFS adopt a preferred Alternative that strives for a balance between the risks of encountering a WNP gray whale – whether such encounter ends up with an approach, a strike, or a landed whale – and the risk of taking PCFG gray whales above the number that would keep this group within its OSP or some proxy for OSP. At the same time, the Commission believes that, if consistent with the requirements of the MMPA, there should be a reasonable opportunity for the Tribe to harvest at least one gray whale per year. Given these factors, the Commission recommends that:	We note the Commission's views that the Tribe should have a reasonable opportunity to harvest at least one whale per year. We also note the Commission's support for a goal of "avoiding local depletion," expressed by the Commission as keeping the PCFG "within its OSP or some proxy for OSP." Regarding the reference to balancing risks to WNP versus PCFG whales, similar to the response to comment #319 above, we have explored additional options for future decision-making to promote that balance.

Sort #	Commenter Code	Comment	Response
		• The hunting season should be split to require that at least a portion of the hunt occurs when it is highly unlikely that a WNP gray whale would be harvested, while also ensuring adequate protection for PCFG gray whales.	
325	Lent (Marine Mammal Commission)_7-31-15	• The hunt should be conducted in the Makah U&A area as described under Alternative 2, but with year-round restrictions around Tatoosh Island and White Rock.	Comments noted.
326	Lent (Marine Mammal Commission)_7-31-15	• PCFG gray whale limits should be derived using a recovery factor of 0.5 in order to reflect the uncertain status of this feeding group – including whether or not it qualifies as a population stock; these limits should be adjusted as new information on stock structure and improved estimates of PCFG numbers become available.	Comment noted. We also note that based on concerns raised by the Commission in comment #317, we have reconsidered the use of a PBR-based mortality limit and explored other options to be considered in future agency decision-making.
327	Lent (Marine Mammal Commission)_7-31-15	• Mortality caps should be set taking into account other (non-whaling) human-caused mortality, and these other sources of human-caused mortality should continue to be addressed by NMFS.	Please see the response to comment #316 above.
328	Lent (Marine Mammal Commission)_7-31-15	• All struck and lost whales should be counted against the mortality cap in proportion to the presence of the PCFG in the Makah U&A area in the corresponding season.	Comment noted; this is consistent with the approach described in DEIS alternatives 3, 5, and 6.
329	Lent (Marine Mammal Commission)_7-31-15	• There should be a limit on the number of whales that can be struck each year, particularly during the seasons when WNP and PCFG whales are most likely to be present in the Makah U&A area.	We note the Commission's recommendation that any authorization to hunt include strike limits aimed at managing impacts to WNP and PCFG whales.
330	Lent (Marine Mammal Commission)_7-31-15	• The Tribe should be required to use a combination of traditional and "modern" hunting methods so as to minimize the time to death of a struck whale, and reduce the possibility that a whale will be struck and lost.	Please see the response to frequent comment # 15 regarding the use of modern weapons.
331	Lent (Marine Mammal Commission)_7-31-15	• In light of the two recently completed workshops on range-wide population structure and status of gray whales in the North Pacific (IWC 2015, IWC in press) and the additional workshop planned by the IWC Scientific Committee for April 2016, along with ongoing research by NMFS and others to improve understanding of stock structure, the preferred Alternative should include be	Comments noted. Alternative 6 analyzes the implications of a 10-year waiver period and shorter, 3-year permits noting that "By adopting regulations with a set termination date, we would assure that the most

Sort #	Commenter Code	Comment	Response
		some form of periodic review of these issues, perhaps in conjunction with permit reissuance, or more frequently as new information warrants.	up-to-date information regarding the status of the PCFG as a population stock would be considered after not more than 10 years. We selected 10 years because it allows a reasonable amount of time for NMFS to develop additional information about stock structure" and "Limiting the permit term to 3 years provides an opportunity for more frequent NMFS review than if permits were issued for 5 years" (2.3.6 Alternative 6 - Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits).
332	Lent (Marine Mammal Commission)_7-31-15	The Commission also recommends that all of the elements that are included across each action Alternative (as listed on pages 2-3 – 2-4 of the DEIS) be included in the final preferred Alternative. The Commission hopes these comments and recommendations are useful and looks forward to working with NMFS on the proposed rule. Sincerely, Rebecca J. Lent, Ph.D. Executive Director Literature cited Calambokidis, J., L. Laake, and A. Pérez. 2014. Updated analysis of abundance and population structure of seasonal gray whales in the Pacific Northwest, 1996-2012. Intersessional Workshop of the International Whaling Commission: Rangewide review of the population structure and status of North Pacific Gray Whales. Southwest Fisheries Science Center, La Jolla, CA. April 8- 11, 2014. SC/A14/NPGW03. 75 pp. Carretta et al. 2015. U.S. Draft Pacific Marine Mammal Stock Assessments: 2014. National Marine Fisheries Service, NOAA. Available at: http://www.nmfs.noaa.gov/pr/sars/draft.htm International Whaling Commission. In Press. Report of the 2nd Workshop on the Rangewide Review of the Population Structure and Status of North Pacific	Comments noted.

Sort #	Commenter Code	Comment	Response
		Gray Whales. SC/66a/Rep/8. To be published in J. Cetacean Res. Manage. (Suppl.) 17. International Whaling Commission. 2015. Report of the Workshop on the Rangewide Review of the Population Structure and Status of North Pacific Gray Whales, 8-11 April 2014, La Jolla, California, USA. J. Cetacean Res. Manage. (Suppl.) 16:487-528. Leduc, R.G., D.W. Weller, J. Hyde, et. al. 2002. Genetic differences between western and eastern gray whales (Eschrichtius robustus). J. Cetacean Res. Manage. 4:1-5. Lang A.R., D.W. Weller, R. LeDuc, A.M. Burdin, et al. 2011. Genetic analysis of stock structure and movements of gray whales in the eastern and western North Pacific. Paper SC/63/BRG10 presented to the International Whaling Commission Scientific Committee. Available from the International Whaling Commission Secretariat, Cambridge, UK. Weller, D.W., A. Klimek, A.L. Bradford, et al. 2012. Movements of gray whales between the western and eastern North Pacific. Endangered Species Research 18:193–199.	
333	Keisha Sedlacek, The Humane Society of the US	Whaling is an archaic practice that has no place in today's society.	Opinion noted.
334	Keisha Sedlacek, The Humane Society of the US	The methods used to hunt these whales are cruel,	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
335	Keisha Sedlacek, The Humane Society of the US	and if even one of the endangered western Pacific gray whales were killed, it would be devastating for their recovery.	Any authorization to hunt ENP gray whales would need to be appropriately protective of WNP gray whales.
336	Keisha Sedlacek, The Humane Society of the US	Tradition should not serve as an excuse for the slaughter of these animals--especially when that tradition hasn't been practiced legally in nearly one hundred years.	Comments noted.

Sort #	Commenter Code	Comment	Response
337	Keisha Sedlacek, The Humane Society of the US	Instead of returning to whaling, the Makah Tribe should rely on non-lethal ceremonial celebrations of these creatures that traverse their waters. Please deny the Makah Tribe's request to resume the hunting of whales off the west coast.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
338	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**RE: Comments on DEIS - Makah Tribe Request to Hunt Gray Whales** Dear Mr. Stelle: Please accept these comments on behalf of the many members and supporters of PCPW , and all friends of the great gray whales. We are particularly concerned with the safety of the small number of gray whales who inhabit our State and County waters. As NMFS posted on their website in an article titled, "Safe Passage: NOAA Scientists and Gray Whales are Forging New Paths": "These days, the California gray whale is a beloved icon." We couldn't agree more.	Comments noted.
339	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Over the years PCPW has submitted reams of comments to NMFS on the issue of whaling. Our most substantive to date had been the comments to the 2008 DEIS. Although a few of our comments received answers, or "comments noted", the great bulk of our concerns remained unanswered , and problematic, in the 2015 DEIS. There are still great inaccuracies and inadequacies of analysis.	Comments noted and responses to specific issues dealt with separately.
340	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The likely effects of perpetual whale hunts on the local tourism economy is minimized, and the local economy is inexplicably described as healthy and growing. The specter of tourism boycotts of the Olympic Peninsula is likewise deflected. This is a great disservice to the hardworking people of Clallam County, already struggling with job losses in traditional sectors, and a very "down" economy. The fact that "no boycott materialized" is a factor of the very short time span of actual whaling. When court actions stopped active whaling after one kill, most casual observers, including locals, mistakenly thought that whaling was "over". Had whaling continued, or if it resumes, there should be no doubt that there will be very measurable economic effects. The Olympic Peninsula is marketed as a natural wonderland. To contemplate a "new" high-profile image as a place where the locally viewable whales are regularly killed and butchered on the beach is worthy of some analysis. This DEIS does not dare to do such contemplation.	The DEIS does not assert that whaling would have no impacts on the activities identified in this comment but instead reports that all of the action alternatives are likely to have a mix of beneficial and adverse impacts on tourism and on-scene and media observers. Section 4 of the DEIS notes that "[g]iven the likely influx of visitors coming to Neah Bay to observe, protest, or report on the hunt, or to participate in tribal ceremonies and celebrations, it is reasonable to expect there would be a short-term increase in tourist-related business activity associated with these visitors. Any

Sort #	Commenter Code	Comment	Response
			short-term effect is likely to be minor, and may diminish as more hunts occur" and that "[o]ver the long term, there is no information suggesting that the hunts in 1999 and 2000 had any lasting effect on tourism in Clallam County or Neah Bay. Thus, while a whale hunt might attract visitors to the Neah Bay area, it is likely that any positive effect would be short-term and minor."
341	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The issues related to the known contamination of the meat and blubber of "even healthy whales" such as the young whale killed in 1999, are also dealt with in a brief and cavalier manner. Will the co-managers be concerned with establishing proper "dosages" of pollutants in the diets of elders, children and pregnant women? Or will they continue to hide behind the "inability" to gauge current contaminant loads of individual consumers of whale products? Will there be cautions regarding the potential introduction of whale products into the school lunch programs or the senior nutrition programs? Doubtful, as whale products are being touted as a "health food"! With the high amount of potentially polluted seafood already consumed in Neah Bay, who will actually analyze or track the effects of ingesting the flesh and fat of up to five different whales per year? Or will that be a politically forbidden endeavor?	Please see the response to frequent comment # 11 regarding health risks of consuming gray whale products.
342	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The social costs to the fabric of life on our Peninsula are also unanalyzed, but they will be great. There is simply no middle ground in a conflict over whether to kill or not to kill whales, complicated by the "piggy-backing" of racism from both sides. The "anti-tribal" or "anti-white" fringe element is out of the control of the mainstream proponents of whaling or whales. But it's existence cannot be a deterrent to the serious voices on either side. The members of PCPW, especially in the years of active hunting, have withstood much in the way of harassment, name-calling, threats, bullying phone calls, and physical harm. All incidents were documented, and some referred to law enforcement, but we understood that this would likely "come with the turf ". Eventually most of our members preferred some measure of anonymity. Many were/are vulnerable elders who could no longer take the bullying phone calls following their letters to the editor expressing opposition to whaling. Some members have held elected office, or are in businesses that have tribal clients. Whaling will add much	For an examination of the impacts of the authorization or denial of the Tribe's request on social relations, see Subsection 4.8, Social Environment.

Sort #	Commenter Code	Comment	Response
		negativity to relationships on the Peninsula, and the Makah Tribe understood that going in. In that way, and many others, whaling is a selfish and self-indulgent pursuit that will not resolve well for anyone. Collateral damage within the Peninsula's economy and community will harm us all.	
343	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	There could possibly have been a way to moderate the impact to local whales and local feelings, but these options stand little chance against the co-managers' desire to expand local whaling to the greatest degree possible. There is only one alternative that can be endorsed as protective of the small group of genetically distinct local whales and the tiny group of highly endangered Western Pacific Gray Whales who transit the Makah U&A during hunt seasons. This alternative will also protect innocent bystanders from the dangers of the .50 cal. rifle, and will allow the Clallam County economy a fair chance to rebound without becoming "famous" for conflict and dead whales. The only alternative that causes no harm to the local economy, the local people, and the local whales is Alternative1, no action.	Comments noted.
344	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**OPENING STATEMENT** It has been a bumpy, twenty year ride for NMFS and the Makah Tribe in their joint quest to accomplish the killing of whales in the waters of Washington State. But a slow, stop-and-go ride is what you can expect when the cart you ride in is inextricably lashed before the horse. Observers of this misadventure know the timeline of the rush to judgment....the chain of decisions made by a handful of NMFS "higher ups" that the judges of the 9th Circuit Court of Appeals would ultimately designate as "arbitrary, capricious, and otherwise outside the law ." [Anderson v Evans 2004] **From 1994-2012, NMFS has presided over :1) the premature and contentious de-listing of the Eastern North Pacific gray whale, [petitioned for by the Northwest Indian Fisheries Commission], 2) the "Agreement" to help the tribe obtain a quota from the IWC without benefit of NEPA analysis, 3) the pushing through of a highly controversial new category of whaling at the IWC: "whaling for cultural [not nutritional] subsistence need", 4) the "back-door" bundling of the Makah request with the Russian quota request, sidestepping a vote on the merit of the Makah 's "needs" 5) two highly insufficient EAs that resulted in two insupportable" Findings of No Significant Impact", 6)back and forth lawsuits, 7) a huge loss for the government's position at the 9th Circuit Court of Appeals,[Anderson v Evans],8) weak studies utilizing small sample sizes that led to: 9) the de-bunking by independent scientists of many of NMFS' "facts" about the PCFG, and as a result, 10) an aborted DEIS [2008].** Throughout,	Opening statement/comments noted.

Sort #	Commenter Code	Comment	Response
		NMFS has unapologetically lurched the cart, full of inappropriate decisions and justifications, in and out of the ditch while the poor, disregarded "horse" of science and law was dragged along in the rear.	
345	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	But hope springs eternal, and it seemed there could be a chance that the decision of the 9th Circuit Court, coupled with fresh advances in knowledge about gray whales, would serve as a turning point for NMFS. A time to pause and to consider the new information coming in, get the "horse" in the logical lead position , and let the chips fall where they may concerning the ability of NMFS to advocate for a waiver from the MMPA to allow the Makah to kill local gray whales. The 9th Circuit's Final Decision in 2004 clearly required NMFS to take a hard look at certain aspects of the whaling plans. High on the Court's list to NMFS were to: **1) analyze the effects of harassing and killing members of the small group of PCFG whales as well as the very small group faithful to the Makah U&A, 2) analyze the likelihood of other U.S. tribes following the Makah lead and requesting similar waivers to take whales, and 3) provide evidence of specific IWC approval for the Makah quota. These areas alone required an EIS, and the Court so ordered.** Eleven years later, we have a second DEIS, but new science keeps on coming. Even as we comment on this DEIS, the "facts" about gray whale stock designations and population sizes and migration paths are in flux. **Precaution dictates that no decisions regarding waivers from the MMPA be finalized until NMFS is certain about the nature and population status of the various branches and twigs on the gray whale family tree.** It is hard to have faith that NMFS will take the path of precaution. Willingly or unwillingly, NMFS is continually pushed by the Pacific Northwest tribes to clear a path through the Marine Mammal Protection Act [MMPA], with haste more important that scientific certainty.	We agree with the commenter's recommendation to take a precautionary approach amid scientific uncertainty. We terminated an initial DEIS after public comments to ensure that new scientific information was appropriately evaluated and reviewed. New information included revised ENP gray whale abundance estimates, evidence relevant to the stock status of the PCFG, and presence of endangered WNP whales in the proposed hunt area.
346	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	So we note with weary "surprise" that this DEIS is worse than the 2008 DEIS. It is worse, because there is more at stake than was even imagined in 2008. Unfortunately, this DEIS is over 1200 pages of avoidance and denial of NMFS' responsibility to make science- based assessments and management decisions. It has been said before, that when NMFS departs from science-based assessments, the integrity of its entire management system is harmed.	Comments noted.
347	Owens (Peninsula Citizens for Protection	These comments are submitted by ordinary people of the Olympic Peninsula. We are not scientists, but avidly keep abreast of advances in gray whale science. We are not anthropologists, but have a genuine love and interest in the study of the deep and fascinating history of our tribal neighbors. And as	Comments noted.

Sort #	Commenter Code	Comment	Response
	of Whales)_7-27-15	neighbors, with a multitude of personal and business relationships, we uniquely care for, respect, and listen to our friends at The Cape. We all have our own stories of experiencing the warmth and generosity of the Makah people. To care about the local whales does not preclude caring about the local people, no matter their opinion of whaling. But we do know, as the DEIS points out, that the tribe is not "of one mind" on the plan to kill whales. We also know, sadly, that the freedom to oppose whaling is complicated in Neah Bay. It takes great courage to oppose the will of the politically dominant, and to suffer subtle and blatant bullying and abuse in one's own ancestral home. Abuse that is rooted in an attempt by "the powers that be" in Neah Bay to present a united, pro-whaling face to the world. Thus, we feel that some of our comments reflect the feelings of some of our neighbors, and this gives us even more strength of heart to continue to "speak for the whales".	
348	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Because of the great length of the DEIS and the great many scientific papers referenced, it has been difficult to feel that we have done "justice" to the gigantic task of analyzing the many issues raised [and not raised] by the draft in the short time allowed. 90 days might have seemed sufficient if one had no other tasks to deal with. To place this big job on top of one's "real" jobs and commitments has been extremely harsh. NMFS has allowed itself many years to put this document together. As much time as they wanted. Yet they made the responding public beg for more than 60 days. And the announcement that there would be another month or so added was not announced until well into the 60 day period, causing much extended anxiety. All disadvantage was to those committed to being part of this official process in their opposition to whaling. All advantage is to the pro-whaling "co-managers" who have had unlimited time to cut and paste old and new parts of the 2008 and 2015 DEISs together into this massive document.	NOAA's regulations regarding NEPA require that the agency provide a 45-day comment period on all EISs (NOAA Administrative Order 216-6A Companion Manual). We provided 150 days for public review - an initial 90-day period and a 50-day extension. We also provided several opportunities for oral comment.
349	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	PCPW requests, therefore, that our comments to the 2008 DEIS be re-reviewed along with these current comments. There is simply no time to accomplish the level of "cut and paste" that the government has accomplished in the short time allowed us. We believe our 2008 comments to still be relevant. The issues of conflicts of interest, anthropologist bias, effects to economy and community still exist. The degradation of the local ocean environment: acidification, warming waters on the coast, toxic algae blooms, low oxygen levels, and the many threats to the ENP population in the Arctic related to global warming and oil exploration and drilling...these are problems that have only gotten worse. As have the threats of ship strikes, noise pollution and fishing gear	As noted in DEIS Subsection 2.2 (Alternative Development Process), our responses to these and other comments received on the 2008 DEIS are found in the agency memorandum “National Marine Fisheries Service” (NMFS 2015a). Responses to Comments on the 2008 Draft Environmental Impact Statement on the Makah Tribe’s Request to Hunt

Sort #	Commenter Code	Comment	Response
		entanglements. Many believe that the so-called "healthy" ENP population of gray whales is far from secure, and is in fact depleted. Numbers are down. Breeding lagoon temperatures are up. Orca "takes" of calves are high. Prey species are at risk. The "stinky whale" mystery remains unsolved and the die-off of one third of the ENP population in 1999-2000 does not seem to be completely understood. The long-term survival of the ENP gray whales is not a given, and many believe that they should be re-listed. PCPW echoes these concerns. **But for the Peninsula Citizens for the Protection of Whales, as local people our first and foremost concern, and "expertise", is with the local whales, and that will be the primary focus of these comments.**	Gray Whales. Memorandum to the file from Steve Stone, NMFS Protected Resources Division. January 2015. Available from NMFS West Coast Region, Protected Resources Division, 1201 NE Lloyd Blvd, Ste. 1100, Portland, OR, 97232. The 2008 DEIS process was taken into consideration and helped to inform the process for this EIS.
350	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**<u>THE PACIFIC COAST FEEDING GROUP (PCFG)</u>** Observers of America's west coast waters have always known that a smattering of gray whales remain to feed in near-shore areas of California, Oregon, and Washington, while the main group migrates north to the Arctic for the summer. The old Yankee whalers knew it, the shore-based whaling stations knew it, and long before them, the indigenous coastal peoples knew it. The fossil record, and new DNA studies, tell us that these whales, in these various feeding areas north to south, pre-date human occupation here, and even human evolution. Gray whales occupied the Pacific and Atlantic Ocean basins on the east and west sides of each ocean, in numbers far greater than now exist. They have witnessed the opening and closing of the connecting arctic waterway between the oceans, and on the Pacific side, they have survived at least forty ice-age advances of glaciation over their primary northern feeding grounds. Gray whales survived the ice-ages by being innovative, adaptable, and by diversifying their feeding strategies to match the seasonal food sources on the portions of the coast left ice-free. **Amazingly, those ice-age survival tactics have survived to this day, transmitted by example, from mothers to calves over a long enough stretch of time to differentiate them at the mtDNA level from the grays who feed in the far north.** This small remnant of an unknown pre-historic population size, is what NMFS refers to as the "PCFG". They are the descendants of the gray whales who for some reason did not resume the full northbound migration with the majority of ENP gray whales, even after the ice melted back and cleared the route north. Instead, they stayed in pockets of habitat along the coast, transmitting the "south	Comments noted.

Sort #	Commenter Code	Comment	Response
		of the Arctic" survival techniques to their offspring over countless generations. There are fewer than 200 PCFG gray whales in existence. **The Makah U&A Gray Whales** It is from this small group of PCFG whales, that smaller sub-groups break off during spring northbound migration, to spend the next 8-10 months of the year feeding in the places their mothers showed them. Groups break off in Northern California and along the Oregon Coast. And a small number break off on the Northern Washington Coast. Some will head into the Strait of Juan de Fuca to find the shrimp their mothers showed them, deep in Puget Sound. "Patch" and his friends return in early spring, like swallows to Capistrano. These are the gray whales of the Puget Sound Feeding Group, unique, but possibly separate from the PCFG whales. Other whales go straight to feeding spots around Cape Alava, Point of Arches, Portage Head, Cape Flattery, and other spots on the outer coast, and into the Western Strait. These are the Makah U&A whales. They are a sub-group of the Oregon-S. Vancouver Island [OR-SVI] sub-group of the PCFG. The DEIS uses [152] as the OR-SVI population number, and the number [33] as an average annual population count for the tiny group faithful to the Tribe's "Usual and Accustomed" waters adjacent to the Makah Reservation: the Makah U&A whales.	
351	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	There is an ebb and flow of whales between feeding hot-spots off South Vancouver Island, the North Washington Coast, and the Western Strait. The whales move to where the best food patch is at any given time. How do they find the shifting hot-spots? Their mothers certainly gave them the basic lay of their land... but the timing, as well? No one knows. These few 33 or so whales are very special and irreplaceable. They hold the key knowledge of how to live well on this small portion of the coast. They are the only resident baleen whales in the shallow coastal waters, and their benefits to the environment are documented, as they plow up the muddy bottoms and suspend food up in the water column, to the benefit of seabirds, fish, and various benthic prey species. Their wastes fertilize the area. In the **DEIS , "Changes in Pelagic Community" pg.4-54: NMFS states: "...it is possible that abundance, species composition, and distribution could be altered if whales were harassed in or removed from the project area."**	Comments noted.
352	Owens (Peninsula Citizens for Protection	The judges of the 9th Circuit Court understood the importance of this small sub-group of the PCFG, even before their genetic distinction was proven. They wrote in their final decision :" **We must consider not just the effects to the PCFG whales, but effects to the smaller group of whales frequenting the Makah**	Comments noted. The DEIS explains our analytical approach and the basis for reporting both "likely" and "maximum" values. For example, see

Sort #	Commenter Code	Comment	Response
	of Whales)_7-27-15	**U&A...The crucial question is : whether the hunting, striking and taking of whales from this smaller group could significantly affect the environment in the local area.....No one, including the government's retained scientists has a firm idea what will happen to the local whale population if the Tribe is allowed to hunt and kill whales pursuant to an approved quota and the Makah Management Plan." [Anderson v. Evans -2004]** What would the "...hunting, striking and taking of whales from this smaller group..." look like in these local coastal waters? The DEIS provides a plethora of confusing charts that do not always agree with each other. On pg. 4-16 there is a chart giving the "likely" estimates of approaches, harpoon attempts and strikes [kills] on the 33 or so Makah U&A whalesunder the Makah Management Plan. The word "likely" hints that this is a "low ball" prediction, not a worst case. **DEIS pg.4-16: In every 6 year quota period under Alt. 2:** **[14] MU&A whales "likely" struck/killed** **[84] MU&A whales "likely" will have harpoons thrown at them [misses].** **[702] Approaches "likely" to MU&A whales** **[386] rifle shots "likely" fired at MU&A whales** **[82] "likely" grenade explosions aimed at MU&A whales** To have a loss of [14] MU&A whales in a 6 year period would be devastating: "likely" extirpation in 12 years. **But on pg.4-71, Alt 2 is listed as having the potential to kill [36] Makah U&A whales in 6 years. That number, [36] , represents the elimination of every single Makah U&A whale, "co-managed" to extinction in 6 years!** Both scenarios will have the same effect, whether over 6 years or 24 years, but this is an example of the many difficulties the DEIS presents to readers trying to differentiate the "likely" from the "possible". When estimating and analyzing important risk factors, precaution dictates we assume the worst will happen, and analyze that.	'estimates for analysis' in Table 4-1. Please also see the response to frequent comment # 13 regarding risks to PCFG whales.
353	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**In total, to satisfy a Makah quota demand of [24] gray whales butchered every 6 years, [42] gray whales can be struck and killed every 6 years.** The difference between those two totals represents the number of wasted "struck and lost" whales that will "likely" sink to the bottom, dead of their injuries. **Unknown numbers of Makah U&A whales, PCFG whales, and even Western Gray whales would be part of the [42] every 6 years, even though "migrating ENP whales" are the only whales named in the Makah waiver request. These gray whales all look alike, but they are each parts of very different eco-systems and genetic groups.**	Comments noted. Please also see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
354	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Makah Tribe announced in their Management Plan [represented by Alt. 2], that they will not count the wasted [struck and lost] whales against their self-allocated "annual allowable bycatch" of [3] PCFG whales. **Therefore it will never be known how many PCFG whales have been killed each year.**	The tribe did propose limits on harvested whales (up to 5 per year) and struck and lost whales (3 per year), and no more than 7 whales struck overall per year. As noted in DEIS Subsection 4.1.2.3 (Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested), other action alternatives include a mechanism to account for struck and lost PCFG whales based on the proportion of PCFG whales in the hunt area.
355	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**Worse, there is no prohibition on chasing or killing MU&A whales or female whales in particular.**	Alternative 3 (Offshore Hunt) includes an annual mortality limit on female PCFG whales and Alternative 4 (Summer/Fall Hunt) would authorize only the striking on known males.
356	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Again, they all look the same. The "Annual Allowable Bycatch" is calculated from the total number of OR-SVI whales [152], not from the [33] MU&A group, who are much more likely to be killed in the first years. **This is a callous brand of "co-management" that is not sustainable even in the short term. There is no guarantee that any of the kills will be from the "targeted" migrating ENP whales in a particular time period, rather than from the PCFG whales.** The main migratory corridor of the "targeted" ENP gray whales is an average 11 miles off shore. Far from the preferred "hunting grounds" : the near-shore shallow-water feeding grounds of the Makah U&A whales in the Olympic Coast National Marine Sanctuary, and right off the Wilderness beaches of the Olympic National Park.	The DEIS analyzes the potential impact of the tribe's proposal and the other alternatives on abundance of whales using the Makah Tribe's U&A (Subsection 4.4.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI). Table 3-7 reports the abundance of OR-SVI whales as 165 (Nmin of 152) and of MUA whales as 81 (Nmin of 73). The comment asserts that the main migration corridor for ENP gray whales is an average of 11 miles off shore but provides no information to support that assertion.

Sort #	Commenter Code	Comment	Response
357	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Location is definitely a big issue in protecting the resident whales, as is timing. **DEIS pg. 2-12: "The timing of the hunt, Dec.1-May 31...is designed to avoid any intentional harvest of PCFG whales ...by hunting outside the times that coincide with the summer feeding period." The preferred hunt time will be March, April and May. This is the precise time when all resident MU&A whales are arriving, as well as the newly pregnant females, the mothers, calves, juveniles and adults of all the sensitive gray whale sub-groups: Puget Sound Feeding Group, MU&A, PCFG and Western North Pacific gray whales [WNP]. All are trailing through the Marine Sanctuary ["project area"] during those months.** If the prospect was not so horrible to contemplate, it would be laughable that the Tribe designates this time-frame as "protective" of PCFG whales. **Just because the decision was made to define "PCFG" whales as "seen between June 1 and November 1" [to exclude counting any migrating whales], does not mean that those dates define the actual times of arrival or departure from the "project area". To say that this time-frame will protect any particular whales in March, April or May is not supported by survey efforts or common sense.**	The comment fails to acknowledge that the time period cited is when the tribe would encounter the entire ENP herd of more than 20,000 migrating whales. Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements, describes that approximately 40 percent of whales encountered in the Makah Tribe's U&A during the migration period are PCFG whales.
358	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Makah U&A whales, including newly pregnant females, and juveniles, arrive " back home" in March and April, with the PCFG mothers and calves arriving in April and May, in sync with the phases of the ENP migration. And now we know that, additionally, Western North Pacific gray whale mothers and their calves are also traveling, nursing, and feeding on the near-shore Washington Coast during the same time-frame as the PCFG and the ENP whales. The very survival of the WNP gray whales who winter in Baja depends on "fueling up" at the PCFG feeding areas. This must explain the surprising number of photo IDs made of WNP whales mixed in with PCFG whales in the spring on the Washington Coast. They must eat, as they are preparing for the long open-ocean crossing-- final leg in the longest of all mammal migrations-- back to Russian waters. No doubt, as their mothers taught them. How could anyone contemplate bringing the hunting chaos into this sensitive time and place?	Comments noted. Please also see the response to frequent comment # 12 regarding risks to WNP whales.
359	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**March, April, and May are obviously the absolute worst months to be chasing, frightening, scattering, harpooning, and shooting at whales in the Marine Sanctuary. This is a baby nursery in spring and summer, where PCFG mothers must feed themselves and their young. Milk production and nursing are imperative, as is resting, hiding near shore from orca attack , and beginning the "PCFG nursery school". Weaning will occur during the summer, and there is more for the calves to learn than we can imagine. We know practically nothing about their social lives, their relationships with each other, their vocalizations**	Comments noted.

Sort #	Commenter Code	Comment	Response
		and communications, their methods of navigation, or their methods of finding the variety of seasonal foods. But these things the calves must learn in a few short months. These descendants of ice-age survivors, carriers and transmitters of ancient knowledge, should be protected from disturbance and unnecessary death. Not much chance of that, when the co-managers consider them, "Annual Allowable Bycatch" ; collateral damage, with no hint of regret should they even take them all.	
360	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	These Makah U&A whales, "the residents", are the whales most personally known and loved by the members of the Peninsula Citizens for the Protection of Whales, [PCPW], and at the very least, the 5,000 local petition-signers against gray whale hunts on Washington State's Olympic Peninsula. These are the gray whales easily visible and photographed from every shore, spring through fall, from La Push to Port Angeles, to the delight of locals and tourists. There is a popular segment of "The Whale Trail" along the Strait of Juan de Fuca. The Whale Trail is an organized system of highlighting shore-based whale watching locations. There are at least 6 strategic feeding sites along the Strait marked with interpretive signage, and supported by a website and brochure maps. On the outer coast there are sites in 3 or 4 more locations, including on Olympic National Park's coastal strip. Resident gray whales are the stars of this segment of the Whale Trail, with their heart-shaped blows and near-shore presence most of the year. Their diminishment and ultimate disappearance would be a tremendous loss to local enjoyment of life, and to the tourists so important to the weak economy currently gripping Clallam County.	Comments noted.
361	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The members of PCPW adopted 7 of the whales from the small resident group many years ago. They were named in 1999 and have been followed via sighting reports ever since. "Our" whales have many years of documented life-histories, here in the waters next to us. There have been hundreds of photos of resident whales taken by our group alone; from shore, from small boats, and from kayaks. There have been many paintings and sculptures created featuring these gray whales. Poems and stories written. Additionally, we follow and pass on scientific information gathered about these whales by local scientists. These whales are personal to us, and it is unthinkable that our "Buddy", "Spot", "Kelpy", "Karin", "Grace", "Freedom" and "Hope" will "likely" have torturous ends to their gentle lives, as nothing more than "Annual Allowable Bycatch". The grim mathematical formulas of the Makah Management Plan will grind them to extinction in very short order. Our lives will never be the same.	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).

Sort #	Commenter Code	Comment	Response
		The feelings of personal loss were brought home to all friends of whales, when a gray whale was killed by "rogue" Makah whalers in 2007, at a famous resident whale feeding spot inside the Strait. This was truly a case of "shooting a fish in a barrel". When this whale was finally identified, it hit us all very hard: this poor whale, CRC-175, was a very well known whale, who happened to be the companion of one of PCPW's adopted whales, "Freedom". The association of these two whales was documented in our adoption papers in 1999. We were so intrigued with the mysterious nature of gray whale "friendships". CRC-175's protracted and torturous death impacted so many, in such a sad way. It is impossible to believe that "Freedom's life was not also impacted. We will never know what conclusions may have been reached over time regarding the connection between these two adult whales. Quite a loss to science and the whale-loving public, as well as to" Freedom."	
362	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	So why is this well known, well loved, tiny group of gray whales not worthy of protection from certain annihilation? We now know beyond a doubt that "other" whales will not magically fill in their places in the environments of the Northern Washington Coast , the Strait of Juan de Fuca, and South Vancouver Island. They have been trained to these locations by their mothers, and random stragglers will not have the knowledge to thrive. The loss of these few whales will mean the loss of this knowledge, so faithfully transmitted through generations of mothers.	Comments noted. DEIS Subsection 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements describes the wide-ranging movements of PCFG whales within the PCFG survey areas within and across seasons.
363	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	And how many of the Makah U&A whales are reproductive age females? No answer in the DEIS. Their inevitable eliminations will have dramatic and immediate effects on such a small group. There is no analysis in the DEIS or the Makah Management Plan, of what the effect of taking out adult females will be to the tiny group.. The only prohibition is on striking a "cow with calf". In a primarily genetically discrete group like the PCFG, births are the main method of recruitment. The females represent the future, yet there is no limit on the taking of females. No doubt because there is no way of knowing the difference between male and female whales until they are beached and ready to butcher.	Alternative 3 (Offshore Hunt) includes an annual mortality limit on female PCFG whales and Alternative 4 (Summer/Fall Hunt) would authorize only the striking on known males. Regarding the assertion that the PCFG is a “primarily genetically discrete group” please see the response to frequent comment # 5 regarding the stock status of the PCFG.
364	Owens (Peninsula Citizens for Protection of	The problem with trying to "save" the Makah U&A whales, is that they are a subgroup of the 180 or so PCFG whales who themselves have no protection. So why doesn't the PCFG group deserve protection? They represent the sum total remaining population of whales who have received the "south of the Arctic" survival techniques from their mothers. The PCFG whales who show site fidelity to California and Oregon are relatively safe in the shorter term from a	Please see the response to frequent comment # 5 regarding the stock status of the PCFG. All of the action alternatives include provisions designed to provide varying levels of protection for PCFG whales.

Sort #	Commenter Code	Comment	Response
	Whales)_7-27-15	Makah hunt, as are the PCFG whales who generally head further north to Southern Alaska and Northern Vancouver Island. Although there is some interchange between adjoining regions, the burden of loss will fall most heavily and most quickly on the smallest group of PCFG whales, the ones that are most faithful to the Makah's hunt area. The only way to protect these Makah U&A whales is to put all PCFG whales off limits for killing.	
365	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Since at least 1998, management concerns have been raised by marine mammal biologists in Canada, the U.S., and at the IWC, in regard to the threats to the PCFG raised by a return to whaling by the Makah. The times and locations that the co-managers [NMFS and Makah Tribe] have always put forward for hunts "targeting migrating whales", have never been designed to actually kill migrating whales instead of resident whales. In 1998 and for many subsequent years, the co-managers denied that "resident whales" even existed. The co-managers were either blind to observable reality, unaware of years of documented "site fidelity" by resident whales, or guilty of a convenient bit of "political science". Much easier to say: "they are all migrating", and let the whalers take the easy, neighborhood whales that they have always preferred to take. And if they took them all, no problem: the story line would be that "so-called resident whales" were not special, and that "other whales" would "fill in" the holes the environment left by whales killed locally. The members and supporters of PCPW were ridiculed for insisting that there was a difference, and that the lives of resident gray whales mattered.	Comments noted.
366	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	One would have thought that the finding of genetic distinctness among the PCFG would have ended the debate, and that the whales would finally receive the protection that such a tiny, unique, and threatened population deserves. That protection would need to take the form of designation as a "distinct stock" from NMFS. So why has that not happened? Other small population sub-groups and feeding groups have received protected status. The answer from NMFS regarding a lack of stock designation for the PCFG is that their scientists could not agree, and "more information was needed". During a "Task Force" workshop on gray whale stock identity, the arguments for and against the PCFG being a "demographically independent unit" have seemingly stalemated the process of decision-making since the 2012 workshop, at least. The definition of "demographic independence" on page 3-133 of the DEIS seems rather clear: "Different in biologically significant ways [i.e. genetic or behavioral differences].	Please see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		Scientists who agree that this definition is a great fit with what is currently known about the PCFG include: **DEIS pg.1-5: "The IWC found it "plausible" that the PCFG may be a demographically distinct feeding group. [IWC 2011a] "footnote same page: " IWC Scientific Committee's [IWC 2012a] review of the ENP [with emphasis on the PCFG] was "...based on treating the PCFG as a separate management stock."** **DEIS pg.3-120: "...Frasier et al [2011] concluded that the PCFG qualifies as a separate management unit under the criteria of Moritz [1994] and Palsboll et al [2007].** **Marine Mammal Commission: comments to NMFS 2012: "...recent genetic studies indicate that the PCFG may be sufficiently distinct to merit consideration as a separate stock or management unit."** **Makah Tribal Council -comments to NMFS [2000] pg. 6: "The Draft EA concedes that no evidence exists". [that the summer feeding aggregation is in fact a stock.] "To remedy this confusion, the EA should include a definition of the term "stock". One definition that would satisfy the conservation necessity was suggested in Clapham and Hatch [2000]: a grouping of individuals from a given species that if extirpated would not likely be recolonized by immigration from other areas on any time scale relevant to human management of whale populations." [inadvertently applicable suggestion]** **DEIS pg.1-5, pg. 2-6, pg.2-25, pg.3-60, pg.3-68, pg.3-121, pg. 3-130, pg. 3-156, pg.4-62, pg.4-65, and pg.4-80: The following phrase repeated on all listed pages: "...we have stated that the PCFG seems to be a distinct feeding aggregation and may warrant consideration as a distinct stock in the future." [Carretta et al 2014]** For whatever reason, NMFS will not decide on a stock designation for the PCFG before the waiver process plays out. This non-decision strongly favors the whalers, and strongly disadvantages the whales. The devil is in the details. Because they have no separate status, the PCFG are treated as one and the same as the entire ENP gray whale population, and no separate waiver application is needed. DEIS pg. 2-7: "The Tribe did not request a waiver for the PCFG as they were not designated as a separate stock at the time of the request." This simple statement swings the door open for a waiver request, because many agree that the ENP can survive a certain "take" that would encompass the Makah request. The whales that will not survive Makah whaling, the MU&A in the short term, and the rest of the diminished and harassed PCFG	

Sort #	Commenter Code	Comment	Response
		eventually, need not be mentioned or considered, as they are officially invisible--folded into the ENP stock of gray whales. With no separation of the PCFG via stock designation, there is no need for a separate waiver request for the PCFG. Such a request would have triggered extra analysis and care by the decision makers to decide if a waiver was even possible from this group. Very unlikely as there is no evidence that the PCFG population is currently at more than even half it's OSP.	
367	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Additionally, certain strategic formulas for "takes" will only rely on ENP population numbers, not PCFG numbers. For instance, on pg. 33 of the Makah Waiver Request is this statement: A recovery factor of 1.0 is used "...because best available science shows that the PCFG is part of the ENP stock...a recovered non-listed stock." Based on this, the take of PCFG whales is calculated as 2.7 [or 3] "allowable bycatch" per year, [and struck and lost whales will not count against their PCFG quota.] The "co-managers" agree that the needs of the tribe should outweigh the needs of whales. On pg. 2-25 of the DEIS, NMFS reports allowing a 1% of PBR take of California Sea Lions in 2004, but did not consider a 1% of PBR for the PCFG, because that would "...not be sufficient for the tribe." This certainly raises questions as to whether NMFS has the will or the ability to stand up to the Tribe and protect the Makah U&A whales and the PCFG from extinction. It may sound reasonable to allow the tribe a quota of "migrating ENP gray whales" but, in reality, the overwhelming disadvantage will be to the Makah U&A whales and the rest of the PCFG whales.	The DEIS explores a spectrum of action alternatives with a wide range of potential impacts on gray whales and the tribe, including one (Alternative 5, Split-Season Hunt) that currently yields a likely PCFG mortality limit equivalent to limiting the tribe to 1 whale every 5 years.
368	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	If NMFS is complicit in the ruin of this small ancient group, it won't be because they did not understand the "likely" end result of the Makah plan, or any of the Alternatives they present. These quotes from the DEIS itself, speak the truth, however cautiously: **DEIS pg. 3-68: "...the Tribe's request addresses the potential for "local depletion of gray whales in the Makah U&A."** **DEIS pg. 4-56: "It is possible that hunting under Alt.2 in the coastal portion of the Tribe's U&A could, over time, cause gray whales to use the area less frequently."** **DEIS pg.4-66: "Over time, an ongoing hunt could reduce the abundance of PCFG whales compared to No Action...With respect to the viability of the PCFG, a reduction over time could decrease the likelihood that the PCFG is viable, compared to No Action."**	Comments noted.

Sort #	Commenter Code	Comment	Response
		DEIS pg. 4-69: "If there were a decrease in the number of whales using the coastal portion of the Makah U&A...it could also result in a decrease in the number of whales using the Strait of Juan de Fuca." **DEIS pg. 4-70 "It is also possible that animals could reduce the usage of, or stop using an area because of the disturbance associated with a hunt."** **DEIS pg. 4-71: "In any given year...the total number of gray whales present during summer in the Makah U&A and OR-SVI would be at least temporarily reduced."** **DEIS pg. 4-72: "Over time, an ongoing hunt could reduce numbers of whales in the Makah U&A and OR-SVI..."** **DEIS pg. 4-72: "Numbers...could also be affected if gray whales change their distribution and habitat use in response to tribal hunts under action alternatives...Response could include changes in distance from shore that whales travel during migration, amount of time spent by whales while in the Makah U&A or OR-SVI, or changes in approachability of whales."** **DEIS pg. 4-72: "It is possible hunts in the MU&A might disturb whales, causing them to move elsewhere...more approaches, etc., cause more disturbance of feeding whales."** **DEIS pg. 4-83: Alt.2 "...could reduce abundance of PCFG, which could affect the viability of the PCFG."** **DEIS pg. 4-84: "...the PCFG abundance trend appears to be flat." "Alt.2 could reduce the likelihood of PCFG being viable into the future."** **DEIS pg.4-92: "If one PCFG whale was killed in a year it would represent a 0.5% reduction in the current abundance estimate of 209 PCFG whales...This would represent a small decrease in abundance...Over time it is uncertain to what extent the death of one PCFG whale per year might decrease the abundance of the PCFG whales."** **DEIS pg. 4-277: Alt.2: Proposed Action: "Under current conditions, 2.8 [maximum of 6] PCFG whales are likely to be killed per year. If more than 3.0 whales are killed they may not be replaced in a subsequent year, and would exceed current estimates of PBR. It is unclear whether the intensity of unsuccessful harpoon attempts [17 per year] or approaches [142 per year] would result in more than a temporary disturbance of PCFG whales and cause them to avoid this portion of their range."** **DEIS pg.4-278: Alt.2: Proposed action: "Under current conditions, 2.3 Makah U&A whales, or 2.6 OR-SVI whales might be killed per year. It is unclear whether killed whales would be replaced in the same year in which they were**	

Sort #	Commenter Code	Comment	Response
		killed or in subsequent years because of the uncertainties regarding PCFG recruitment. It is also unclear whether the intensity of unsuccessful harpoon attempts [14 to 16 per year] or approaches [117 to 131 per year] would result in more than a temporary disturbance of whales using local survey areas." **DEIS pg 4-278: "All action alternatives are likely to increase the risk of adverse impacts on gray whales using local survey areas. Alternative 2 would likely have the most impact..."** **DEIS pg.5-3: "...so it may take a long time to detect if the proposed action is affecting gray whales as expected under current harvest models. In addition, killing even a few animals per year [especially over an extended period of time] from the relatively small PCFG could have long-lasting impacts for a group of whales whose population dynamics are not well understood."**	
369	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	NMFS hides the truth in plain sight. These hunting schemes are all too risky, with irreversible harm accurately predicted for the depleted PCFG, and the tiny band of Makah U&A whales. It can only be hoped that savvy "deciders" in the path of this rush to judgment will ask themselves this: If the "co-managers" had been allowed to carry out their planned hunts from 2000 until now, what frightened fragment of the doomed PCFG would be left to pass on the ancient knowledge? Did that knowledge have no meaning? Could these whales have been a lifeboat for the species if disaster were to befall the Arctic feeding grounds? It is telling that no PCFG whales are known to have perished in the great die-off of 1999-2000. What consequences to the local ecosystem, if no Makah U&A whales remained to plow the bottoms and return nutrients to the water column? There are far too many questions, and in this case, no harm is done by waiting for further information before acting. Dispersal is extinction insurance. Gray whales must be allowed these pockets of "alternative lifestyle". These rare whales should be encouraged to thrive and expand in their environments, not be targeted for unbearable harassment and gruesome death. Fewer than 200 ENP gray whales know how to survive south of the Arctic. They must not be harmed.	Comments noted. Please also see the response to frequent comment # 13 regarding risks to PCFG whales.
370	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	NMFS understands that by "not deciding" on stock designation for the PCFG, they are sealing their doom. While NMFS may be shackled to the whaling ambitions of a fraction of the Makah Tribe, watch guards over the MMPA process should be under no such obligation, and must intervene to save these whales. History will judge harshly government agencies who betray the public trust, and allow the torment and destruction of this small race of whales.	Please see the response to frequent comment # 5 regarding stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
371	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**"CO-MANAGING" THE PCFG WHALES** In the early 1990's, the Northwest Indian Fisheries Commission [NWIFC], on behalf of twenty Washington State tribes, petitioned the National Marine Fisheries Service [NMFS] to remove the ENP gray whales from the Endangered Species List. " The tribe hopes to get the northern gray whale...downgraded...not to hunt them but so research money can be moved to other species that need monitoring."[PDN 11-13-92] The ink was barely dry on the contentious de-listing documents before the Makah Tribe formally notified the Government of its desire to initiate a harvest of ENP gray whales. This "bait and switch" tactic initiated the relationship between the Makah Tribal Council and NOAA / NMFS in regard to gray whale harvests.	DEIS Subsection 3.4.3.1.3 (Population Exploitation, Protection, and Status) includes a summary of the steps and determinations made that resulted in ENP gray whales being delisted under the ESA in 1994. As described in a December 10, 1991 Federal Register notice (56 FR 64498), NMFS received the NWIFC petition referenced in this comment "[c]oincident with completion of the status review under section 4(c)(2) of the ESA and after work was initiated on the proposed determination and rule" to delist the ENP gray whales.
372	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Senior NMFS personnel had already decided that they could go ahead and allow the taking of seals and sea lions by NWIFC member tribes, with minimal NMFS oversight. A perfunctory legal analysis had persuaded them that there was no conflict between the Makah's Treaty of 1855 and the MMPA. They believed that hunting clauses in the various Stevens treaties entered into by the U.S. Government with Pacific Northwest Tribes in the 1850's, gave NMFS the ability to grant permission for the taking of marine mammals without triggering NEPA or MMPA protocols. [R. Schmitten letter to NWIFC 9-22-94] Upon this weak foundation, built to accommodate the taking of seals and sea lions, NMFS "architects" built a context for Makah whaling to go forward. Without benefit of NEPA analysis, binding agreements were made with the Tribe to support their gray whale quota-quest at the IWC. Ultimately, these agreements, and all the decisions that would flow from them over the next 10 years, would be denounced by the 9th Circuit Court of Appeals in this way: " **Because the agencies have not complied with NEPA, we set aside the FONSI, suspend the "Agreement" with the Tribe, and vacate the approved quota..." And in even stronger language, the Court proclaimed that the issuance by NOAA of a gray whale quota to the Tribe, absent compliance with the MMPA, had violated federal law. In their words, the Court described the actions of NMFS' decision-makers as: "...arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." [Anderson vs. Evans 2004]**	Comments noted.

Sort #	Commenter Code	Comment	Response
		So these are the two "co-managers": the Makah Tribal Council and NOAA/NMFS personnel favorable to allowing a hunt. Between them, their over-zealous plans and weak science would have caused immense environmental harm, particularly to the local whales and the local environment, and still threatens to do so.	
373	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The "summer resident" grays, known and loved by the local public and by tourists, were a problem for the co-managers from the beginning. The Tribe's Whaling Commission President, Keith Johnson, responded to the issue by saying that he did not see killing a resident whale as a problem: **"If we were to take nothing but resident whales it would not severely impact the rest of the whale population."** [Peninsula Daily News [PDN], Sept.27,1998] In a subsequent article, "Would Makah kill resident whale?", NMFS spokesman Brian Gorman opined that **"It would be easier and safer if the Makah were free to hunt resident whales."** [PDN :Oct. 19, 1998] NMFS decision makers backed up the Tribe by asserting that government scientists were certain that the so-called "resident" grays were simply a few random wanderers...lolly-gaggers from the "main herd", and that in the unlikely event any were taken in a hunt, that "other whales" would fill in their places in the local environment. In May, 2000, responding to an article in the PDN regarding the Peninsula Citizens for the Protection of Whales having adopted a group of resident whales through Cascadia Research, "Group starts adopt-a-whale campaign", Keith Johnson both denies their existence "..disputes calling the whales "residents"...", and asserts ownership over them: "As to their claim to be adopting certain whale populations, I don't think they can adopt whales in our usual and accustomed [hunting] areas."	Comments noted.
374	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	By July, 2001 the co-managers had announced a new Management Plan. The PDN article titled "Does Makah decision put local whales at risk? Some fear impact of new rules on relatively tame resident pods", explained: **"A new federal environmental assessment now allows the Makah to hunt not only migrating gray whales off the coast but also the so-called "resident whales" that feed near Neah Bay. It also increases the tribe's hunting territory from the open Pacific off the coast into the Strait of Juan de Fuca." Said NMFS' Brian Gorman: "There is no biological reason in terms of a hunt why they [the resident whales] should be separated out. We have clear evidence that the whales found in the Strait of Juan de Fuca are not a separate population."** [PDN-July 16, 2001] Regarding protecting local gray whales in the Strait: "It was a political decision that science couldn't support," said Pat Gearin of the National Marine	Comments noted.

Sort #	Commenter Code	Comment	Response
		Fisheries Service." It was some politician's interpretation, to avoid the so-called "friendly whales". But there really was very little science behind it, and we were in an untenable position with the tribe saying "You can't hunt in your traditional time and area' without any scientific basis for that." No conservation issues will be raised should the tribe take another whale this spring, Gearin said. The gray whale population is robust, even above historic levels."[Seattle Times, Lynda Mapes, April 15, 2002]	
375	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Strangely, Pat Gearin made those comments about the "robust" gray whale population shortly after the huge gray whale die-off [Unusual Mortality Event] of 1999 - 2000. **One third of the entire ENP gray whale population died. The west coast was littered with carcasses.** An odd time to describe their population as "even above historical levels." He certainly knew better.	Comments noted.
376	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	What can we glean from all this, about predicting the behavior of the "co-managers"? What we observe is that **NMFS will twist science and law and good judgment into pretzels to accommodate tribal demands.** The NWIFC threatened to sue NMFS when the de-listing of the ENP gray whales seemed to be proceeding at a slow pace in the early 1990's. Six months after petitioning for the de-listing, an impatient Bill Frank wrote to the Department of Commerce: **"Continued inaction by NMFS can only lead to Federal Court to explain the lack of timely response that is required by the ESA." [letter 10-16-91]** NMFS sped things up right away. A little over a month later, NMFS replied to Mr. Franks: " **Thanks for your letter...I am pleased to inform you that the proposed rule to delist the eastern Pacific gray whale stock has been published in the Federal Register..." [letter to Bill Franks 11-27-91.]** To this day, it seems that the combination of the NMFS "old guard" sympathy towards aboriginal whaling, in addition to an institutional fear of being sued by tribes, is what motivates NMFS. Our naive belief that NMFS/NOAA would consider their top priority to be protection and conservation of the marine environment was long ago dashed. We still hold, however, that NMFS' main focus should be protecting whales from the significant impacts they know that any hunt plan will have, rather than tailoring whaling plans to placate the Makah whaling faction. So, it is left to the general public, educated by the work of independent scientists, to care enough about these whales to check NMFS' work as carefully as possible. Thankfully, lawsuits were successfully brought against the co-managers'	The NMFS staff who prepared the 2008 and 2015 DEIS documents were Northwest Region (subsequently West Coast Region) staff who had not been involved with prior agency actions regarding the Makah Tribe's requests to hunt gray whales. Other circumstances were also different from past NMFS' actions on the Tribe's request. In response to the Ninth Circuit decision in *Anderson v. Evans*, staff prepared an EIS rather than an environmental assessment, ensuring a hard look at potential environmental effects. Also in response to *Anderson*, the 2008 and 2015 DEIS documents used MMPA standards to inform the evaluation criteria so that agency decision-makers will have the necessary analysis to make MMPA determinations.

Sort #	Commenter Code	Comment	Response
		plans. If not for the efforts of those opposed to whaling, the questions surrounding the odd presence of gray whales in the Pacific Northwest who do not travel to the Arctic would be moot. Their unique genetic story would never have been told. After 17 years of co-managed hunts, they would all be gone by now. Gone from the Strait, gone from the Marine Sanctuary, gone from Neah Bay, gone from all the Whale Trail look-outs.	
377	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	That is certain, because in 2001 the co-managers announced that they had expanded what was possible, in terms of whaling in the Makah U&A, to the maximum extent. NMFS agreed with their Makah co-managers that it would now be fine to go whaling anytime of the year--go whaling anywhere in their entire U&A --and kill any gray whale they came across. Exactly what the Makah whalers had wanted all along. It had only taken two years for the co-managers to expand the Makah Management Plan from an outer-coast-only hunt for migrating whales, to the 2001 no-holds-barred, into-the-Straits to Salt Creek County Park plan. NMFS must have had no desire-or no will-to oppose the Tribe and keep the Straits off-limits. That would have at least given the "so-called" resident whales some ability to escape the torment. Even the issue of public safety [regarding the use of the 50 cal. rifle on a populated coast] did not deter the co-managers. These reckless decisions do not signal any regard for under-studied whale populations or for innocent human by-standers, by the Tribe or by NMFS. Neither do these decisions seem to reflect an equal "co-manager" balance of power. Assuming NMFS would prefer to show some good faith in regard to protecting the resident whales, why does all advantage go to the whalers, and why is all harm, injury, and disadvantage borne by the whales whose welfare is entrusted to NMFS? Both co-managers defended the new plan, with NMFS seeing no reason to "separate out" the resident whales from the killings. Luckily for the whales, the 9th Circuit Court saw things differently and stopped the co-managers in their tracks before irreversible harm could be done.	None of the DEIS alternatives contemplate a hunt with an initial strike on a gray whale in the Strait of Juan de Fuca, and all of the action alternatives incorporate a protective mortality limit on PCFG whales. Contrary to the commenter's assertion, all harm, injury, and disadvantage is not borne by whales. The DEIS evaluates safety issues and risks to hunters, protesters, and bystanders, as well as the impetus for the Coast Guard to establish a regulated navigation area to address the inherent dangers of a hunt.
378	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	NMFS should be embarrassed at having been so wrong on so many of their assumptions in regards to the gray whales. Assumptions that were not corrected by open-minded and thorough research before binding agreements were made with the Tribe. Assumptions that could have, if acted upon, done irreversible harm to several small gray whale populations, in utter disregard to the spirit and purposes of the MMPA. In 1998 NMFS told the public: "trust us--there are no resident whales". In 2001 they claimed that they had "clear evidence" that there were no "resident" gray whales. This in spite of over 20 years of research by local scientists on maternally directed site-fidelity. Based on	NMFS' decisions have been, and continue to be, based on the best scientific information available at the time. NMFS has invested considerable time and effort over many years to obtain additional information on the ENP gray whale stock and on the PCFG and will continue to use

Sort #	Commenter Code	Comment	Response
		a tiny sampling, NMFS announced that there was no genetic difference between the "summer" gray whales and the "rest of the herd". NMFS has been proven WRONG. Based on another tiny sampling, NMFS assured the public that "most" local whales were males. WRONG. Based on a minimal legal analysis, NMFS asserted that the Makah hunt was not bound by the MMPA. WRONG. This is a very bad track record for our government's co-manager of a much-loved public treasure.	the best scientific information available in future decision-making.
379	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**For their part, the Makah Tribal Council also proclaimed that there were no "resident whales". With their oft-stated intimate knowledge and understanding of the resources in their waters, they really should have known better. After all, we now know that the ancestors of the present day Makah Tribe hunted the ancestors of the present day PCFG gray whales.** So does the current 2015 DEIS show any signs of compliance by the co-managers with the dictates of the 9th Circuit Court? Will there be safeguards in place to ensure a stable future for the PCFG gray whales in their various environments? Will extra care be taken not to harm the very small group of Makah U&A gray whales that the 9th Circuit was concerned with? Or did past actions correctly foreshadow the current proposals? For their part, the Makah Tribe's waiver request, did not change in the slightest to acknowledge the new information about the uniqueness of the PCFG gray whales. Not a word has changed in the original 2005 Waiver Request.	The tribe's 2005 application does acknowledge the existence of a Pacific Coast Feeding Aggregation and notes that "Although the PCFA [aka PCFG] is not a separate stock under the MMPA, the Tribe's waiver request is designed to prevent any depletion of whales that exhibit inter-annual site fidelity to the ORSVI gray whale management area and thereby assure that gray whales remain a "significant functioning element" of the local ecosystem." It also states "the Tribe will cease hunting in a calendar year if, based on this photographic analysis, suspension of the hunt is necessary to prevent the number of whales harvested from the PCFA catalog from exceeding an annual allowable bycatch level (ABL) for that year. The ABL for the PCFA will be calculated by applying the MMPA's potential biological removal (PBR) methodology to a conservative estimate of the number of gray whales seen in more than one year in the OR-SVI gray whale survey area..."
380	Owens (Peninsula Citizens for	And no words needed to change, as the co-managers had years ago developed a strategy to circumvent any need for "special care" for the PCFG whales. It is diabolical in its simplicity. **Just continue to designate all Eastern**	Please see the response to frequent comment # 4 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
	Protection of Whales)_7-27-15	**North Pacific gray whales as a single stock. With this system, PCFG whales practically disappear. Do the PCFG whales give birth in the warm waters of Mexico with the ENP gray whales? If so, they are a single stock. No one knows who is breeding with whom, so assume that PCFG whales are interbreeding with "other" whales, and claim that this precludes separate stock designation. Do many scientists disagree with the decision not to give stock designation to the PCFG whales? That's fine...quote some government scientists who do agree, and declare a stalemate. Problem solved for now. The Tribe's favored Alternative, Alt.2, encodes this solution to an extreme degree, and insures that the pesky resident whales won't be around to be a problem for too long.**	
381	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Because NMFS has balked at stock designation for the 200 PCFG whales, many policy details favor the co-managers' desire to "not separate out" the PCFG whales. **These devilish details will ensure the brisk elimination of the 33 or less Makah U&A whales. At a worst-case rate of 42 whales killed in pursuit of 24 butchered every 6 years, or in any lesser annual take, it is obviously not a matter of if the resident whales are eliminated, it is only a matter of when. This is a plan that gives no value or mercy to the resident whales, but goes after them in a very aggressive way.** A Makah whaler once commented gleefully that hunting the resident whales would be " like shooting cows in the barn", and the "safety" of the whalers is often used to justify taking the local whales.	Comments noted.
382	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The Makah's "Annual Allowable Bycatch" [AAB] of three PCFG whales a year is a "management to extinction plan" for the majority of the PCFG gray whales.** The term AAB itself is straight from fisheries management, and refers to how many of the "wrong" fish you can catch per year without penalty. In this case, since lip service is being paid in the waiver request to targeting "migrating ENP whales", any landing of a known PCFG whale is considered a landing of a "wrong" whale. From the 152 OR-SVI grays, the Makah biologists have calculated an Annual Allowable Bycatch of 3 per year, or 18 in every 6 year quota period. So out of a maximum of 5 whales butchered each year, or 24 in a 6 year period, the great majority can, and likely will be, resident whales--as long as they last. The DEIS 2015 at pg.3-156 gives a Potential Biological Removal rate for the entire 200 member PCFG of 3.1 per year, so Tribal managers are calculating their AAB [from the smaller OR-SVI population] in their own, less protective way.	The DEIS describes the different ways that the action alternatives calculate mortality limits for PCFG whales. The commenter's assertion that the "great majority" of whales would be PCFG animals is not supported by the available survey data which instead indicate that approximately 40% of whales encountered during a spring hunt would be PCFG whales.
383	Owens (Peninsula Citizens for Protection	How is such an unreasonable bycatch quota calculated for a small population that is estimated to be at half its optimum sustainable population? [A.E. Punt IWC 2015] **Because the PCFG has no separate stock status, the co-managers make their calculations based on the ENP population as a whole.**	Unlike action alternatives 3 thru 6, the Tribe's proposal (Alternative 2) is the only one that employs a 1.0 recovery factor to calculate PBR and does not

Sort #	Commenter Code	Comment	Response
	of Whales)_7-27-15	From the Waiver Request [2005], pg. 33: " A recovery factor of 1.0 is used [to develop the bycatch number] because best available science shows that the PCFG is part of the ENP stock...a recovered non-listed stock." If the PCFG were granted stock status, "separated out", the recovery factor would have to be calculated at a much lower rate. NMFS' response to a 2008 comment regarding Potential Biological Removal [PBR] states: **"NMFS' guidance on preparing stock assessment reports generally recommends using a recovery factor of 0.1 for a depleted population, a recovery factor of 0.5 for a population of unknown status, and a recovery factor of 1.0 when a population is known to be stable and at OSP [NMFS 2005]...NMFS uses 1.0 in setting PBR for the ENP [gray whales]."** In the 2013 stock assessment report [Carretta et al 2014], authors concluded that the PCFG may warrant consideration as a stock in the future and used a recovery factor of 0.5 to calculate its PBR, as appropriate for a stock of unknown status. But because the Makah co-managers can "get away with it" on a NMFS-facilitated technicality, the "unknown status" of the PCFG population conveniently becomes one and the same as the "stable and at OSP" status of the entire ENP gray whale population. The outcome is a callous Annual Allowable Bycatch [AAB] quota for resident whales, self-allocated by Tribal co-managers and ready for approval by NMFS.	account for other sources of human-caused mortality. If the PCFG were designated as a stock in the future, the proposed waiver and regulations, in their current form, would not authorize take from that stock.
384	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**In addition to the 3.0 AAB, any whales struck and not landed [and presumed dead] will not, says the Tribe, be counted against their AAB.** In a 6 year period 18 whales can be struck and lost. Any or all could be PCFG whales. And in another blow to the resident whales, **"The Tribe does not propose to account for other sources of human-caused mortality when setting the allowable by-catch limit for PCFG....In its' comments on the 2008 DEIS, the Marine Mammal Commission questioned this approach." [DEIS 2015, pg. 2-10]** Also on this topic, the DEIS at pg. 5-37: "The IWC Implementation Review of PCFG [IWC 2013c] included an even more precautionary estimate of non-hunting human caused mortality [2.0 PCFG whales] which is considerably higher than the 0.45 whales in the PCFG range and season reported in the most recent stock assessment report [Carretta 2014]." **An honest calculation would show that there is no "take" possible from the PCFG.**	While the tribe's proposal (Alternative 2) does not propose to account for other sources of human-caused mortality, DEIS alternatives 4 and 6 do. The agency's current MMPA stock assessment report (Carretta et al. 2019) concludes that: - PCFG gray whale abundance remained stable for the period 2005-2010, and have steadily increased during the 2011-2015 time period. (Note that Calambokidis et al. [2017] found the PCFG had grown in abundance to 243 whales in 2015). - Informational PBR for PCFG whales is 3.5

Sort #	Commenter Code	Comment	Response
			- annual human-caused mortality of PCFG whales for the period 2012-2016 averaged 1.35 whales. In addition, the IWC SC has continued to analyze proposals for a Makah gray whale hunt (International Whaling Commission (IWC). 2018. Report of the Scientific Committee Bled, Slovenia, 24 April-6 May 2018. IWC/67/Rep01(2018)).
385	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Whether we consider the OR-SVI population of 152, or the Makah U&A whales at about 33 members, where is any discussion of the extra value of the reproductive age female gray whales? Where is any cautionary note regarding avoidance of killing too many females? There is no discussion of this, even though the females are the only hope for the future for the PCFG whales. How many of either group are adult females? How many are likely to be pregnant each spring? No answer in the DEIS. The example from another small stock, the Western Pacific gray whales, gives us a clue. Out of a total population of about 130 whales, it is known that only about 24 WNP gray whales are breeding age females. So how does this translate to the OR-SVI population? It could mean that there are barely 30 mothers in whole the group. And of the 33 Makah U&A whales? There could be as few as 6 or 7. How is it possible for NMFS to support, or the Tribe to conceive, a plan so short-sighted? It's easy if you just don't care about the PCFG whales. It is quite an understatement for NMFS to say in the 2015 DEIS at pg.4-66: **"Over time, an ongoing hunt [under Alt.2] could reduce the abundance of the PCFG whales compared to No Action...With respect to the viability of the PCFG, a reduction over time could decrease the likelihood that the PCFG is viable, compared to No Action."**	Comments noted. Alternative 3 (Offshore Hunt) includes an annual mortality limit on female PCFG whales and Alternative 4 (Summer/Fall Hunt) would authorize only the striking on known males.
386	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Can NMFS be trusted to closely monitor the swift hunting-out of the Makah U&A whales, and call a halt to any over-harvest before they are eliminated from the Neah Bay area and the Strait of Juan de Fuca? [The gray whales feeding near shore along the Strait are one and the same as the Makah U&A whales feeding on the coast. The small group moves freely between the outer coast, inside the strait, and to S. Vancouver Island.] Nowhere in the DEIS, the Waiver Request, or the Management Plan, is there any mention of limits or concerns on "over-takes" from the 33 resident whales. So there is no reason to believe that either co-	Comments noted. Please also see the response to frequent comment # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
		manager cares. NMFS' shameful "co-management" of the Alaska Natives' hunt of Cook Inlet beluga whales is a cautionary tale. On NMFS' watch, their tribal co-managers killed half the total population in four years! This same depletion and possible decline to extinction could befall the PCFG whales, with the Makah U&A whales eliminated first.	
387	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**How is it that co-managers can take with such a heavy hand from a tiny group of genetically distinct whales with 1) no well established population count, 2) no known Optimal Sustainable Population number, 3) living in the Makah U&A , whose carrying capacity is, according to NMFS, "unknown" ?** This would not pass muster with any objective "decider". **All these problems with "saving" the Makah U&A whales from oblivion are rooted in NMFS' simple strategy of refusing to decide "yet" to give the PCFG gray whales separate stock status.** NMFS repeats many times in the DEIS that "the PCFG...may warrant consideration as a distinct stock in the future". Will there be any whales left to protect after even one 6 year period of Makah hunts? We are extremely concerned that there may not be a "future" for the local whales.. It was also problematic to receive the following response to us from NMFS regarding a reference in the 2008 DEIS to an annual PCFG quota that could possibly be exceeded by the Tribe: **Said NMFS: " The Tribe's proposal also implies that more than one hunting party may be active at a time, which could lead to the quota being exceeded." What kind of co-management is this, where the ability to exceed a quota is built in and taken for granted?**	Please see the responses to frequent comments # 4 regarding the stock status of the PCFG and # 13 regarding risks to PCFG whales.
388	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	And there is at least one more huge benefit to the Tribe springing from the refusal to decide on stock status for the PCFG. **DEIS 2015 pg. 2-7: "The Tribe did not request a waiver for the PCFG as they were not designated as a separate stock at the time of the request."** So there may be no scrutiny by "waiver grantors" of the impact of the "bycatch "allowance on the PCFG whales, the Makah U&A whales, and their environments. If this waiver is granted under such questionable circumstances, there will be no hope for the PCFG. If NMFS has not decided on stock designation by now, when will they? They will be irreversibly locked into the scenario they have designed for years to come, and the PCFG whales will be irrevocably harmed to the great detriment of the local environment, the local whale-loving public, and the economy of local nature-based tourism.	Please see the response to frequent comment # 4 regarding the stock status of the PCFG.
389	Owens (Peninsula Citizens for	**To quote the DEIS quoting the 9th Circuit [Anderson v Evans] pg.1-18: "The Court defined the conservation purpose of the MMPA as "To ensure that marine mammals continue to be significant functioning elements in the**	As noted in DEIS Subsection 4.4 (Gray Whales), for whales using the Makah U&A and OR-SVI areas, our NEPA

Sort #	Commenter Code	Comment	Response
	Protection of Whales)_7-27-15	**ecosystem.....and not diminish below their optimum sustainable population." And: "Without review under the MMPA, there is no assurance takes by the tribe, including both killed and harassed without success, will not threaten the role of gray whales...in the ecosystem."** These quotes do not refer to "stocks". They refer to "gray whales" and "ecosystems". The only gray whales utilizing, dependent upon, and functioning in the ecosystems of the Makah U&A in anything other than a "migrating through" capacity are the Makah U&A portion of the PCFG whales. The Court did not care if they were genetically distinct or not, from "the other California gray whales". The words of the judges are crystal clear: **"If California gray whales disappear from the area of the Strait of Juan de Fuca, the Marine Sanctuary, or both, that would be a significant environmental impact even if the PCFA whales populating the rest of the Pacific Coast in the summer are genetically identical to the local whales, and even if the PCFA whales are genetically identical to the migrating whales."** [Anderson v Evans 2004] **What wise and important words. The 9th Circuit was not concerned with stocks or the definition of a stock. They insist that the co-managers must honor the will of the American people, as Congress expressed it in the MMPA: protect the whales, whoever they are, in the specific environments that they inhabit, such as the Makah U&A. The American people, the Congress, and the 9th Circuit Court are concerned with the ecosystems, large and small, and that whales remain a functioning part of them in populations as large as the ecosystems will support. The DEIS quotes the Court [Anderson v Evans] often, but the co-managers don't seem to "get" that it applies to them.**	analysis considers potential effects on numbers of whales. Our analysis does not consider the viability of whales using these survey areas because our stock assessment reports have not suggested that these smaller units may be stocks, the genetic information does not indicate that there could be stock structure below the PCFG, and monitoring of movements of photographically identified whales suggest that they use a larger feeding area than the Makah U&A and OR-SVI.
390	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**DEIS [2015] pg. 1-18: "...whether the Tribe's whaling will damage the delicate balance of gray whales in the ecosystem is a question that must be asked long before we reach the desperate point where we face a scramble for species preservation." [Anderson v Evans]** **DEIS [2015] pg. 3-122 : "Even if the eastern Pacific gray whales overall or the smaller PCFA group are not significantly impacted by the Makah Tribe's whaling, the summer whale population in the local Washington area may be significantly affected. Such local effects are a basis for a finding that there will be a significant impact from the Tribe's hunts. Thus, if there are substantial questions about the impact on the number of whales who frequent the Strait of Juan de Fuca and the northern Washington Coast, an EIS must be prepared [Anderson v. Evans 2004]."**	Comments noted and evaluated in DEIS subsections 3.4 and 4.4 (Gray Whales).

Sort #	Commenter Code	Comment	Response
		In response, the DEIS could not be more straightforward about the likely results of a Makah hunt on the local whales: **Pg. 4-66: "Overtime an ongoing hunt could reduce the abundance of PCFG whales... With respect to viability of the PCFG , a reduction over time could decrease the likelihood that the PCFG is viable..." Pg. 4-69: "..a decrease in the number of whales using the coastal portion of the MU&A...could also result in a decrease in the number of whales using the Strait..." Pg. 4-70: "It is also possible that animals could reduce their usage of or stop using an area because of the disturbance associated with a hunt." Pg.4-71: "In any given year...the total number of gray whales present during summer in the MU&A and OR-SVI would be at least temporarily reduced." Pg. 4-72: "Over time, an ongoing hunt could reduce the number of whales in the Makah U&A and the OR-SVI survey areas...The number of whales in the MU&A or OR-SVI could also be affected if gray whales change their distribution and habitat use in response to a tribal hunt under action alternatives...Responses could include changes in distance from shore that whales travel during migration, amount of time spent by whales in the MU&A or OR-SVI, or changes in approachability of whales...It is possible a hunt in...MU&A might disturb whales, causing them to move elsewhere...more approaches, etc cause more disturbance of feeding whales." Pg.3-133: "Animals with strong site fidelity may be unlikely to move or select new habitats if their traditional habitat becomes less favorable.[Quan 2000]."**	
391	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	So how does the Makah Management Plan respond? **Under Alt.2, 6 Makah U&A whales may be killed per year, which is 36 in every 6 year quota period. With only 33 MU&A whales in existence, the 9th Circuit Court would never condone this plan.** There is no doubt that a great number of kills will be from the local whales. **The most "likely" hunt times will fall in the months of April and May, "designed to avoid any intentional harvest of PCFG whales...by hunting outside of times that coincide with the summer feeding period."[DEIS pg. 2-12] That statement is as deceptive as it can be. The PCFG whales arrive in force to the Makah U&A in March, April and May.** As explained in earlier comment sections, these are the arrival months for the Western Pacific grays, the PCFG whales, and all mothers and calves. This is terrible timing, meant to accommodate good weather "safety" for the whalers, and the pretense that PCFG whales arrive in June to feed. This timing has little to do with "avoiding" the harvest of local whales.	DEIS subsections 3.4 and 4.4 (Gray Whales) explore the issues raised in these comments, as well as the fact that over 20,000 non-PCFG whales migrate through the Makah U&A each year and are more likely to be encountered under the alternatives 3, 5 and 6.
392	Owens (Peninsula	It is a fact that the local whales will be much easier and "safer" targets, not only because they are close to shore and the weather is better in April and	Comments noted.

Sort #	Commenter Code	Comment	Response
	Citizens for Protection of Whales)_7-27-15	May. At DEIS pg. 4-26 we learn another reason: **"The Makah Tribe's marine biologist...is surveying the Makah U&A throughout the year. The survey involves searching for, approaching, photographing, and/or taking biopsies..."** In other words, the constant "research" by the tribe's own biologist and the various NMFS biologists, is specifically habituating Makah U&A whales to contact with small boats. The co-managers are basically "training" the whales to be docile and unafraid of vessel approach and "grooming" them for killing. The whalers should keep in mind that in Russia, the years of whaling have resulted in 44% of whales landed demonstrating aggressive behavior. [IWC 2015]. And they will be frightened into avoiding their feeding areas, to their own detriment. Three days after the 1999 hunting mayhem culminated in a young dead gray whale, the large group of whales that had been feeding together in the Cape Alava area was seen 10 miles south of that area. And these were whales that the co-managers insisted were "migrating north". To say that the Makah co-managers have disregarded the Court's edicts would be putting it mildly. Even NMFS admits: "All action alternatives are likely to increase the risk of adverse impacts on PCFG gray whales. Alt.2 would have the most impact." [DEIS 4-277]	
393	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**WESTERN NORTH PACIFIC GRAY WHALES (WNP)** Along with the finding of genetic difference between the PCFG and the migrating ENP gray whales, there was another big reason for this "back to the drawing-board" DEIS. That was the new realization that some extremely rare gray whales from the Western North Pacific (WNP) utilize the birthing lagoons in Mexico. And to the dismay of the co-managers, their epic migration takes them right through the Makah U&A waters during the prime hunt time: December through May. They are migrating in sync with the ENP gray whales and the PCFG whales, both southbound and northbound, and cannot be differentiated from each other on the fly. The population number used in the DEIS for the WNP gray whales is 140. They are thought to be a practically extinct remnant of a once robust Western North Pacific gray whale stock, and are genetically distinct from the ENP gray whales and the PCFG whales. However there are various and conflicting hypotheses regarding the population structure of gray whales as a whole, and many years of studies will be needed to come close to understanding what the facts are. What is accepted is that the WNP gray whales are at very low numbers and far below their OSP. They are listed as endangered on the U.S. ESL, listed as	Comments noted.

Sort #	Commenter Code	Comment	Response
		depleted by the MMPA, and listed as critically endangered by the IUCN. From the DEIS [2015]: **DEIS pg. 3-94: "The IWC and a series of independent expert panels established by the IUCN have emphasized the urgent need for a comprehensive international strategy to eliminate or mitigate anthropogenic threats facing WNP gray whales throughout their range."** The International Western Gray Whale Rangewide Workshop [IUCN] in Tokyo, 2008, recommended the implementation of a conservation plan for WNP gray whales. **In 2014 the "Memorandum of Cooperation Concerning Conservation Measures for the Western Gray Whale Population" was signed by the U.S., the Russian Federation, and Japan. The text begins: " Acknowledging that the Western Gray Whale population has the critically endangered status on the IUCN Red List of Threatened Species...". The Memorandum is non binding, but is a stirring call to action to "...prevent the disappearance of the existing population...and manage human activities that affect their status..."**	
394	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The 140 Western Pacific gray whales have many threats to their survival. High on the danger list is the intrusion of oil and gas exploration and development in the waters off Sakhalin Island, the main feeding area for the WNP gray whales. There are very real concerns about the deafening underwater noises created by these industrial activities. The danger of collisions with ships will only increase. Oil spills could devastate this small population, as could any disruption in their effort to consume a year's worth of food in the summer months. Entanglements in fishing gear have already occurred with WNP whales off-shore of Sakhalin Island. The DEIS mentions none of this, and only tells us [pg. 3-11], that there are photos of [28] Western grays with entanglement scars and [3] with collision scars. Even at that, it is obviously a perilous world for 140 whales to navigate and survive in. But in a great lapse, the DEIS leaves all these threats un-analysed, and does not add them to any "cumulative effects" discussion. At least 19% of all Western Pacific gray whales also face the many additional threats involved in their only recently observed migration to and from Mexico. At the very least, 27 WNP gray whales have been noted, mixed in with the ENP [and PCFG] migrations. To achieve this stupendous migration they first must cross the deep Pacific Ocean. Then, they share with the entire ENP gray whale population the threats of ship strikes, fishing gear entanglements, oil spills, and orca predation, as they move up and down the Canadian, U.S., and Mexican coastlines. They may also be impacted by Navy training exercises in California and	Please see the response to frequent comment # 12 regarding risks to WNP whales.

Sort #	Commenter Code	Comment	Response
		the Pacific Northwest. The Navy is currently authorized by NMFS to "take" [60] WNP whales in the SOCAL Complex by Level B harassments and [3] per year in ship strikes.	
395	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The effects of climate change, and how that will affect all gray whales, is a vast and depressing topic. Changes in water temperature already seem to be having a negative effect in some Baja birthing lagoons.[Urban IWC doc. 2015]. And the implications of a warming Arctic are continuously studied and modeled. No scenario favors the gray whales' benthic prey species, and neither does the acidification that is already measurable in the Makah U&A. Climate change should be considered an ever more crushing over-arching limiting factor for many aquatic species, including whales. Sadly, NOAA's scientists tell us that climate change is "real", and will have heavy consequences to everything in NOAA's purview. The entire west coast is currently experiencing a "blob" of water many degrees warmer than normal. Acidification has already killed billions of oysters along the Washington coast and at Hood Canal. **"This change we're seeing is happening so fast it's almost instantaneous. I think it might be so important that we will see large levels, high rates, of extinction." ["Sea change..." Craig Welch, Seattle Times, Sept.11,2013-- quote from James Barry, Monterey Bay Aquarium Research Institute]**	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
396	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	And to all this the co-managers propose to add even more deadly drama to the gray whales' lives. On top of the existing gauntlet of perils all gray whales must face, NMFS and the Tribe propose to operate a completely unnecessary chamber of horrors and death row for gray whales on our beautiful North Washington Coast. The net of boat approaches, boat chases, harpoon attempts, strikes with harpoons, strikes with .50 cal shells and possibly penthrite grenade blasts and strikes, will be cast over all gray whales transiting through or returning home to the Makah U&A. The likely hunt time will be the milder weather of April and May. Nursery time for all gray whales. Math formulas churn out annual and 6-year estimates of the numbers of frightening and injurious contacts that gray whales will encounter every spring in waters they have been accustomed to trust. Takes of Western Gray whales will be inevitable, and there are no mitigation measures possible to prevent that. **DEIS pg. 3-1 : "...and there is a chance that WNP gray whales might be killed, subjected to harpoon attempts, or approached." Also from the DEIS:** **DEIS pg. 3-93: "...Potential Biological Removal [PBR] values [for WNP stock] ranging from 0.07...to .033, with uncertainty in these values being driven by uncertainty in the fraction of WNP animals migrating in ENP areas."**	Please see the response to frequent comment # 12 regarding risks to WNP whales.

Sort #	Commenter Code	Comment	Response
		"...it is most likely that whales from this stock could be encountered in the vicinity of the Makah U&A during the hunting season proposed by the Tribe..." **"...there is a high probability that during a 6-year period a WNP whale would be pursued or approached by Makah hunters [a probability of 0.98 to 1.0]."** **"The probability of an attempted strike on at least one WNP in 6 years was still fairly high...[35%] and the chance of actually striking at least at least one WNP whale in 6 years was relatively low but non trivial" [7%].** **"The loss of a single whale, particularly if it were a reproductive female , would be a conservation concern for this small stock."** **pg.5-29: "It is unclear how natural mortality may be influencing WNP whales. High incidence of orca tooth scars, small size and limited number of reproductive females, and relatively low calf survival, are likely to be key factors limiting potential population growth. They are likely more susceptible to changes in mortality, natural or human caused." [Burdin 2012]** Given the above statements of risks and probabilities, it is instructive to read **the definition of "negligible impact" from the DEIS pg. 2-21: "An impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."** **From the DEIS pg. 5-36: "Given the small size of the WNP in the analysis area, it is speculative to predict whether appreciable effects would be expected from any of the activities assessed in Subsection 5.1.3, past, Present, and Reasonably Foreseeable Future Actions."** Add to that the often repeated phrase in the DEIS: **"There are very limited data for WNP whales in the project area to inform this analysis."** **From the GAMMS SAR guidelines, June 2005, pg.10: Definition of Strategic stock: " If human caused mortality is likely to be significant relative to stock size...the stock should be considered as strategic."** **And: "In the complete absence of any information on sources of mortality, and without guidance from the Scientific Review Groups, the precautionary principle should be followed and the default stock status should be "strategic" until information is available to demonstrate otherwise."** It is heartening to see the Precautionary Principle invoked by the government. **A precautionary approach to risk management states that if an action or policy has a suspected risk of causing harm to the public or the**	

Sort #	Commenter Code	Comment	Response
		environment, in the absence of scientific consensus that the action or policy is not harmful, the burden of proof that it is not harmful falls on those taking an action. NMFS has in no way proven that there will be no harm, or even "negligible impact", to the 27 WNP whales from Russia on the U.S. coast, or that there will be no harm or impact to the entire 140 WNP grays by removal of adult females [likely pregnant] from the Baja-migration group. For NMFS to green-light the action of Makah whale hunts during migration times is to green-light the never-ending harassments, woundings and deaths that math formulas assure us will likely touch 27, or more, WNP gray whales transiting the Makah U&A near-shore December-May into perpetuity. And those losses will affect the viability of the WNP gray whale population. In fact, it bears repeating that what NMFS says is: **"There are very limited data for WNP whales in the project area to inform this analysis."**[DEIS pg. 4-34] Making a decision to allow actions that can harm the WNP gray whales, will make Makah whaling one big game of Russian Roulette. No one will ever know the identities of the hungry WNP whales chased from their productive food sources before the longest known mammal migration....the WNP mothers , desperately needing to eat to produce milk for precious calves, chased and disrupted from feeding and nursing...possibly chased into dangerous deep water. The struck and wounded WNP whales, the struck and lost WNP whales, sinking to the sea floor. Only the struck-and-butchered-on-the-beach WNP whales will be ID'd. Then it will be too late for those whales, and too late for NMFS to back-pedal on the whole whaling scheme. By the time NMFS admits that math formulas and computer models can be wrong, irreparable harm will likely have been done. The risks to the severely depleted WNP stock are high and not easily calculable. The very time to act in a precautionary manner. The U.S. has a responsibility to assist the recovery of the Western North Pacific gray whales, not drive the nails into the coffin of this population. To satisfy the demands of a small group of whaling families to carry on the elitist activities of their ancestors, NMFS offers up small, vulnerable whale families as sacrificial lambs. The judges of the 9th Circuit Court were extremely concerned about the PCFG whales, and even more concerned for the survival of the Makah U&A whales. We can only imagine what their opinion would have been of this unmitigated threat to the Western Pacific Gray Whales.	

Sort #	Commenter Code	Comment	Response
		The Peninsula Citizens for the Protection of Whales strongly believe that these once thought to be extinct Western Pacific gray whales are guests in our waters. Important guests, with much to teach us about their surprising lives. Perhaps the "Russian" whales are well known to the PCFG families as individuals. We have no idea what harm can come from "hunters" running amuck amongst these sensitive animals. These ancient lineages of whales deserve better. **Why don't the Makah need a waiver from the MMPA for "takes" of WNP whales? The DEIS describes the possibility of a "take" as "non-trivial". The MMPA must protect them as well as the PCFG whales.**	
397	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**SMALL POPULATIONS** There are many problems with, and objections to, the NMFS/Makah whale hunt plans. But none is more important or urgent to address than the issue of stock designation for the PCFG gray whales. Nothing bothers the Peninsula Citizens for the Protection of Whales more than contemplating the chasing, terrifying, scattering, ambushing, harpooning, wounding, shooting, and killing of our resident whales. Every year, multiple times a year, for years on end. Until it becomes obvious that there are no more grays in the Strait....or at the Cape. Or on the coast. Their absence will bring a great sadness and leave a huge void in the ecosystem. How can this be allowed to happen? **From the DEIS pg.1-5: " NMFS currently does not recognize the PCFG as a " population stock" as we interpret that term under the MMPA, but we have stated that the PCFG seems to be a distinct feeding aggregation and may warrant consideration as a distinct stock in the future. [Carretta et al 2014]" This phrase is repeated over and over throughout the DEIS. "In the future.." ?** We do not feel that we can over-emphasize the harm that NMFS does by postponing the decision to give stock designation to the 200 PCFG gray whales until some indefinite future. It is now that it matters, as NMFS contemplates allowing a hunt [into perpetuity] that will quickly do away with a great portion of the PCFG . So what is the hold-up? NMFS mentions in the DEIS holding a "workshop" on gray whale stock ID. **From the DEIS: pg. 3-56: "Workshop participants recommended that the criterion for determining when a group of animals should be considered a separate population stock is when it is demographically independent, rather than demographically isolated."** The workshop report states: " **The group agreed to replace references to "reproductive isolation" and "demographic isolation" in the report guidelines with references to "demographic independence" as the term "isolation" is**	Please see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		likely to be interpreted by some as implying that there should be no interchange between stocks." [Moore and Merrick 2011] DEIS at pg.3-129:[NMFS 2012 workshop ["Task Force"] on Gray whale Stock ID] The discussion on stock designations continued among un-named government scientists. Arguments were made for and against the PCFG being deemed a "demographically independent unit". The scientists could not agree. **The definition of "demographically independent" is given at DEIS pg.3-133 as : "Different in biologically significant way [i.e. genetic or behavioral difference.]"** The PCFG gray whales are different from the rest of the ENP gray whales genetically AND behaviorally. How could there be disagreement on the facts? So apparently, from 2012 until now there has been no movement toward a consensus on this important point. A point so important that **no waiver should be considered, and no DEIS should have been completed, without a decision on stock identity for the PCFG whales**. Their survival now hangs in the balance, and still no decision from NMFS. **It would do no harm to delay a waiver request until this important stock designation is decided. It will do immense harm to the PCFG whales to go ahead without it. So who does NMFS decide to tip the advantage to? As usual, all advantage is to the hunters. With no stock designation for the PCFG whales, they are part and parcel of the entire "plentiful" ENP gray whale population, wide open for killing.** The reckless nature of this co-managed maneuver is staggering. How could there be two less worthy "stewards" of our whales? Real stewards would insist on actually conducting more research if there are more questions. A few thoughts from non-governmental scientists: **-"The precautionary principle, adopted by the U.N. Conference on Environmental Development, urges caution when making decisions about systems that are not fully understood."[Meffle & Carroll, 1997]** **"The negative consequences of ignoring potential population structure when making management decisions, such as the extinction of unrecognized populations and/or species, are well known." [Frasier et al," Assessment of population substructure in relation to summer feeding ground use..."]** **And from the same paper: " The combined genetic and photo-ID data showing that the southern feeding group [PCFG] represents a distinct maternally based seasonal sub-population indicates that these whales require separate management consideration from the larger population."**	

Sort #	Commenter Code	Comment	Response
398	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	These words are re-enforced at: **"Definition of Stocks" [GAMMS pg.4] : "Insufficient dispersal between populations where one bears the brunt of exploitation coupled with their inappropriate pooling for management could easily result in failure to meet MMPA objectives. For example, it is common to have human-caused mortality restricted to a portion of the species' range. Such concentrated mortality [of a large magnitude] could lead to population fragmentation, a reduction of range, or even the loss of undetected populations, and would only be mitigated by high immigration rates from adjacent areas."** That paragraph could not describe the current situation more clearly. **The PCFG whales ARE being "inappropriately pooled" with the entire ENP gray whale population. The Makah U&A whales WILL bear the "brunt of exploitation", as the "human-caused mortality" WILL be restricted to a certain portion of the PCFG range: the Makah U&A.** And the following passage explains why there will NOT be "high immigration rates from adjacent areas": **"Because of site fidelity, knowledge of specific feeding areas is only present within certain matrilines. Therefore, if whales are extirpated from a specific feeding ground, they will not be "replaced" by others from the larger population, because knowledge of that feeding area has been lost. Indeed, such localized extinctions and lack of subsequent re-population of areas [despite an increasing overall population size] is widely documented in whales." [Northridge 2008]** And for the record, NMFS policies in the 1990's and early 2000's WOULD have led to the loss of at least one "undetected" population. The then "non-existent" resident whales. And what of the Western North Pacific gray whales? Their migration through the Makah U&A was un-imagined then. Who knows what harm could have been done to that tiny group after 17 years of whaling? NMFS needs to follow its own advice: **From "Definition of Stocks---management units" [SARS pg.4]: "In the absence of adequate information on stock structure...a species' range within an ocean should be divided into stocks that represent defensible management units. Examples of such management units include...semi-isolated habitat areas, and areas of higher density of the species that are separated by relatively lower density areas. Such areas have often been found to represent true biological stocks where sufficient information is available."** How could anyone argue that the PCFG is not a "defensible management unit"?	Please see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		Whatever kind of management philosophy NMFS is engaged in, it is certainly more politics than science. NMFS charges forward, ready to give up the resident whales to the Tribe, when it is scientifically defensible to put the local whales off limits. What gives? Will NMFS promise anything to avoid a lawsuit from the Tribe? NMFS cannot fault observers for wondering what the explanation is. And there is no clue in the DEIS as to whether NMFS intends to rein-in their co-managers at the last minute. We certainly cannot count on that happening. Past actions do not predict it.	
399	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	So how does our small, genetically distinct, PCFG group --population size: 200 -- geographically isolated from the "main herd" most of the year, and possibly utilizing birthing areas specific to their small group--compare to other small populations of whales in numbers and PBRs? **Gulf of Mexico sperm whales: population size: 1,400-1,660. " If the Gulf of Mexico oil spill kills just three sperm whales [PBR set by NOAA, 2009] it could seriously endanger the long-term survival of the Gulf's native whale population, scientists say...the population is thought to be especially vulnerable due to its relatively small size." [National Geographic News, 5-21-2010]** **CA-OR-WA sperm whales: population size: 751- 971. PBR: 1.5 per year** **Western Pacific Gray whales: population size:134-146. PBR: .07- .33 per year [with "uncertainty", DEIS pg.3-93] "Loss of a single whale, particularly a reproductive female, would be a conservation concern for this small stock." [DEIS pg. 3-93]** In these examples, **a population of 1,400 -1,660 cannot sustain a loss of (3), a population of 751-971 cannot lose more than (1) per year, and a population of 134-146 should only lose (1) over a span of years. By contrast, the Tribe could potentially eliminate (6) out of the (33) Makah U&A grays whales per year.** This illustrates the low value NMFS places on the PCFG and MU&A gray whales. What reason could there be to decide to place no value on the PCFG, other than as an aid to the Tribal whaling plan? **NMFS should have learned a lesson from their Cook Inlet Beluga co-management debacle.** **-Cook Inlet Beluga Whales: population size: "Once thought to number 1,300, beluga whales in the waterway plummeted during the 1990s in a decline federal biologists blamed on over hunting by Alaska Natives, the only people allowed to kill them." [Philly burbs.com, 5-28-04] From a more recent article: "The 2014 estimate is 340 animals...The Cook Inlet beluga population dwindled steadily through the 1980s and early 1990s. The decline accelerated between 1994 and 1998 when Alaska Natives harvested nearly half the remaining 650**	Comments noted. Please also see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		whales in only four years. NMFS initially determined that controlling subsistence hunting would allow the population to recover. When it did not, the agency declared belugas endangered and a "strategic stock" in 2008. Population estimates have ranged from 278 to 375 animals in the past decade. The overall trend shows the beluga population is not recovering and is in decline at an average rate of 0.4 percent.... Researchers conclude the population remains in danger of extinction." ["NOAA says Cook Inlet beluga numbers..." AP 3-30-15.]	
400	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Looking at the sad history of the Cook Inlet beluga whales, **it is obvious that a once-healthy sub-population of around 1,300 was reduced in a very short time, [thanks to NMFS's authorized "subsistence" hunting] , to a marginally viable population number that may lead to extinction of the stock. Where was NMFS when the hunters were butchering half the remaining population between 1994 and 1998 ? Where was the monitoring? Was "take" information being submitted to NMFS by the tribes and analyzed more than annually? Was there blind trust in the Alaska Native co-managers? NMFS cannot blame the hunters, alone. NMFS set up the system, and the system failed. How in the world can we be persuaded to trust NMFS/Makah co-management of the 33 Makah U&A gray whales, or the additional 100 or so OR-SVI whales? We cannot and we do not.**	Comments noted. If hunting is authorized in the future, monitoring would be an important component of the authorization.
401	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The fact that the tribal managers "gift" themselves with an annual allowable bycatch of three PCFG whales per year betrays either a severe disconnect from reality, or a cold lack of interest in preserving the Makah U&A gray whales or any of the other PCFG whales that by chance or necessity enter their area.** Estimates of non-hunting human-caused mortality for gray whales between California and B.C. for 1990-2010 found an annual PCFG mortality rate of 1.845 whales per year. "Total estimates of non-hunt human-caused mortality reported are minimum estimates because it is not likely that all whales killed by human activities are reported...and because mortalities in Mexico are not in this report." [Moore,J.E. and D.W. Weller 2013] Other calculations come up with higher annual PCFG mortalities: 2.6 to 2.3 for the years 2005-2012. It has also been noted that there are many PCFG gray whales known to have very visible, large, healed wounds. A.E. Punt [2015 IWC] finds the average incidental deaths of PCFG whales to be: [December-May] :1.10, [June-November] 1.55 with California [June-November] 3.65. **Punt also found the PCFG "sub-stock" to be at half of carrying capacity.**	These and similar comments have led us to reexamine the tribe's proposal to use PBR to establish an allowable mortality level for PCFG whales and will be taken into account in future decision-making.

Sort #	Commenter Code	Comment	Response
		We will never know how many PCFG whales meet untimely deaths per year without hunting. We must assume that the number is at least three. The DEIS at pg. 4-71 gives a maximum number of PCFG whales killed per year under Alt.2 of 5 per year, MU&A whales:6 per year. **So we are contemplating the possible loss of 9-10 PCFG whales per year, considering hunting and non-hunting causes of death together. The only comparable PBR is for the CA-OR-WA Humpback population of 1,878 with a PBR of 11.3 per year.** So what does NMFS say is the PBR for 197 PCFG whales? DEIS pg. 3-156: 3.1 per year. The Makah co-managers have claimed that same number as their annual allowable take from the smaller OR-SVI group, with no allowance for the non-hunt mortality number. **Is there really a surplus of expendable PCFG whales in the Makah U&A?** **DEIS at pg.3-156: "It was not possible to draw a definitive conclusion as to whether the PCFG is within its Optimal Sustainable Population [OSP]." From Punt and Moore [2013], "With variants of the model, the probability that the PCFG was at OSP ranged from 0.35...to 0.88. they concluded that additional data were needed to obtain better empirical estimates of bycatch mortality and net annual immigration rates and to reduce uncertainty in Maximum Sustainable Yield rate [MSYR] and Maximum Net Productivity Level [MNPL] that would potentially improve inferences about the likelihood of the PCFG being at OSP"**	
402	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	So it is NOT known if there are more than enough PCFG gray whales in the Makah U&A to sustain hunting AND non-hunting mortality rates. NMFS knows there are way too many unknowns. **-What is the carrying capacity of the PCFG range? Unknown** **-What is the OSP of the PCFG gray whales? Unknown** **-Are the PCFG within OSP? Unknown** **-What is the annual immigration rate to the PCFG? Unknown** **-Is there sub-structuring in the Baja lagoons? Unknown** **-How long ago did the PCFG population originate? Unknown** **-Why did the population originate? Unknown** **-Why does the PCFG persist? Unknown** **-What is the average annual calf-count in MU&A? Unknown** **-What is the status of the food supply? Unknown** **-How do PCFG whales find their food? Unknown** **-What effects will acidification have on their prey? Unknown** **-What effect are warm water temps having on prey? Unknown**	Many of the issues raised in these comments are addressed - including statements of uncertainty - throughout the DEIS, in particular in subsections 3.4, 4.4, and 5.4 (Gray Whales).

Sort #	Commenter Code	Comment	Response
		-Will increased killer whale predation be a concern? Unknown **-What is the carrying capacity of the Makah U&A? Unknown** **-How many adult females are in MU&A sub-group? Unknown** **-What is OSP of the MU&A gray whales? Unknown** **-What is the population trend for the PCFG? Unknown** **-How many PCFG females are newly pregnant per year? Unknown** **-What is the annual bycatch mortality rate for the PCFG? Unknown** **-How does underwater noise impact PCFG communication? Unknown** **-Are elevated water temperatures in Baja driving whales from some lagoons? Unknown**	
403	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**It is crystal clear why NMFS refuses to protect the PCFG whales. To do so would force the Tribe to an off-shore hunt in the actual migratory corridor. This type of hunt, while sparing PCFG whales, would be a threat to the Western North Pacific gray whales coming and going from Sakhalin Island. The WNP gray whales do have stock designation, and all possible care must be taken not to harm even one. "The world is watching" when it comes to the severely depleted WNP gray whales.** Not quite so much with the PCFG whales, as NMFS has kept the waters muddied on stock designation, and continues to do so. In actuality, there are only a few more PCFG whales than WNP whales. In the case of the MU&A whales, there are far fewer. The PCFG whales are genetically distinct from the larger ENP gray whale population, as are the WNP whales. The PCFG whales give birth in Baja, as do many WNP whales. **The only way for NMFS to comply with tribal hunting demands is to keep the PCFG whales "hunt-able". That is what drives the "inability to decide on stock designation", and thus protection, for the PCFG gray whales. There are no plans for protections. They will be sacrificial lambs for the Makah and whatever other tribes gain access to whaling rights. They just won't last very long.** **However, NMFS must answer the questions listed above before they decide that ANY gray whales in the Makah U&A are "disposable". The 9th Circuit Court of Appeals requires, as does the MMPA, that the PCFG and MU&A whales remain" functioning parts of their environments." It will be interesting to see how all parties to the coming decisions will navigate these issues of local whales and those who would kill them all. If only NMFS had given more thought, and more value, to the lives of the Cook Inlet Beluga Whales.**	Please see the response to frequent comment # 5 regarding the stock status of the PCFG.
404	Owens (Peninsula	**<u>DOMESTIC EXPANSION OF WHALING</u>**	Comments noted. Please see the response to frequent comment # 4

Sort #	Commenter Code	Comment	Response
	Citizens for Protection of Whales)_7-27-15	When the judges of the 9th Circuit Court [Anderson v Evans 2004] took a hard look at NMFS' then most recent EA, and ordered an EIS be prepared instead, one of the very important areas that the Court deemed lacking in the EA was an analysis of the **"precedent for future actions."** By this the Court meant : could there be an expansion of whaling domestically or internationally as a result of approval of Makah whaling? **The Court said: " We cannot agree with the agency's assessment that because the Makah Tribe is the only tribe that has an explicit treaty-based whaling right, the approval of their whaling is unlikely to lead to an increase in whaling by other domestic groups. " And: "...while defendants argue that the Makah Tribe is the only tribe in the U.S. with a treaty right expressly guaranteeing the right to whale, that argument ignores the fact that whale hunting could be protected under less specific treaty language...less specific "hunting and fishing" rights might be urged to cover a hunt for marine mammals. Although such mammals might not be the subject of "fishing", there is little doubt they are "hunted"." [Anderson v. Evans 2004]** So what does this DEIS have to say on the topic? **-"The scope of reserved hunting rights...is very broad. Twenty Indian tribes in Western Washington State have treaty protected fishing rights in the Pacific Ocean, the Strait, and Puget Sound." [pg.1-8]** **"Other tribes historically hunted whales, and the authorization of a Makah whale hunt...could lead them to request a similar authorization." [pg. 4-261]** **"This authorization...could lead other parties to seek similar authorization to harvest marine mammals other than whales. Some NW Indian tribes traditionally harvested...seals, sea otters, and other marine mammals. Northwest Indian tribes have, in the past, expressed an interest in harvesting marine mammals. Authorization of a Makah gray whale hunt could revive the interest of the Makah or other tribes in hunting marine mammals. It could also lead to interest by non-Indians in sport or commercial hunting of marine mammals. Such interest could lead to additional requests for MMPA waivers from Indian or non-Indians, and ultimately to the federally authorized harvests of additional marine mammals." [pg.4-261]** **"Alternatives 2- 6 could encourage applicants [including Makah] to consider seeking waivers of the MMPA to allow subsistence, commercial, or sport harvest of gray whales or other marine mammals. Thus there would be an**	regarding precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		increased likelihood of future requests. We consider the increased likelihood to be small." [pg.4-265] **"Under Alternatives 2- 6, we would authorize a Makah gray whale hunt, and that authorization would make it more likely for parties to seek an MMPA waiver compared with the No-action alternative."** - **"The most likely increase in waiver applications would come from other treaty tribes, who might view the approval of the Makah's application as a precedent for approval of additional waiver applications to take marine mammals that they had harvested traditionally and that remained important to them for cultural or other reasons. " [pg. 4-266]** **"Nevertheless, tribes other than the Makah traditionally hunted gray whales, and authorization of a Makah hunt could encourage them to seek a similar authorization ." [pg. 4-266]** - **"Authorization of the Makah Tribe's request under Alternatives 2 through 6 could also lead the Makah Tribe or other tribes to request additional authorization to hunt other species of whale besides gray whales. " [pg.4-266]** - From the above excerpts, it would seem that NMFS is now bending over backwards to finally agree that other tribes do indeed have the same treaty right to request waivers from the MMPA to take many species of marine mammals, and may indeed seek similar waivers. [There is no explanation for why they also raise the odd specter of "non-Indian sport or commercial hunting of marine mammals."] It appears that NMFS understands the risk that a regular Pandora's Box will be opened by creating a precedent-setting breach in the MMPA with a waiver for the Makah. Especially a waiver request so boldly callous to the small PCFG and WNP gray whale groups. A waiver request so much in violation of the spirit and the intent of the Marine Mammal Protection Act. A waiver which, if granted, will remove the ancient lineages of "summer" gray whales from the Olympic Peninsula waters forever. A waiver request that will eventually do damage to the WNP whales, and will open the door for a crush of tribal [and non-tribal?] requests for a variety of marine mammal takes. Because if this request "passes muster", the bar is set so low that it will be difficult to reject any request that follows. So what is NMFS' analysis of the potential outcome of the scenarios that they themselves describe? **DEIS pg. 4-265: " Although it has been ...over 15 years since the Makah Tribe received their allocation , no other Indian tribe...has requested an allocation ...This history suggests that beyond the Makah...there is very little interest by other native groups to seek authorization to harvest whales. In**	

Sort #	Commenter Code	Comment	Response
		addition, the complexity of the process and length of time required to complete it would probably limit the interest of most potential applicants.." and finally: " If authorization of a hunt under Alternatives 2- 6 did lead to an additional waiver request by the Makah Tribe or other tribes, the outcome of any process would depend on facts specific to those requests that are not presently known, making it speculative to conclude that the harvest of whales nationally would change as a result of implementing Alternatives 2 through 6." [DEIS pg.266] It does us no good to continue to quote the various tribal sources proclaiming the right and the intent to pursue marine mammal hunts, as NMFS refuses to "speculate" without specific requests in front of them. It is also of no use to continue to point out that it is common sense to believe that "other tribes" understand the negative complication they pose to the Makah's waiver attempt. It seems obviously strategic to "hang back" and let the Makah precedent be set. We will only add three more quotes to the many we have sent in the past, the first one an "oldie but a goodie": **"Even the Makah say it is likely that their proposal, if successful, will inspire Native Americans throughout the Pacific Northwest to again take to the seas on the trail of the whale. Already 13 Nuu-chah-nulth tribes of Vancouver Island, cousins to the Makah from across the Strait of Juan de Fuca, have launched treaty talks in Canada aimed at resuming whale hunting. "We're hearing rumblings that some of the tribes up in Alaska will want to start whaling, too. We know there are three in Washington that would like to. The 13 in Canada. We kind of figure there will be a domino effect," said Denise Dailey, marine biologist for the Makah Tribe. "Everybody's kind of looking at us and saying, 'See what you've caused?' But as Makahs we always feel like we're in the front of a lot of issues, especially when it comes to treaty rights." [L.A. Times, 8-2-95]** **NWIFC comments to DEIS 2008: ""The DEIS correctly notes that the tradition of whaling is not unique to the Makah Tribe and that other Pacific Northwest Indian tribes traditionally harvested marine mammals and have expressed relatively recent interest in doing so. The connection of other treaty tribes to whaling continues to this day. See DEIS [2008] at 1-38 [ceremonial involvement of four canoes from various Washington Indian tribes in the landing of whale harvested by Makah Tribe in 1999."**	
405	Owens (Peninsula Citizens for	And from the Report of the Scientific Committee, June, 2012: 2.2.2 Stock structure: **"SC/64/AWMP2 tested the assertion that individuals of the southern feeding groups mate with the rest of the population, and therefore that the**	Comments noted and evaluated in DEIS subsections 3.4 and 4.4 (Gray Whales).

Sort #	Commenter Code	Comment	Response
	Protection of Whales)_7-27-15	**ENP gray whale represents one interbreeding population because this assumption is key to making appropriate management decisions given there is an interest by native groups in Washington and British Columbia to resume their traditional hunts. Such hunts could disproportionately affect whales of the PCFG, and understanding how these whales are related to the rest of the population is necessary for properly managing such hunts."** How the PCFG gray whales "are related to the rest of the population", may take many years to unravel. But in U.S. waters, it doesn't really matter. The MMPA requires optimum populations of whales to be sustained in the various ecosystems, large and small. **The 9th Circuit stated in Anderson vs. Evans: "If California gray whales disappear from the area of the Strait of Juan de Fuca, the Marine Sanctuary, or both, that would be a significant environmental impact even if the PCFA whales populating the rest of the Pacific Coast in the summer are genetically identical to the local whales, and even if the PCFA whales are genetically identical to the migrating whales."**	
406	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Makah hunt, under Alternatives 2 through 6, will definitely impact the Makah U&A whales first and foremost, through deaths and unending harassments. Over time the fright and destruction will also cut into the wider PCFG population. If other Western Washington tribes obtain similar waivers, what other whales are there to be targeted but the "plentiful" ENP gray whales? And because NMFS gives no stock designation to the PCFG whales, but folds them into the ENP population, there will be nothing to stop multiple tribes from killing and harassing the same small group of PCFG whales. The template will have been created, and any changes in the "rules" will be poorly received and hard for NMFS to justify. NMFS' strategy to assist the Makah Tribe could result in many more tribes demanding a share of the "plentiful" ENP gray whales. With or without the "help" of other tribes in Washington State and Canada, the PCFG whales are doomed to extinction in the Pacific Northwest in a relatively short time frame. Under 20 years will be long enough to have finished off the peaceful springtime "baby nursery" of the Makah U&A mothers , the PCFG mothers, the ENP gray whale mothers, the WNP gray whale mothers, and all of their offspring.	The issues raised in these comments are addressed throughout the DEIS, in particular in subsections 3.4, 4.4, and 5.4 (Gray Whales). DEIS Subsection 3.17.3.2.2 (Aboriginal Subsistence Whaling) and Subsection 4.17 (Regulatory Environment Governing Harvest of Marine Mammals) address the precedential issue raised in this comment.
407	Owens (Peninsula Citizens for Protection of	**NMFS wants us to have faith that : " The complexity of the process--the length of time to complete it...would probably limit the interest of most potential applicants. It therefore seems unlikely that Alt.2 through 6 would lead other Indian tribes to seek authorization to hunt whales." [DEIS pg.4-264-265]** This is an extremely weak argument, and a cowardly avoidance of the type of analysis that we believe the 9th Circuit Court had in mind. The	Comments noted. These assertions provide no information that would change the conclusions in DEIS Subsection 4.17.3.2.1 (National Regulation of Marine Mammal Harvests). Please also see the

Sort #	Commenter Code	Comment	Response
	Whales)_7-27-15	"complexity" and the "length of time to complete" will be immensely reduced by a successful waiver request this time. Why would any tribe be anything other than encouraged and energized by the opened door? Besides, it is NMFS that does most of the "complex process", and all the tribes have lawyers and the Northwest Indian Fisheries Commission to press their demands. It is simply a matter of sending a request letter to NMFS, and letting the process get under way.	response to frequent comment # 4 regarding the precedential effect of waiver internationally and domestically.
408	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	A whaling request is also a proven "cash cow" for travel, jobs, "whaling commission" start-ups, equipment, etc. " **The government plowed $200,000 into Makah whaling in 1996; $60,000 in 1997; and 475,000 in 1998. The money paid to send delegations to represent the Tribe before the IWC in Monaco, Dublin, and London; to determine a humane whale-killing method; to monitor the 1999 hunt; and to hire a tribal biologist. The federal government gave the tribe $25,000 more last month to pay for an upcoming trip to Japan to appear before the IWC...financial support for Makah whaling has totaled $360,000 since 1996, though none was spent to actually kill a whale said Brian Gorman, NMFS spokesman."** [Seattle Times, Lynda Mapes, April 15, 2002] It is a money-maker without ever killing a whale or selling an ounce of meat. NMFS knows more than they admit about tribal desires to hunt marine mammals. They cover themselves by admitting the possibility, but declare over and over that it is "too speculative to conclude" that authorization of the Makah to hunt whales "would affect marine mammals in the U.S." Credulity strains to breaking on that one.	Comments noted, however the commenter provides no evidence to support the contention that NMFS is hiding information regarding "tribal desires to hunt marine mammals." The DEIS identifies a number of issues (including effects on marine mammals in the U.S. and whaling worldwide; DEIS Subsection 5.16, National and International Regulatory Environment) where it is "too speculative" to make specific conclusions.
409	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Peninsula Citizens for the Protection of Whales believe that until such time that NMFS has a more complete understanding of the cumulative results of this action, it is **"too speculative"** to allow this whaling to be approved. The members and supporters of the PCPW are also very concerned about the future and the integrity of the MMPA itself. We are afraid that this waiver request process, if successful, will undermine the meaning and the effectiveness of this Act. An Act that reflects the will and desire of the great majority of Americans to see marine mammals thrive in U.S. waters to their fullest extent. There is no legal reason that the will of the American people bend to the desires of a particular tribal council, or multiple tribal councils. **In the words of the Court [Anderson vs. Evans] : " The intent of Congress cannot be held hostage to the goodwill or good judgment or good sense of the particular leaders empowered by the tribe at present; it must be assumed that Congress intended to effectuate policies for the United States**	The Makah Tribe is pursuing a waiver of the MMPA take moratorium through legal means, pursuant to the Court's decision in *Anderson v. Evans*, and as allowed for in Section 101(a)(3)(A) of the MMPA. For more information, see Subsections 1.2.3.3 and 3.17.3.1 of the DEIS.

Sort #	Commenter Code	Comment	Response
		and its residents, including the Makah Tribe, that transcend the decisions of any subordinate group."	
410	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**THE IWC " MAKAH QUOTA"** The Final Decision of the 9th Circuit Court in Anderson v Evans [2004] gives great emphasis to the issue of the IWC quota for the Makah Tribe, and was a primary reason for ordering an EIS to be prepared. **From the opening statement of the Court's Final Decision: "Appellants' complaint sought relief broader than invalidation of the procedures used to obtain the IWC permit and of the Cooperative Agreement as violative of NEPA and the and the MMPA. The government activity challenged...is the way the government has gone about contracting with the Makah, obtaining "aboriginal subsistence" quotas from the IWC, and allocating them to the Tribe...Precedential harms continue to flow from the government's action."** Continuing the words of the Court: **"Delegates at the IWC again disagreed about whether the Tribe qualified under the aboriginal subsistence exception. Rather than resolving the disagreement, the delegates papered it over with ambiguous language...It remained unclear whether a majority of the members considered the Tribe entitled to the aboriginal subsistence exception..." It had been the understanding among IWC members "...that only the IWC [not individual member countries] could decide which groups met the subsistence exception...The 1997 IWC gray whale quota, as implemented by the U.S., could be used as a precedent for other countries to declare subsistence needs of their own aboriginal groups, thereby making it easier for such groups to gain approval for whaling."** And: **"...the agencies' failure to consider the precedential impact of our government's support for the Makah Tribe's whaling in future IWC deliberations remains a troubling vacuum."** **The Court found the problems to involve "specificity"...the IWC Schedule fails to expressly provide any whaling quota for the Tribe...and "uncertainty": "...surrounding circumstances of the adoption of the Schedule cast doubt on the intent of the IWC to approve a quota for the Tribe..."Whether recognition must formally come from the IWC or the U.S. is not clear...the "expressly provided for " requirement is not satisfied." [Anderson v Evans]**	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
411	Owens (Peninsula Citizens for Protection	We believe that the 9th Circuit would continue to see a "troubling vacuum" in the DEIS' analysis of the impact that the Makah's "aboriginal subsistence" could have at the international level. When ordered to prepare an assessment "free of the previous taint", we really assumed that NMFS	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
	of Whales)_7-27-15	compliance on this topic would need to entail an actual re-visiting of the IWC quota arrangement with Russia. sharing of the Russian quota with more U.S. tribes. Maybe more bowheads would be traded to Russia to sweeten the deal. **There is only one way to establish the "specificity" required by the Court, to resolve the "uncertainty" described by the Court, and to remove the "previous taint" of unlawful actions by NMFS in the procedures leading to the IWC. That one and only way is to un-bundle the Makah request from the Russian request and allow the IWC member countries to vote separately on each request. Many delegates to the IWC complained that a "good request" [Chukotka] was tied to a "bad request" [Makah]. We believe that the U.S. well knows that a stand-alone vote on Makah "subsistence needs" would not be successful. It is only by binding itself to the actual needs of the Chukotka people that the Makah have slipped through the cracks of true IWC approval. The ultimate result of this strategy could become the expanded sweeten the deal. A very bad precedent to be left standing as an example to other nations and other domestic tribes.** The concerns of the 9th Circuit are certainly not satisfied by this DEIS. The Court saw fit to repeat these words in their concluding statement: **"The government activity challenged is not an ordinary time-limited regulatory permit, but rather the way the government has gone about contracting with the Makah. obtaining "aboriginal subsistence quotas" from the IWC, and allocating them to the Tribe." The challenge has not been satisfactorily answered. The NMFS position remains "...arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law", and in spite of a 1,200+ page DEIS., the taint remains.**	
412	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**<u>EASTERN NORTH PACIFIC GRAY WHALES (ENP)</u>** It is difficult to read this DEIS without experiencing extreme concern for the ultimate survival of the ENP gray whales. Threatened on every side, ecosystems changing out from under them, food sources unreliable, mothers and calves hounded by whalers on the northern feeding grounds, surrounded by ship traffic and increasing underwater noise, crowded by oil explorations, threading through increasing hazards of fishing gear entanglement and orca predation on their calves. Absorbing pollutants into their systems, Navy war games throughout their migration route. Stinky whales, skinny whales, the huge die-off...and now the Makah want to take a stab at them, too. These whales should never have been removed from the Endangered Species List, and they could never have been de-listed under current conditions. They have been left with far less protection than they should have. Less money is available for a "recovered species", so there	The DEIS discusses the basis for the delisting determination in Subsection 1.1.3 (Summary of Gray Whale Status). The agency's 2019 MMPA stock assessment report (which undergoes public and scientific peer review) monitors the status and trend of ENP gray whales and concludes that: - The ENP population has recovered to levels seen prior to the 1999-2000 unusual mortality event and, based on the 2015/2016 southbound survey, was estimated to be at the highest

Sort #	Commenter Code	Comment	Response
		is less time and attention to their problems. NMFS boldly describes them as "at Optimal Sustainable Population".	abundance recorded in the 1967-2015 time series.. - The potential biological removal (PBR) level for the ENP stock of gray whales was calculated as 801 animals per year (Carretta et al. 2019). - Even though the stock is within OSP, abundance will fluctuate as the population adjusts to natural and human-caused factors affecting carrying capacity.
413	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	This is an example of "shifting baseline syndrome". **"What has become a degraded state of nature for the previous generation becomes the normal state of nature for the present generation." (J.B. McKinnen)** It seems that things now degrade in an even quicker time-frame than a generation. What were once mighty oceans-full of gray whales is down to a trickle, and that is the new "healthy stock." With the opening of the Arctic passage to the Atlantic Ocean, ENP gray whales should be left to explore, to expand, and to move about in peace. At least two gray whales have already made it to the Atlantic side. The ENP should be helped to reach greater population numbers that would possibly support a shift, by some, to old territories. Maybe into WNP gray whale turf, too, to help build that population back up to viable numbers. **Dispersal is extinction insurance!** The ENP gray whale situation is frustrating. They should be re-listed, but that seems a long shot now, with NMFS bent on committing the ENP gray whales to deadly encounters with Makah guns and harpoons "into perpetuity." And to think that the Makah Tribe, along with all the Northwest Indian Fisheries Commission member tribes, got this ball rolling 25 years ago with the demand that NMFS de-list the ENP gray whales..."not so we can hunt them, but so money can go to other species." We support and appreciate the more thorough analyses done by those with more expertise on the plethora of problems plaguing the ENP, although no one knows better than NMFS what the situation is. The Peninsula Citizens for the Protection of Whales wish for nothing less than full protection for all gray whales. Every stock is depleted, and every stock will be harmed by tribal hunts.	Comments noted.
414	Owens (Peninsula	**CO-MANAGEMENT OF PUBLIC SAFETY IN OLYMPIC NATIONAL PARK**	As noted in this comment, we did not receive comments on the DEIS from

Sort #	Commenter Code	Comment	Response
	Citizens for Protection of Whales)_7-27-15	For a great many years, the Peninsula Citizens for the Protection of Whales have advocated for the protection of Peninsula citizens as well. Our primary safety concern involves the use of high-powered rifles close to the Pacific Coast areas of Olympic National Park [ONP]. **For close to 20 years we have insisted that NMFS must consult with the Park on the risks to their visitors on the coast. The Park can then decide whether to issue warnings, close trails, or somehow lower the chances of harm. The DEIS [2015] pg.8-2 and 8-3 : "List of Preparers and Agencies Consulted" does not list the Olympic National Park , although ONP is on the distribution list and is specifically mentioned in various locations of the DEIS. The following quotes from the DEIS should be of interest to the "deciders" at the National Park Service and ONP:** **-pg. 3-168: "The Makah propose to use a .50 cal. rifle...In 1999 (4) rifle shots were fired over a span of 5 minutes, the first 2 shots either missed or were ineffective..." [cameras caught at least one of the two bullets bouncing over the whale and flying off in an unknown direction]** **pg.3-169: "...the maximum range [for .50 cal.] is 4.97 miles."** **pg.4-246: "The possibility of any person being struck by a bullet or shoulder-fired explosive projectile would be minimized by proposed safety requirements..."** **pg.3-169: [footnote] " Safety measures: 1) within 30' of a whale 2) field of view clear of vessels, persons, etc. 3) minimum visibility of 500 yards in any direction."** **pg.4-248: "There is nevertheless a remote possibility that a bystander on shore could be struck by a .50 cal. bullet which has a range of up to 5 miles."** The Park should be informed that the Makah's proposed Alternative 2 will have a likely hunt season of March, April and May. Each year there will likely be **(60)** days of hunt-related activity on the water, likely **(64)** rifle shots, possibly **(12)** grenade explosions, and likely **(353)** approaches to whales. **The Park should understand that all previous hunts have taken place between Shi Shi Beach and Cape Alava, and within one and a half miles of shore, putting the beach areas well within the danger zone of the .50 cal. rifle. ONP well knows the high numbers of campers who use the Wilderness Beach areas in March, April and May. PCPW would like to know why the Olympic National Park--the biggest draw for the tourism industry on the Olympic Peninsula, visited by millions annually, and at the greatest risk for "bystanders" injury --was not consulted for comment by NMFS. And if it was, where is the evidence? We would be interested to know if the Park feels that the "safety measures" are adequate.**	the Olympic National Park. In the event of a Makah whale hunt the ONP could consider taking the precautions suggested by this commenter.

Sort #	Commenter Code	Comment	Response
		On a misty, foggy coast, "500 yards visibility" should not inspire confidence when considering a weapon with a 5 mile range.	
415	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The Park may have also wanted to weigh in on the noise factor: DEIS pg. 4-218-220: "Noise Generated by Hunt-Related Activities - Recreational users of beaches in the OCNMS,...and the ONP would be most likely to hear noise." And the ONP would be wise not to underestimate emotional discomfort: DEIS pg. 4-226-227: " "On Scene Observers... [there is the] potential for inadvertent encounters with views of whale hunting from hiking trails and beaches along the Pacific coastal portion of the project area." Does the Olympic National Park understand that they are participating in and giving tacit approval to this "project" in their "area"?**	As noted in this comment, we did not receive comments on the DEIS from the Olympic National Park.
416	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Park would also be wise to have policies in place to deal with another "Yellow Banks"- type incident. **In 2001 a young gray whale stranded alive on the beach at Yellow Banks. The Park response was disorganized. The public eventually learned that the whale had lived for days before being butchered ["dead or alive": ONP report] by Makah tribal members who accessed the wilderness beach by motorboats. Park Rangers who went out to check on the whale found a partially butchered whale, chunks of blubber littering the shoreline, tarps laying abandoned on the beach, and hikers found a bloody kitchen knife which they turned over to rangers. [Sanny Lustig ONP ranger: ONP Incident Report-OLYMO100000192 + photos]. There were rumors that the whale had been shot on the beach. The Tribe had not asked to access the ONP Wilderness beach. They were alerted to the whale's presence by a NMFS biologist, who witnessed but failed to report the butchering. There were never clear answers as to the legal status of the situation, although many questions were put to ONP Supt. Morris, the National Park Service and NMFS.**	Recommendation to ONP noted.
417	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**What will ONP's response be to beaching and butchering whales on the Wilderness beaches?** **It is likely that with most hunts occurring in shallow waters right off-shore of the Park, that scenario could be an unintended consequence at any point in time "into perpetuity". The Park might want to exercise its stewardship over its reputation and it's visitors by making a strong case for either Alternative 1 [no action] or Alternative 3, [the "off-shore" hunt.] They should at least have a chance to take a public stand. Or has the NPS declined to comment for political reasons? The public has a right to know who is behind a lack of comment from the Park Service.**	As noted in this comment, we did not receive comments on the DEIS from the Olympic National Park.

Sort #	Commenter Code	Comment	Response
418	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**After all, in 1999 the Coast Guard found that "...The uncertain reactions of a pursued or wounded whale and the inherent dangers in firing a .50 cal. hunting rifle from a pitching and rolling small boat are likely to be present in all future hunts, and present a significant danger to life and property." [DEIS 2008 pg.3-10] When asked by PCPW :"Who will be responsible if a person in the coastal beach area of ONP is struck by a .50 cal. bullet?", the Coast Guard response was: "Our responsibility ends when the bullet crosses the shore." In over 20 years of controversy, the Park has remained absolutely silent. Has NMFS thoroughly briefed ONP on the risks to their visitors that will accompany Makah whale hunts? Or does ONP management close its eyes and hope for the best, rather than "engage" with the Tribe over a perceived treaty right?** And what is the plan to protect occupants of fishing boats, pleasure boats, the increasing numbers of freighters, or any of the other vessels that could be hidden in the mist as far as 5 miles in any direction? The co-managers' safety plans are minimal to the point of ridiculous. **This whole plan should be dead in the water based on hazards to human life.**	The ONP is one of numerous Federal agencies contacted regarding the tribe's request and our NEPA analysis (see Distribution List in DEIS). DEIS subsections 3.15 and 4.15 provide background on this issue and our analysis, including the potential for injury from weapons, boating accidents, and land-based protest activities.
419	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**ENFORCEMENT** While PCPW does not believe that it will be possible to allow these hunt plans to be realized, we will comment on the problem of enforcement. There is no point in making rules and regulations if they are not, or cannot be, enforced. When it comes to killing whales, the public will expect and demand complete transparency in every aspect of the co-management of this very valued public resource. The Makah Tribe does not own the gray whales. These whales cross international boundaries as they feed and as they migrate. They are beloved in Mexico--their birthplace--as well as along the American west coast. "Beloved icons" NMFS called them on their website. The PCFG whales, including the Makah U&A whales, spend time feeding in Canada as well, along the outer coast of Vancouver Island. Numerous Canadian whale watch companies feature gray whale encounters, and they have been studied by Canadian scientists since the 70's. The Russian gray whales cross even more international boundaries in their annual cycles. The Makah Tribal Council cannot take the attitude that they have proprietary control over all these whales, whether transiting through or feeding, in their U&A. After all these years, it is still surprising to local observers that there is no interest in being "good stewards" of the whales in their back yard. No interest in getting to know them or in protecting them. They just want to kill as	The Makah Tribe has a whaling ordinance that, among other provisions, addresses enforcement, permits, violations, penalties, training/qualifications, monitoring and reporting, and whaling administration. Refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2014, and Appendix B of the DEIS. In addition, Subsection 2.3.2.2.12, Other Environmental Protection Measures, describes enforcement measures that are common among the action alternatives. If a hunt is authorized, possible enforcement measures under the permit would include criminal sanctions (e.g., fines and imprisonment) and barring violators from fishing, hunting, and/or whaling

Sort #	Commenter Code	Comment	Response
		many as possible per year. Where is the incentive to play by "the rules" and where is the deterrent to breaking them?	for at least 3 years. See also Subsection 1.2, Legal Framework.
420	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Makah co-managers have always insisted that they could deter their own tribal members from violating the rules of the hunt. This was an untested hypothesis right up until September 8, 2007. The story of the "rogue hunt" was followed closely in the press by the public and the politicians. Five members of previous "cultural, traditional and spiritual" whaling crews had pumped numerous harpoons and bullets into a resident whale at a feeding site within the Strait. They did not kill for the previously proclaimed reasons of "culture and tradition", but out of feelings of frustration, anger and unrequited entitlement. They failed to kill the whale outright, and it slowly bled to death over a 10 hour period.	The DEIS describes the NMFS investigation of the illegal hunt (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct. For information on enforcement measures that are common among the action alternatives, see Subsection 2.3.2.2.12, Other Environmental Protection Measures.
421	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**How did the Makah co-managers handle this incident? First, three days after the "hunt", Makah Tribal Council members went to Washington D.C. and made promises. "We are taking care of it in our own judicial system," said former Council Chairman, Ben Johnson. Sen. Patty Murray commended the Makah leaders "for immediately condemning this rogue act and taking steps to prosecute the offenders."** A flurry of headlines continue the story of the Makah's judicial system: **"Makah file charges against whalers" [PDN Nov.27, 2007]** **"Search for a judge" [PDN Feb.10,2007]** **"New judge assumes bench on Makah Tribal bench" [PDN Feb.20,2007]** **"Tribal judge rejects plea deal" [Seattle Times April 19, 2007]** **"Makah court defers prosecution for 5 who killed gray whale" [AP May 15, 2007]** **"Makah judge fails to empanel jury to prosecute whalers" [Seattle Times May 15, 2007]** Lynda Mapes summed up the situation in the Seattle Times article of May 15, 2007:	The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.

Sort #	Commenter Code	Comment	Response
		"They promised tough prosecution, but in the end the Makah Nation couldn't put together a jury to try five whalers who were charged with illegally killing a gray whale off Neah Bay last fall. Tribal Judge Stanley Myers on Wednesday instead granted the men one-year deferred prosecution and...the whalers were each ordered to pay a $20 fine. The deferral came after the judge summoned more than 200 people from the village of Neah Bay on the Olympic Peninsula to serve as prospective jurors. But the judge gave up on impaneling a jury because just about everyone was either related or said they had strong feelings about the case... It was a far cry from last fall...Then a tribal council held a news conference and flew to Washington, D.C., to promise swift and sure prosecution. "We are a law-abiding people and we will not tolerate lawless conduct by any of our members", they said in a prepared statement at the time."	
422	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The Makah Tribal Council lost a great amount of credibility with most of the public over this terrible incident. Many felt there was a lack of fairness in the very light punishment dealt out by the Federal Government, as well. The crime was treated as a "hunting violation". Astute observers felt that strings were being pulled to help the Makah Tribe avoid a scenario where some of its own members, rebelling against stiff sentences, would feel compelled to seek relief from the Supreme Court. The uncertainty of the outcome at the Supreme Court level rattled the Tribal Council. The entire situation has rattled the public's faith in the ability of either co-manager to discourage violations of any agreed upon policies in the future. What assurance can NMFS give that breaking the rules will not be tolerated? What "illegal" acts will trigger Federal, rather than Tribal, investigation? Which will not? This was not well explained in the DEIS. Can the public be assured of transparency in all things regarding whaling by the Makah Tribe? Or will NMFS allow there to be the usual veil of secrecy over "tribal matters".	Regulations governing a Makah hunt would need to describe various enforcement-related aspects, including take authorizations, prohibited acts, and requirements for monitoring and reporting.
423	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**We need to see an itemized listing of potential types of violations, and which co-manager will be charged with bringing justice. Whaling is bad enough without also being lawless. There can be no gray areas, where breaches of rules fall between the cracks or are swept under the carpet. Potential punishments are far more serious if the Federal Government is charged with enforcement, and more likely to dissuade violations. NMFS cannot take a hands off approach to enforcement.**	Regulations governing a Makah hunt would need to describe various enforcement-related aspects, including take authorizations, prohibited acts, and requirements for monitoring and reporting.
424	Owens (Peninsula	**THE TREATY**	Comments noted. Please also see the responses to frequent comments # 4

Sort #	Commenter Code	Comment	Response
	Citizens for Protection of Whales)_7-27-15	NMFS's support for whaling by the Makah Tribe has always been predicated on the well-known and oft-repeated clause in the Treaty of Neah Bay of 1855, preserving the right to take whales and seals in common with all citizens of the United States. This reserved whaling right has been touted as "unique" among treaties, and the Makah described as "unique" among Northwest tribes in their whaling culture, and that their ability to claim a treaty right to whale could not be claimed by any other tribes. The **Peninsula Daily News** said in May, 2014: **"The Makah is the only tribe in the lower 48 states to have that right guaranteed in its treaty with the United States."** The media has repeated this claim for 20 years. And it has been an up-hill struggle to make the argument for the last 20 years, that many other Washington State tribes could claim the same right. But we did have an unexpected ally: **The 9th Circuit Court of Appeals was skeptical.** **"While defendants argue that the Makah Tribe is the only tribe in the U.S. with a treaty right expressly guaranteeing the right to whale, that argument ignores the fact that whale hunting could be protected under less specific treaty language...less specific "hunting and fishing" rights might be urged to cover a hunt for marine mammals. Although such mammals might not be the subject of "fishing", there is little doubt they are "hunted".[Anderson v Evans]** **<u>This just in:</u>** **On July 9, 2015, U.S. District Court Judge Ricardo Martinez wrapped up a decision on disputed fishing boundaries of Washington State's coastal tribes: the Makah, the Quileute, and the Quinault. The Judge noted that each of the tribes' word for "fish" at the time of the treaty negotiations with the U.S. government in 1855 encompassed all marine life- including seals, whales, and shellfish.** So there should be no further argument about whether the Makah treaty is "unique". In the Judge's ruling he also detailed the whaling cultures of the Quileute Tribe and the Quinault Tribe. **All the coastal tribes were whalers, had rituals and customs, used harpoons and gear identical to that used by the Makah.** It was not part of that court case, but tribes on the inner waters of the Salish Sea also whaled, so we are left with the fact that about 20 Northwest tribes could claim rights to whale identical to the Makah, by utilizing their treaty rights to "fish". The cost to NMFS in time, personnel, and tax dollars to give equal effort to even a handful of other tribes is not analyzed in the DEIS. The cost to the whales will be high, and should have been analyzed as well. It is common sense to expect that any new requests would be for takes from the ENP gray whale	regarding the precedential effect of waiver internationally and domestically and # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		population. There are no other de-listed whale species at this writing, and the population is believed by NMFS and the IWC to be able to sustain a greater take.	
425	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	The problem will be, of course, that the real damage will be to the "invisible" PCFG and MU&A gray whales, hastening their demise beyond what the Makah will have already accomplished. The eventual impact on the Western North Pacific gray whales can be imagined.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
426	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Makah whaling proponents have often said, when asked to hold the whaling right in reserve: **"A treaty right is not a right unless you use it." "We need to prove the treaty right". "A treaty right must be exercised to continue to exist.."** In a **Seattle Times** article, April 15,2002, a tribal council luke-warm to whaling is described by reporter Lynda Mapes: **"...a new slate of Makah tribal leaders slashed funding for whaling--arguing other needs are more pressing...To be sure, the tribal council wants to ensure the Makah's treaty right to hunt gray whales remains protected. But actually landing a whale on the beach is not on this council's to-do list...[said tribal council-man DavidLawrence :] "It's not so much the whaling; we are securing the treaty right." ["Makah leaders say more pressing needs than whale hunts face their people", Seattle Times]** So, will other tribes use the same rationale and insist on "proving" or "securing" or "protecting" the right to kill whales by following the Makah through the waiver process and killing whales ? A successful waiver outcome for the Makah may ring the starting bell for a rush of other tribal requests. If that happens it will be too late to close the lid on Pandora's Box.	Comments noted. Please also see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
427	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Where is the "cultural necessity" in the statement, **"It's not so much the whaling; we are securing the treaty right."**? And if whaling was such a watershed cultural boon to the tribe, why did enthusiasm wane to such a low, just three years after the 1999 hunt? From the same **Seattle Times** article: **"Keith Johnson said he was voted off the council after the first hunt amidst criticism that the council had spent too much time and money on whaling. "It was really clear that whaling was a dead horse", he said." And Wayne Johnson, captain of the first whale hunt said : " People have lost interest. We need to have a few more whales on the beach to keep it alive."** And this was at a time when the ability to whale was wide open. **"Burdensome federal restrictions on when and where whalers can hunt have been largely lifted." [Lynda Mapes, Seattle Times, 2002]]**	Comments noted. Please also see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
428	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**One month before the above statements were made to reporter Lynda Mapes, Gordon Smith, Makah Tribal Chairman, submitted Ann Renker's "Needs Statement" to Rolland Schmitten to be submitted to the IWC meeting in Shimonoseki, Japan. In this "Needs Statement" are Ann Renker's Household Survey results. She found close to 100% enthusiasm and support and desire for whale hunts and whale meat in Neah Bay!** We did show her statistics to be skewed in our 2008 comments, and the statements from Keith Johnson, Wayne Johnson and David Lawrence back up our distrust of her "results". But the IWC and NMFS always seem satisfied to take her biased findings of "need" at face value. So what is really "needed" that would justify the killing of five whales per year? It does not really seem to be about free meat, traditional food, cultural rejuvenation, or a cure for drug and alcohol problems. It seems to be about "proving" and "securing" the words in the treaty. And maybe "proving" and "preserving" whaling family status, as well. Is that sufficient reason for the IWC to approve an aboriginal subsistence quota? The IWC agenda should not be to help the U.S. government avoid lawsuits from U.S. tribes. So is the real "need", NMFS' need to prove that the word of the government is good, by allowing the tribe to "prove" the treaty right? Is it sufficient reason to allow a first-ever waiver from the MMPA to kill and injure whales from three separate gray whale groups? Is it sufficient reason for the residents of the Peninsula to deal with the economic and emotional fall-out? If the tribes use the killing of whales to measure the Federal Government's willingness to support their treaty rights, will each tribe need to continually "prove" that the government will still back them up no matter the public outcry? The gray whales should not be sacrificial lambs in this political chess match. Dead gray whales will not erase the horrid history of government / tribal relations.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
429	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	And though the judges of the 9th Circuit Court of Appeals said in their decision:" **We need not and do not decide whether the Tribe's whaling rights have been abrogated by the MMPA..."**, many tribal attorneys believe they did just that. From a legal brief submitted to the 9th Circuit Court by the lawyers for 20+ Washington State Tribes [Amici Curiae] requesting en banc re-hearing of the Anderson v Evans decision of 2002: **"The Panel's conclusion that Makah must be treated the same with respect to the MMPA as anyone without treaty whaling rights therefore constitutes nothing less than a decision that the MMPA abrogated the Makah treaty. "**	The purpose of the DEIS is to analyze potential impacts of alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA, not to explore or resolve legal debates.

Sort #	Commenter Code	Comment	Response
		The tribes' lawyers also attempt to make the case that the protections afforded marine mammals are excessive and should not apply to treaty tribes: **"The "conservation" purposes of the MMPA, are much broader than simply ensuring perpetuation with a reasonable margin of safety. They are geared instead to maintaining optimum populations without regard to other considerations, including treaty rights. The MMPA "conservation" purposes therefore have no relation to the conservation standards that have always been applied to treaty rights, and the Panel's opinion marks a radical expansion of the allowable limits on treaty rights that is contrary to settled law in this and other Circuits." [Amici Curiae, 2003]** It is obvious that the tribes would prefer that whales be treated [legally] as fish. What they understand is that the MMPA has a higher protective bar than the Endangered Species Act. Tribes have never before had to deal with this level of protection over something they wanted to kill. What the Makah realize is that there can be no whaling of the type they want to do, that can ever comply with the protections afforded whales by the MMPA. Particularly in regard to the PCFG and MU&A gray whales. **This is the dilemma that NMFS attempts to solve for the Tribe by postponing stock designation for the PCFG gray whales.** We will have to see if this strategy passes deeper scrutiny. From Anderson v Evans: **"Whether the tribe's whaling will damage the delicate balance of the gray whales in the marine ecosystem is a question that must be asked long before we reach the desperate point where we face a reactive scramble for species preservation." Footnote 24 " This conclusion is re-enforced by our holding in Midwater Trawlers Co-operative v Dept. of Commerce [9th Cir. 2002] wherein we held that the Magnuson-Stevens Act [protection of U.S. fisheries] applies to Makah's fishing rights despite the Treaty of Neah Bay."** The 9th Circuit Court was not swayed by the opinions of the lawyers for the tribes. There was no en banc hearing granted, and the Makah Tribe did not choose to challenge the decision at the Supreme Court level. So it stands. In the Court's words: **"The Tribe may urge a treaty right to be considered in the NMFS review of an application submitted by the Tribe under the MMPA." "May urge a treaty right to be considered."** Not exactly a ringing endorsement of the treaty's power to break down the protective walls of the MMPA, and quite a difference from NMFS' long-standing policy of doing just about anything to comply with the Makah's "unique" treaty right-based demands.	

Sort #	Commenter Code	Comment	Response
		And while NMFS tries to "make something" of diminished protests after the 1999 kill and the 2000 "family" hunts, that is understandable: there were no serious attempts to hunt after that. There was nothing to protest.	
430	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Of more note, if NMFS was doing a balanced analysis, was the low turn-out for a 15th Anniversary "event" on May 17, 2014, staged by the Makah Whaling Commission: "A small flotilla of canoes...a feast, dancing and traditional songs to celebrate the whalers and the whale" was announced in a front page story on May 16. [PDN "Makah to mark anniversary"] Surprisingly, the Tribal Council "was unaware of the event." **The Peninsula Daily News** covered the anniversary celebration in another front page story on May 18. There was a very small turnout, as it turned out. "...the rogue 2007 hunt created divisions, Keith Johnson said, pointing out there was no event to mark the 10-year anniversary of the 1999 hunt. "Do you see the whole tribe here?" he asked as he pointed to the three dozen people on the beach before Saturday's commemorative paddle. Keith Johnson expressed hope that the divisions within the tribe would be closed. "It's our traditional food and people still want it. **And if for no other reason, a lot of people here will support us for the treaty right." [PDN, May 18, 2014]** **It seems that "proving the treaty right" is the cultural necessity. Let the IWC vote on that need.**	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
431	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**AESTHETICS AND TREATY RIGHTS** The Marine Mammal Protection Act opens with an important statement : **"Marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of the Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management, and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem. Whenever consistent with this primary objective, it should be the goal to obtain an optimum sustainable population keeping in mind the carrying capacity of the habitat."** **From the DEIS, pg.5-45, Cumulative Effects on Aesthetics:** **"Under Alternatives 2 through 6 there may be some temporary aesthetic effects to people viewing gray whale hunts through the media or from local vantage points both inside and outside of the project area...we do not expect there would be significant cumulative effects on aesthetics." One sentence to dismiss the feelings of the majority of all people everywhere who**	As noted in DEIS Subsection 4.12 (Aesthetics), we used two criteria to determine the potential for aesthetic effects under the alternatives. The first was the anticipated number of persons who may be present at sites that may offer views of hunt-related activities, as well as their expectations (that is, whether individuals may encounter views of hunt related activities without intending to do so). The second criterion includes the anticipated amount, intensity, duration, scope, and content of media coverage. The commenter fails to acknowledge that interested observers also warrant consideration in an analysis of aesthetics. Also, DEIS

Sort #	Commenter Code	Comment	Response
		find whales to be "resources of great international significance, esthetic and recreational as well as economic..." Does NMFS understand the poetic and subtle meanings of the word "aesthetics"? The framers of the MMPA certainly did. NMFS' reference to "temporary aesthetic effects to people viewing gray whale hunts..." seems to define "aesthetic effects" as a fleeting negative response to watching a "distasteful" act. Nothing that would persist after the fact. It is hard to fathom the meaning of NMFS' final phrase:"...we do not expect there would be significant cumulative effects on aesthetics," but we are sure NMFS could not be more wrong. NMFS interpreted "aesthetics" as a negative noun, never dealing with its profound meaning as a positive. **From on-line dictionary definitions of "aesthetics":** **"Critical reflection on art, culture and nature..."** **"A branch of philosophy dealing with the nature of beauty--what is pleasing to the senses."** **"The study of sensory--emotional values."** **"Relating to, involving, or concerned with pure emotion and sensation as opposed to pure intellectuality."** **"To perceive, to feel."** **"The study of the nature of sensation."** So NMFS's "analysis" of the "aesthetics" of whaling is this: Viewing the slaughter would be " a temporary aesthetic effect ". We assume they mean a temporary "negative" aesthetic effect. So evidently their position is that if you don't "watch" unpleasantness, it can't hurt you. And if you do have an aesthetically bad glimpse of whaling, it will be a temporary effect. End of story. We do not think that is what the writers of the MMPA meant when they used the word, but we will try to explain what we think it's context should be in regard to whales and whaling. The Olympic Peninsula is experienced by its residents and visitors as "a world apart". It is practically an island, with water all around. The Olympic National Park is the centerpiece, with soaring snow-capped peaks, lush rain forests, and rocky wilderness coasts. Wildlife of all kinds can be spotted if one is lucky..elk, black bear, cougar, eagles, sea birds in the thousands. The waters of the Strait of Juan de Fuca and the Pacific Coast are homes to many species of marine mammals. Seals, sea lions, dolphins, porpoise, orcas, humpback whales, and gray whales can sometimes be glimpsed from shore, if one is lucky. **The impact on people of all of these natural wonders of the Peninsula, added**	Subsection (4.6, Economics) explores the potential for the alternatives to affect economic conditions in the project area.

Sort #	Commenter Code	Comment	Response
		together, comprises the intrinsic aesthetic value of this corner of the state. Visitors come here to relax and enjoy the rejuvenating effects of seeing and experiencing and feeling the beauty and awe of nature. The feeling one has looking out from a mountain top...looking up into the forest canopy...watching a herd of magnificent elk grazing in a meadow. We all know that feelings and emotions can come from "seeing": the "sensory--emotional values" noted in one definition of aesthetics above. These feelings are deeper than a "fleeting enjoyment" that adds nothing significant to life. People go to great lengths to trigger these aesthetic feelings: they climb mountains, hike into the back country, camp on wilderness beaches, stand by the edge of the ocean's breakers. And they watch for whales. Something about being in the presence of the largest beings on earth is a huge trigger of aesthetic emotions for most people. Many people are surprised to feel the unexpected levels of excitement and emotion that can be triggered by proximity to whales. It can't be explained well, but this definition helps: "Relating to, involving, or concerned with pure emotion and sensation as opposed to pure intellectuality." These feelings are "good for what ails us" in our hurried technical lives.	
432	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	Those of us lucky enough to live by waters populated by whales know that the aesthetic joy does not diminish with each sighting. It is a "heart-filling" experience that is wonderful to anticipate, to feel and to share with others time after time.. There is a reason that whale watching is such huge business, and that boatloads of men, women and children will break out into uncontrollable screams, cheers, and even tears at the sight of a whale exhaling! Or at the sight of a few square feet of gray skin. What other animal generates responses like this everywhere in the world? That "joy at seeing" is the great aesthetic gift the whales give to humans. The opportunity to "perceive and to feel" unexpected emotions in the presence of huge, mysterious, and gentle animals. The opposite of that great aesthetic joy is the contemplation of the unnecessary, and inhumane killings of these same whales. The sad feelings and the anxiety provoked by the fear that these local whales will suffer and die is enough to trigger a great gray gloom, even without actually witnessing a kill. And let us assure you that community-wide sadness and anxiety do and will have "significant cumulative effects." **The whales that PCPW members and supporters, and all residents and visitors to the Olympic Peninsula can hope to see at any time of the year, and are most likely to see from our beaches and look-outs, are the resident gray whales: the Makah U&A sub-group of the PCFG. We have seen them in every**	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations). Please see the response to frequent comment # 10 regarding the response of gray whales to being hunted.

Sort #	Commenter Code	Comment	Response
		month of the year. We adopted seven of these whales many years ago, and we believe we may have seen several of them. We have amassed a large collection of photos, some of which were used to convince the Whale Trail Association to place interpretive signs about gray whales along the Strait. The aesthetic delight that our families and friends have experienced with these whales has inspired art enough to fill a gallery, stories, dreams, and poems enough to fill many children's story books. "They're sprouting!" our youngest child would holler. He is now 36 years old, and still just as enthusiastic about "spout spotting". The resident whales are most certainly resources of great and significant aesthetic pleasure to the resident people and their visitors, and add greatly to the aesthetics of the Olympic Peninsula. Just the chance of seeing a whale adds to the excitement of a visit to the water's edge. If Makah whaling is approved, there will eventually be no more gray whales to be spotted near shore. There may still be distant migrating whales moving way off the coast in winter and spring, but we will likely never see them. We can certainly never "know" them. Our "big friends" will be a mere memory. The cumulative negative feelings of sadness and loss will last as long as our memories and the memories of our children last. That time-frame is measured in lifetimes. The gloom will spread outward from "ground zero", and before long the unique aesthetics of the entire Olympic Peninsula will be tainted by the continual slaughter. We will no longer be the "happy place" to relax amidst natural wonders. We will be "the place where whales are killed ." A place to be shunned. And there will be an entirely different "aesthetic" with likely harsh economic effects that will be cumulative.	
433	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**But we believe that the 9th Circuit Court of Appeals, the Marine Mammal Protection Act and the Treaty of Neah Bay hold the keys to protecting the resident whales and the aesthetic joy they provide to so many.** The key phrase in the Treaty of Neah Bay is this: "...in common with all citizens of the United States." **From the 9th Circuit's 2004 Final Decision in Anderson v Evans:** **"In common with all citizens of the United States" creates a relationship between Indians and non-Indians similar to a co-tenancy, in which neither party may permit the subject matter (of the treaty) to be destroyed. The treaty secures the rights to both. The Makah, consistent with the plain terms of the treaty may not hunt whales without regard to processes in place and designed to advance conservation values by preserving marine mammals or to engage in whale watching, scientific study, and other non-consumptive uses."**	Comments noted. The purpose of the DEIS is to analyze potential impacts of alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA, not to explore or resolve legal debates

Sort #	Commenter Code	Comment	Response
		So the Makah's "treaty right to kill whales" is no more binding or important than the "treaty right" of other U.S. citizens to "preserve whales" for "non-consumptive use". Since all whales referenced by both sides, for killing or saving, are primarily the PCFG whales, and more specifically the Makah U&A whales, all local whale watchers, local whale biologists, and local "whale lovers" have an equal right to the local whales, for "non-consumptive uses". As do the whale-watchers and scientists in other areas of the PCFG range. The Makah will be killing PCFG whales studied, known, and loved in Oregon and off the west coast of S. Vancouver Island. U.S. laws may not cover Canadians' rights to "non-consumptive" use of the shared local whales, but Oregonians should be covered by the treaty right. This sets up a decision worthy of King Solomon. How can the Makah U&A whales, or the PCFG whales, be divided in half for two opposite uses? Should the Makah be allowed to kill only half of the MU&A gray whales? What if they kill most of the reproductive age females? "Our half" would not then be a viable population remnant. **And what of the MMPA's decree that whales should be protected to the greatest extent feasible, and to be allowed to expand to their optimum sustainable population? The MMPA does not restrict this proviso to "stocks", they say "marine mammals". If you take half of a small population, you are not left with a population safe from extinction. Think of the Cook Inlet belugas. Will the aesthetics of Cook Inlet be harmed if the little white whales are gone? Does their sad fight for survival already damage the aesthetics of a "pristine" environment? We believe the answer is yes.**	
434	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**THE KOKECHIK DECISION [1988]** In its 2012 comments to NMFS, The Marine Mammal Commission brought a new topic to the table; the Kokechik case. This case involved a waiver request from the MMPA for a Japanese salmon fisheries cooperative. Their overnight gill-netting technique, within U.S. waters, would not permit discrimination between which species of fish and mammals would be ensnared, and which would not. The permit the Federal Government sought to renew for the Japanese fishing group asked for an annual take of 5,500 Dall's porpoise, 450 fur seals, and 25 sea lions. Statements were required concerning the status of each marine mammal stock affected, and the effects of any permitted taking on its OSP. A DEIS was published that contained no reference to the northern sea lions, as NMFS considered the probability of takings "too remote to warrant it's concern." Observers found there were also problems with potential takings from	We note the summary of the Kokechik decision.

Sort #	Commenter Code	Comment	Response
		the Commander Island northern fur seal stock. The proposed regulations dealt solely with the incidental taking of Dall's porpoise. The Administrative Law Judge recommended a take of 1750 Dall's porpoise and 45 northern fur seals from the Commander Is. stock. The Secretary of Commerce's final decision also allowed the annual taking of 25 northern sea lions, while prohibiting takes of harbor porpoise, Pacific white-sided porpoise, and orca, subject to prosecution under the MMPA. With the gill-netting scenario, marine mammals protected by the MMPA end up as unintended victims. This result is absolutely prohibited by the MMPA unless the Secretary of Commerce grants permission for the taking. Only the Dall's porpoise had a specified quota with Federal permission, but it was foreseeable that takes of northern sea lions, harbor porpoise, etc. would occur. Thus the legitimacy of the permit issued came under scrutiny. The question was: can the Secretary of Commerce issue a permit allowing incidental taking of one protected species, knowing that other protected species would be taken as well? **The MMPA moratorium means a complete cessation of taking marine mammals. The Act defines "taking" as "to harass, hunt, capture or kill or attempt to harass, hunt capture or kill any marine mammal."** Before any permit can be issued, species and population stocks should not have been permitted to diminish below OSP. Further, the Act was to be administered "for the benefit of the protected species rather than for the benefit of commercial exploitation." [540 F.2d 1141,1148[D.C.Cir.1976] The MMPA also requires "incidental kills or injury ...be reduced to insignificant levels approaching zero mortality and serious injury rate..." In the Kokechik case, the taking of the fur seals was not merely a remote possibility, but a certainty. The Secretary concluded that it was not possible to make the required finding that the northern fur seal population from the Commander Is. stock was within its OSP level...evidence was unclear, and a "significant dispute" existed as to whether it was above the minimum level of its OSP. Therefore it could not be determined that this protected stock would not be disadvantaged by takings." **The Secretary chose to issue the permit anyway, taking the position that as long as the permit did not authorize the taking of northern fur seals, he had complied with the MMPA. "The Secretary chose to disregard the incidental takings in this case as "negligible", an undefined and ambiguous standard at best. The MMPA ,however, does not provide for a "negligible impact" exception to its permitting requirements where incidental takings are not merely a remote possibility but a certainty. The Secretary has**	

Sort #	Commenter Code	Comment	Response
		no authority...to issue a permit that allows conduct prohibited by the Act." [Animal Legal and Historical Center] Shortly after the Secretary's final decision, all parties filed petitions for review of the permit in U.S. District Court. **In the words of the Marine Mammal Commission, "...the court [Court of Appeals, D.C. 1988] ruled that no taking could be authorized for any marine mammal stock because of the virtual certainty of taking marine mammals from stocks for which an OSP determination could not be made." [MMC comments to NMFS 2012]** **Said the MMC in 2012 comments to NMFS: "The Service may find itself able to authorize the taking of whales from some groups, but not others. Such a finding will depend on (1) resolution of the stock identity questions related to the PCFG and the whales that spend some time in both the western and eastern Pacific, and (2) the information available to make OSP determinations for the whale groups whose members may occur in Washington waters. Such an outcome would be similar to that faced in Kokechik ..".**	
435	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	We now know, of course, that **the DEIS did not announce a resolution of the "stock identity questions related to the PCFG". Neither did NMFS determine an OSP for the PCFG or the WNP gray whales. It is agreed that both groups are far below their OSP, however. The way that NMFS attempts to circumvent the "PCFG problem" is by not resolving the stock identity question.**	We disagree that NMFS has attempted to circumvent the question of stock identity of the PCFG. Please see the response to frequent comment # 5 regarding the stock status of the PCFG.
436	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The WNP gray whale problem may be more severe, because the WNP whales do have stock designation, and are listed as endangered or depleted on any list that exists world-wide. Their "takes" by all forms of harassment are detailed in the DEIS, and are not "negligible" by any stretch of the definition. The possibility of killings are estimated as "non trivial", yet no waiver is requested for any stock but the Eastern North Pacific gray whale.**	Please see the response to frequent comment # 12 regarding risks to WNP whales.
437	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**So did NMFS comply with the MMC's recommendation that they discuss the implications of the Kokechik case for the Makah's waiver request in the DEIS? Absolutely not. Their answer to the MMC: "The purpose of the analysis in the DEIS is not to assert legal opinions or conclusions..."** **So the problem remains that it is necessary to know the OSPs in order to determine whether or not an activity will "disadvantage" the marine mammals involved. And the question remains, can the Secretary of Commerce**	As the commenter notes, the purpose of the DEIS is to analyze potential impacts of alternatives to inform decision-making regarding authorization of a hunt pursuant to criteria under the MMPA and WCA, not to explore or resolve legal debates

Sort #	Commenter Code	Comment	Response
		legally issue a permit allowing deliberate taking of one protected stock, knowing that other protected stocks will be taken as well? **The Marine Mammal Commission should not be satisfied with the lack of answers.**	
438	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**<u>ALTERNATIVE 1 - NO ACTION</u>** There is only one of NMFS' alternatives that is endorsed by the members and supporters of PCPW. That is Alternative 1, No Action. NMFS must consider Alternative 1 as more than just a meaningless requirement on the list of alternatives. Alternative 1 is the only "action" that will keep whales and people safe. **From the DEIS:** **pg. 4-251: "Alternative 1 represents the lowest risk to the public and the hunters. All action alternatives likely increase the risks of injury." [pg. 4-294]** **pg. 4-274: "Alternative 1 will cause no increased risk to water quality."** **pg.4-275: "Alternative 1 will cause no increased disturbance to marine species and habitats."** **pg. 4-276: "Alternative 1 will cause no increased risk to Western North Pacific gray whales."** **pg.4-277: "Alternative 1 will cause there to be no hunting and killing of PCFG gray whales."** **pg.4-278: "Alternative 1 will cause there to be no hunting and killing of OR-SVI and MU&A gray whales."** **pg.4-66 : "With respect to the viability of the PCFG [under Alt.2], a reduction over time could decrease the likelihood that the PCFG is viable, compared to No Action [Alt.1]** **pg.4-280: "Alternative 1 will cause there to be no hunt-related boycott of tourism."** **pg.4-282: "Alternative 1 will cause no change and no increased costs to law enforcement."** **pg.4-284: "Alternative 1 will create no change in the social environment- no protests and no related social tensions."** **pg.4-258: "Alternative 1 will create no change [increase] in exposure to contaminants. There is no data to suggest that current diets of Makah Tribal members are lacking in Omega-3 oils...a lack of fresh whale products would not negatively impact current dietary conditions."**	Comments noted.

Sort #	Commenter Code	Comment	Response
		pg.4-296: "A decision not to authorize Makah whaling [Alt.1] could discourage future requests for waivers from the MMPA." **pg.4-255: "With each strike attempt, rifle shot, or grenade explosion, there would be an increased risk, compared to the No-action Alt.1,of weapons-related injury to the hunt party, protesters, or bystanders."**	
439	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	NMFS has always attempted to make the argument that if there was "no action"- no Makah whaling-the same number of whales would be killed by the Russians, anyway. And to really "stick it" to those who care about whales, they have also stated that those whales would be killed in a less humane way. But there is another difference that should be factored in. **Under Alt.1, the Russians will not be taking from or causing harm to the PCFG and the WNP groups.**	The DEIS acknowledges these points, reporting, for example, that for the PCFG the No-action Alternative would result in zero whales killed by hunting versus Alternative 2 which could result in up to 25 PCFG whales killed by hunting over 6 years (Table 4-13), and for the WNP the No-action Alternative would result in zero chance of WNP whales killed versus Alternative 2 which could result in a 7 percent chance of striking a WNP whale over 6 years (Subsection 4.4.3.2.2, Change in Abundance and Viability of the WNP Gray Whale Stock.
440	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The UN World charter for Nature urges "strong precaution", and states that "...when potential adverse effects are not fully understood, the activities should not proceed."** The Precautionary Principle should be applied when risks are high and not easily calculable. The La Jolla Workshop 2015 enumerated many studies that still need to be done regarding PCFG recruitment , the comparing of PCFG cow-calf pairs to lagoon IDs, satellite tags on PCFG whales, more photos and biopsies of PCFG whales. Certainly years more work. From the workshop report: "...the value of such work is in filling important data gaps...regarding understanding the dynamics of the PCFG". It was noted that there are no confirmed plans for more telemetry work off Sakhalin. Huge "data gaps" will persist for many years in regards to all gray whales.	The commenter notes that a workshop identified studies that might be undertaken to provide additional information on PCFG recruitment. The commenter does not opine or offer information on the cost and timelines associated with completing those studies or how they will reduce uncertainty. Data gaps have and always will exist and NMFS will continue to consider additional work to reduce uncertainties. However, the purpose of an EIS is to provide best available information to the decision-maker and the public, including identifying areas where potentially

Sort #	Commenter Code	Comment	Response
			relevant information is unknown or uncertain. This comment does not cite available information that we failed to consider in the DEIS.
441	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	What sane person or agency would choose any of the "action alternatives" in light of the numerous problems and hazards they will entail? **If the theoretical "benefits" to the whaling factions of the tribe[s] are placed on one side of a scale, and the inevitable ecological losses, unavoidable cruelty to whales, and harm to people and the community are placed on the other side of a scale, how can justice, the common good, and the MMPA be served in any way other than a strong tip of the scale to Alternative1? It is the only alternative that meets the needs and purposes of the overwhelming majority of whales and people in the affected environment.**	Comments noted.
442	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**The genetic uniqueness of the PCFG gray whales increases the importance of the population, as extirpation will eliminate those genetic traits and lineages from the worldwide population of gray whales. There is value to their knowledge and culture. We cannot know the future, but the PCFG may have a great role to play in the ultimate survival of the species. Their knowledge was vital once, it could be again. During the great die off years of 1999 and 2000, abnormally large numbers of gray whales were seen feeding in the spring in the Makah U&A with known resident whales. They obviously did not "become" PCFG whales, but feeding with them during that hard time of starvation may have given many the strength to complete their migrations north and survive.**	Comments noted.
443	Owens (Peninsula Citizens for Protection of Whales)_7-27-15	**To paraphrase Heckel, it would be unwise to wait until it can be shown that the whales' feeding areas, etc., have been displaced to modify the activity [hunting], because the long-term effect may be irreversible. Management has to be based on best available knowledge and the precautionary principle.** **There are many hypotheses and little absolute knowledge regarding the Western North Pacific gray whales and the PCFG gray whales. In light of such uncertainty, we cannot stand silently by while NMFS mismanages our tiny group of resident whales to extinction, and proposes such unnecessary threats to the struggling WNP whales. Remember the grave management mistakes at Cook Inlet.**	We agree that a decision to waive the MMPA take moratorium must be based on the best scientific information available. We note that the precautionary principle may be incorporated into agency decisions in various ways, including through monitoring and adjustments to management.
444	Pruett (Sea Shepherd	Dear Mr. Stelle: On behalf of Sea Shepherd Legal, I submit the following comments on the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales, published March 20, 2015 by the National Marine	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
	Legal)_7-27-15	Fisheries Service. Thank you for the opportunity to comment. Respectfully submitted, Catherine Pruett, JD, MPA Executive Director Sea Shepherd Legal **I. Introduction** SSL submits these comments in an effort to protect gray whales from being brutally killed in archaic, unjustifiable and inhumane hunts. SSL's goal is to persuade the National Marine Fisheries Service (NMFS) to uphold its responsibility of "stewardship of the nation's ocean resources and their habitat."[1] We implore NMFS to take heed of our concerns, and of the concerns voiced by the multitude of others opposed to the resumption of the gray whale hunt. There is much at stake, and a great deal to lose. As NMFS acknowledges, "[t]he resilience of our marine ecosystems and coastal communities depend on healthy marine species, including protected species such as whales, sea turtles, corals, and salmon."[2] NMFS has been tasked with securing that resilience through, among other things, appropriately implementing the Marine Mammal Protection Act (MMPA).[3] There are times, however, that NMFS fails in this duty - or comes dangerously close to doing so. This is one of those times. By disregarding the potential impacts of the Makah's proposed hunt, NMFS virtually abandons its post as the steward of our oceans and marine wildlife. **A. Conservation Takes Highest Priority** When enacting the MMPA, Congress mandated that conservation, including maintaining healthy populations of marine mammals, is of highest priority. The legislative history of MMPA makes it clear that the **precautionary principle must be applied and that any bias must favor marine mammals.**[4] 4 H.R. REP. NO. 92-707, at 24 (1971); 118 CONG. REC. S15680 (daily Ed. Oct. 4, 1971) (statement of Sen. Packwood) (emphasis added) The courts have agreed. In Comm. For Humane Legislation v. Richardson, the court stated that any action subject to the MMPA, must "proceed knowledgeably and cautiously"[5] and that **the MMPA must be interpreted and applied for the benefit of marine mammals "and not for the benefit of commercial exploitation."**[6] Similarly, in Kokechik Fishermen's Ass'n v. Secretary of Commerce, the District of Columbia Circuit Court of Appeals held that when balancing commercial fishing interests with the conservation goals of the MMPA,	

Sort #	Commenter Code	Comment	Response
		"the interest in maintaining healthy populations of marine mammals comes first."[7] The burden of proof is borne by any party proposing to take marine mammals, or take actions contrary to the MMPA. This "is by no means a light burden."[8] The intent behind the MMPA's "set of requirements is to insist that the management of the animal populations be carried out with the interests of the animals as the prime consideration."[9] **B. Whale Hunting Cannot Be Justified** In Section 2. Findings and Declaration of Policy, the MMPA states: (6) marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of the Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem. Whenever consistent with this primary objective, it should be the goal to obtain an optimum sustainable population keeping in mind the carrying capacity of the habitat.[10] Congress clearly understood that whales are extremely valuable and highly revered. The $2.1 billion whale watching industry, involving more than 120 countries, exemplifies how critically important whales are to mankind.[11] Far beyond these anthropocentric benefit considerations, however, lies the fact that all cetaceans - not least of all gray whales - have intrinsic value. There are abundant scientific findings demonstrating that whales are intelligent mammals with extensive cognitive abilities, emotional lives, and social relations. Studies have shown that gray whales care for unrelated calves and assist injured companions - including those harpooned and dying. [12] Multiple scientists acknowledge that whales have an extremely high cognitive function and "exhibit some of the most complex behavior in the animal kingdom."[13] "Evidence is growing that for at least some cetacean species, culture is both sophisticated and important."[14] Indeed, "if we wipe out a sub-group [of whales], it is more than killing a certain number of individuals, it could actually wipe out an entire culture."[15] NMFS provides a plethora of notes from the Makah describing the nature and application of proposed weaponry for the hunt. [16] While there is some mention of how some of these weapons and methods might expedite a kill,	

Sort #	Commenter Code	Comment	Response
		nowhere does NMFS acknowledge that these sentient, magnificent creatures will suffer immense pain and stress. This omission alone violates the MMPA's mandate to ensure that the killing - or otherwise "taking" - of a marine mammal be conducted in the most humane way possible and for the right reasons. For these and a multitude of other reasons, the hunt cannot be justified and should not be permitted. [1] NMFS mission statement at http://www.nmfs.noaa.gov/aboutus/our_mission.html (last visited July 30, 2015). [2] Id. [3] Id. [4] H.R. REP. NO. 92-707, at 24 (1971); 118 CONG. REC. S15680 (daily Ed. Oct. 4, 1971) (statement of Sen. Packwood) (emphasis added). [5] 414 F. Supp. 297, 310 at n. 29 (D.D.C. 1976), aff'd, 540 F.2d 1141 (D.C. Cir. 1976) (emphasis added). [6] Id. at 24 (emphasis added). [7] 839 F.2d 795, 802 (D.C. Cir. 1958), cert. denied sub nom., See also Verity v. Center for Envtl. Educ., 988 U.S. 1004 (1989) (emphasis added). [8] H.R. REP. NO. 92-707, supra, at 4. [9] Id. (emphasis added). [10] 16 U.S.C. §1361. [11] Russel McLendon. Could whale-watching replace whaling in Japan? June 6, 2014. http://www.mnn.com/earth-matters/animals/blogs/could-whale-watching-replace-whaling-in-japan#ixzz3h1svqQCv (Last visited July 27, 2015). [12] Kim, Claire Jean. DANGEROUS CROSSINGS - RACE SPECIES AND NATURE IN A MULTICULTURAL AGE. Cambridge University Press (2015): 214. [13] S. Savage. Whales and Humans Have Much in Common. June 21, 2010. http://www.redorbit.com/news/science/1881867/whales_and_humans_have_much_in_common/ (Last visited July 26, 2015). [14] Id. (Citing Hal Whitehead, a professor at Dalhousie University in Halifax, in the Canadian province of Nova Scotia). [15] Id. (Citing Lori Marino, a neurobiologist at Emory University in Atlanta, Georgia). [16] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services, Northwest Region, Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. 2015. (Hereinafter the "DEIS") at 2-30.	

Sort #	Commenter Code	Comment	Response
445	Pruett (Sea Shepherd Legal)_7-27-15	**II. Discussion** **A. NMFS Has Illegally Predetermined the Outcome of the NEPA Process** NMFS has deliberately and inappropriately structured the DEIS in an effort to ensure, in one form or another, that there will only be a single outcome from this process: whaling by the Makah Tribe. By attempting to guarantee this predetermined outcome, NMFS' actions are arbitrary, capricious, and contrary to law.	These introductory comment are noted; specific responses are provided below.
446	Pruett (Sea Shepherd Legal)_7-27-15	The fundamental purpose of an EIS is to force the decision-maker to take a "hard look" at a particular action – at the agency's need for it, at the environmental consequences it will have, and at more environmentally benign alternatives that may substitute for it – before the decision to proceed is made.[17] This "hard look" requires agencies to obtain high quality information and accurate scientific analysis.[18] "General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." [19] [17] 40 C.F.R. §§ 1500.1(b), 1502.1; Baltimore Gas & Electric v. NRDC, 462 U.S. 87, 97 (1983). [18] 40 C.F.R. § 1500.1(b). [19] Klamath-Siskiyou Wilderness Center v. Bureau of Land Management, 387 F.3d 989, 994 (9th Cir. 2004) (quoting Neighbors of Cuddy Mountain v. United States Forest Service, 137 F.3d 1372, 1380 (9th Cir. 1998)).	The commenter makes general conclusions about the science and information included in the DEIS but does not identify specific deficiencies. We prepared an EIS rather than an environmental assessment to ensure that the agency takes a hard look at potential environmental effects associated with the tribe's request, and the DEIS does contain high quality information and accurate scientific analysis referred to in this comment. In cases where such information was lacking we initiated and funded studies and workshops to obtain it, for example the work of Punt and Moore (2013) to evaluate OSP for PCFG whales, the analysis by Moore and Weller (2013) to assess the probability of taking a WNP gray whale during the proposed Makah hunt, and the gray whale stock identification workshop (Weller et al., 2013).
447	Pruett (Sea Shepherd Legal)_7-27-15	While it is true that an agency enjoys discretion in defining the purpose and need of a project in an EIS, "an agency cannot define its objectives in unreasonably narrow terms."[20] In particular, the agency cannot so narrowly craft those objectives so as transform the EIS into a "foreordained formality."[21] Moreover, the public purpose and need are given considerably more weight than the private goals and needs. In this respect, the private interests are not	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		permitted to define the scope of the proposed project. Rather, as described by the D.C. Circuit: [A]gencies must look hard at the factors relevant to the definition of purpose.... Perhaps more importantly [than the need to take private interests into account], an agency should always consider the views of Congress, expressed, to the extent that the agency can determine them, in the agency's statutory authorization to act, as well as in other congressional directives.[22] Where, as here, "an action is taken pursuant to a specific statute, the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS."[23] Contrary to these well-recognized principles, NMFS drafted a narrowly circumscribed statement of purpose and need in the DEIS that elevates the private (Makah) interest well above NMFS' statutory obligations under the MMPA and ESA.[24] As stated in the DEIS: 1.3.1 Purpose for Action The Makah Tribe's purpose is to resume its traditional hunting of gray whales under its treaty right, as described in detail in Subsection 2.3.2, Alternative 2 (Proposed Action). NMFS' purpose is to implement the laws and treaties that apply to the Tribe's request, including the Treaty of Neah Bay, MMPA, and WCA. 1.3.2 Need for Action The Makah Tribe's need for the action is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions. NMFS' need for this action is to implement its federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the Treaty of Neah Bay. In meeting this need, NMFS must also comply with the requirements of the MMPA and the WCA. Under the MMPA, we must protect and conserve the gray whale population; under the WCA, we must regulate whaling in accordance with the ICRW and IWC regulations.[25] This statement of purpose and need narrowly focuses on the Tribe's "traditional hunting of gray whales under its treaty right."[26] Although mentioning NMFS' statutory responsibilities in passing, the statement strongly emphasizes NMFS' alleged duty to "implement" this treaty right and its "federal trust responsibilities to the Makah Tribe with respect to the Tribe's reserved whaling rights under the [treaty]."[27] The needs statement, in particular, subordinates the	

Sort #	Commenter Code	Comment	Response
		agency's public responsibility, stating that "NMFS must also comply with the requirements of the MMPA and the WCA."[28] [20] See Friends of Southeast's Future v. Morrison, 153 F.3d 1059, 1066 (9th Cir.1998); City of Carmel–By–The–Sea v. United States Dep't. of Transp., 123 F.3d 1142, 1155 (9th Cir.1997). [21] Friends, 153 F.3d at 1066 (quoting Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C.Cir. 1991), cert. denied, 502 U.S. 994 (1991)). [22] Burlington, 938 F.2d at 196. [23] Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 866 (9th Cir.2004). [24] In fact, as discussed below, NMFS has completely abdicated its responsibility to protect a listed species under the ESA. [25] DEIS, at 1-27. [26] Id. [27] Id. [28] Id. (emphasis added).	
448	Pruett (Sea Shepherd Legal)_7-27-15	The manner in which NMFS has framed this important, threshold provision in the DEIS runs directly counter to the Ninth Circuit's pronouncements in Anderson v. Evans.[29] Significantly in this regard, the court placed supreme importance on NFMS' obligation to ensure that any proposed action satisfied the "conservation necessity" of the MMPA. The court observed that the Tribe's treaty right was a factor to be considered in deciding whether to permit an exception to the MMPA's moratorium on the take of marine mammals.[30] However, the Anderson court's prime directive was that the agency safeguard the conservation goals of the MMPA. In support of this directive, the court expressed the congressional intent behind the MMPA in clear terms: One need only review Congress's carefully selected language to realize that Congress's concern was not merely with survival of marine mammals, though that is of inestimable importance, but more broadly with ensuring that these mammals maintain an "optimum sustainable population" and remain "significant functioning elements in the ecosystem." [29] 371 F.3d 475 (9th Cir. 2004). [30] Id. at 501n.26.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
449	Pruett (Sea Shepherd	The Anderson court further held that NMFS has a duty to uphold the "nonconsumptive" uses of the gray whales.[31] On this point, the court noted that the Makah had a treaty right "in common with all citizens of the United States"	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
	Legal)_7-27-15	and that this language "creates a relationship between Indians and non-Indians similar to a cotenancy, in which neither party may 'permit the subject matter of [the treaty] to be destroyed.'"[32] As a consequence of this "co-tenancy" relationship, the Tribe was only entitled to its "fair share" of whales that must be allocated in a manner that upheld the conservation principles of the MMPA: [W]e conclude that to the extent there is a "fair share" of marine mammal takes by the Tribe, the proper scope of such a share must be considered in light of the MMPA through its permit or waiver process. The MMPA will properly allow the taking of marine mammals only when it will not diminish the sustainability and optimum level of the resource for all citizens. The procedural safeguards and conservation principles of the MMPA ensure that marine mammals like the gray whale can be sustained as a resource for the benefit of the Tribe and others. Viewed through the lens of the Anderson decision, NMFS' statement of purpose and need – the language that sets the stage for the proposed alternatives – is grossly deficient. NMFS has abdicated its public responsibility and ignored the court's clear directives in focusing almost exclusively upon the Tribe's asserted treaty right to traditional whaling while marginalizing the "conservation necessity" of the MMPA and completely ignoring the right of nontribal persons to enjoy these magnificent creatures in nonconsumptive ways. NMFS' digression at the outset of the DEIS has serious, and fatal, consequences for the remainder of the document. Of greatest concern is that the agency relies upon this narrow and tribally-biased statement of purpose and need to dismiss the No Action Alternative and promote action alternatives that lead to a single result: whaling by the Makah. NMFS then uses the No Action Alternative (no whaling) as the benchmark upon which to justify its cursory dismissal of all other potential action alternatives that do not involve whaling. By taking this approach, NMFS impermissibly and illegally disregards its mandate to promote the MMPA's conservation necessity and to uphold the "cotenancy" rights of nonconsumptive users. One example of NMFS' myopic focus is its discussion of the rejected "nonlethal hunt" alternative. The agency's failure to consider the conservation necessity is no more evident than in its description of the applicable laws (e.g. WCA and MMPA) as supporting whaling in their "contemplation" of "lethal takes" and its linking of this circumstance with the Treaty of Neah Bay's conveyance of the "opportunity" to kill whales.[33] Noting that Tribe seeks authorization under these "authorities" to hunt whales, NMFS concludes that a "non-lethal hunt	Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		would therefore not meet the purpose and need for the Tribe's proposed action."[34] The agency then dismissively compares the outcome of the non-lethal hunt to the no action alternative, finding that the non-lethal hunt need not be considered because it will have the same effects as the no action (no whaling) alternative.[35] This narrow, circular "analytical" approach, anchored only in whaling, graphically illustrates the manner in which NMFS uses the statement of purpose and need to predetermine the outcome of this entire process. NMFS provides a nearly identical "analysis" for other rejected alternatives, including "alternative compensation to the Makah." Notably, this alternative encompasses at least one nonconsumptive use envisioned by Anderson: whale-watching. Yet, here and elsewhere in the DEIS, NMFS forgoes the opportunity to explore the potential benefits associated with the promotion of this particular activity for the Makah and the Tribe's "co-tenants." Instead, NMFS again cursorily dismisses the "alternative compensation" as equivalent to the (rejected) No Action Alternative and inconsistent with the purpose and need. In summary, NMFS has most certainly "preordained" the result of this NEPA process at the expense of its mandatory duty to uphold the MMPA's "conservation necessity" and the "rights in common" to enjoy whales held by others outside the Makah Tribe. The law is clear that the EIS must be a pre-decisional, objective, rigorous, and neutral document, not a work of advocacy to justify an outcome that has been foreordained. The agency has, therefore, acted arbitrarily and capriciously in crafting the narrow statement of purpose and need and infecting the remainder of the DEIS with its singular focus in promoting a lethal hunt of the whales. [31] Id. at 500 ("[T]he Makah cannot, consistent with the plain terms of the treaty, hunt whales without regard to processes in place and designed to advance conservation values by preserving marine mammals or to engage in whale-watching, scientific study, and other non-consumptive uses."). [32] Id. [33] DEIS, at 2-22. [34] Id. at 2-23. [35] Id.	
450	Pruett (Sea Shepherd Legal)_7-27-15	**B. The Makah Do Not Have a Valid Subsistence Right To Hunt Whales** In 1982, the International Whaling Commission (IWC) issued a moratorium on commercial whaling.[36] A recognized exception to the moratorium is "Aboriginal Subsistence Whaling" (ASW), which allows qualifying indigenous	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
		peoples to hunt a small number of whales for legitimate aboriginal subsistence needs.[37] NMFS claims that the Makah qualify for this exception. They do not. [36] Id. at 1-20. [37] Id. at 1-21. (Note: SSL is merely stating IWC law on this issue. SSL believes that cetaceans should never be killed by anyone, for any reason.)	
451	Pruett (Sea Shepherd Legal)_7-27-15	The IWC has repeatedly clarified its position that the ASW exception should never undermine the overarching purpose of the IWC and its regulations - the conservation of whales.[38] For example, in its 45th Annual report, the IWC stated: While allowing aboriginal people to meet their cultural and nutritional requirements is an important objective, that objective is subject to the other objectives of preventing risks of extinction and maintaining stocks at the highest level of recruitment. In fact, the highest priority shall be accorded to the objective of ensuring that the risks of extinction to individual stocks are not seriously increased by subsistence hunting.[39] It is with this caveat that all risks to whales - whether by ship strikes, pollution or aboriginal subsistence whaling - must be considered. Thus, any claim of an ASW right must be legitimate, substantiated and incontrovertible. [38] See IWC History and Purpose. https://iwc.int/history-and-purpose. (Last visited July 29, 2015). [39] IWC, 45th Annual Report of the International Whaling Commission, at 42-43 (1995). Emphasis added.	We agree and note this is an area of active discussion by the IWC. At its 65th annual meeting the IWC passed a resolution (Resolution 2014-1) directing the aboriginal subsistence whaling (ASW) subcommittee to address a number of issues, including the development of standardized need statements and a better understanding of the relationship between needs and consumption patterns for ASW hunts. Subsection 1.4.1, Summary of Aboriginal Subsistence Whaling Catch Limits provides an overview of requests for ENP gray whales on behalf of the Makah as well as IWC plans to convene an aboriginal subsistence workshop in the near future to address ASW needs and related topics.
452	Pruett (Sea Shepherd Legal)_7-27-15	**1. The IWC Never Granted the Makah a Whaling Right** The IWC is the only entity authorized to officially recognize subsistence rights in support of a whaling quota allotment. Pursuant to the International Convention for the Regulation of Whaling (ICRW), "the number of whales killed for aboriginal subsistence must align with subsistence needs; national governments are responsible for providing the IWC with evidence of the cultural, nutritional, and subsistence needs of their people."[40] The parties provide this evidence so that the IWC can make a determination. Clearly, a party itself cannot unilaterally determine that a subsistence need exists, which means that the U.S. could not unilaterally do so for the Makah. Yet it did.[41] It is clear that the U.S. does not firmly believe that it was authorized to make this determination independently. In its DEIS, NMFS states that the IWC's adoption of the U.S.-	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
		Russian Federation joint quota request merely "suggest[s] the possibility that each IWC party was free to recognize the subsistence and cultural needs of its aborigines."[42] In May 1995, the Makah submitted a needs statement to the U.S. government, requesting representation before the IWC, in an effort to be granted an annual quota to hunt whales.[43] The U.S. acquiesced and, in 1996, sought to attain that quota as a contracting party to the IWC.[44] The request received strong resistance from the other parties to the IWC, with no less than 17 countries expressing skepticism. Throughout the process, much debate ensued as to whether the Makah were even entitled to invoke the ASW exception. Ultimately, the IWC denied the request for a Makah quota.[45] A year later, the U.S. and the Russian Federation submitted a joint request for a quota - both claiming to require the quota for aboriginal groups with alleged legitimate subsistence needs. While the IWC ultimately granted the joint quota - it never did so for the purpose of granting the Makah any specific right or ASW recognition. This is made patently clear in the following quoted correspondence from Dr. Ray Gambell, Secretary to the IWC: The IWC sets catch limits for whale stocks. It cannot set individual quotas for nations, or communities of people. Once having set the stock catch limit, it is the responsibility of the government(s) which wish(es) to take the whales to arrange that the catch limit is not exceeded. The IWC's Aboriginal Subsistence Whaling Management procedure normally also takes into account the perceived needs claimed by the prospective hunters in setting the catch limit, but in the case of the gray whale the catch of 140 whales requested by the Russian Federation was not increased to accommodate the USA's request. You can see how this arose in the records of our meetings. The IWC has specifically not passed a judgement on recognising or otherwise the claim by the Makah Tribe, since the member nations were clearly unable to agree.[46] Unabashedly, the U.S., by and through NMFS, has repeatedly pressed forward with its efforts to allot a whale quota to the Makah. How they can do this with a straight face is astounding. Quite evidently, the U.S. fully understood that an IWC ASW determination was a necessary legal prerequisite to permitting a Makah hunt, otherwise the U.S. would not have so fervently initially pursued that course of action. When that failed, the U.S. resorted to its backdoor deal with Russia.	

Sort #	Commenter Code	Comment	Response
		[40] Wold Chris, and Michael D. Kearney. The Legal Effect of Greenland's Unilateral Aboriginal Subsistence Whale Hunt. American University International Law Review 30 no. 3 (2015): 564, citing ICRW Art. XI, ¶ 10, Dec. 2, 1946, 62 Stat. 1716, 161 U.N.T.S. 72. [41] Id. at 4-269 (emphasis added). [42] Id. at 4-269. [43] NOAA Fisheries website Chronology of Major Events Related to Makah Tribal Gray Whale Hunt. http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/cetaceans/chronology.html (Last visited July 230, 2015). [44] Id. [45] Id. [46] October 5, 1998 electronic communication from Dr Ray Gambell, Secretary to the International Whaling Commission, to Eric Dickman, counsel for the Makah Tribal Council (emphasis added).	
453	Pruett (Sea Shepherd Legal)_7-27-15	**2. The Makah Do Not Qualify for the ASW Exception** NMFS has failed to meet the burden of showing that the Makah meet any of the requisite criteria to qualify for ASW status. To qualify, the Makah must have cultural, nutritional and subsistence needs for whale products. All three of these criteria must be established. None are. **The Makah Do Not Have A Nutritional Need to Whale** For the Makah's proposed whaling practices to legitimately fall within the realm of "Aboriginal Subsistence Whaling," NMFS must demonstrate that whale meat and blubber are required in diets of Makah tribal members for health reasons or survival. A desire or preference for whale meat and blubber is not sufficient justification. The Makah by no means require whale meat for nutritional sustenance. While not living in direct proximity to a major metropolitan area, the tribe has consistent access to a multitude of nutritional sources, including approximately four food service establishments and two grocery purveyors directly on tribal grounds, a direct, weekly grocery delivery service, and 7 other food stores and restaurants within a 20 mile radius - not to mention their own fish hatchery and vast backyard expanse of open water.[47] Notwithstanding the foregoing, NMFS spends several pages in the DEIS espousing the purported potential virtues of a diet rich in seafood - specifically whale meat and blubber.[48] Yet after this long monologue, NMFS concedes that ". . . it is difficult to compare essential nutrients and minerals of whale products	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		directly to other protein sources because the former have not been studied extensively." NMFS further concludes that there is "[i]nsufficient information about nutritional value and contaminant levels in current Makah diet to predict the precise changes in exposure to contaminants or foodborne pathogens or the nutritional composition of the Makah diet if tribal members have the opportunity to consume freshly harvested whale. However, whale products, in particular blubber, could contain higher levels of certain contaminants . . . All action alternatives are likely to have a mix of beneficial and adverse impacts associated with nutritional benefits, environmental contaminants, and exposure to food-borne pathogens."[49] [47] By making this statement, SSL does not claim that fish hatchery practices are ecologically sound or that any ocean wildlife exploitation is justified. We merely wish to point out the absurdity of NMFS' position that whale products are a nutritional requirement for the Makah. [48] DEIS at 3-370. [49] Id. at 4-294.	
454	Pruett (Sea Shepherd Legal)_7-27-15	The one thing that is not misguided in NMFS' diatribe about speculative nutritional benefits is its reference to the risk of contaminant exposure when consuming whale products. To be sure, whale meat is broadly considered unfit - if not outright dangerous - for human consumption. As numerous studies note, "[w]hale meat can be highly contaminated with organic contaminants and heavy metals."[50] Notably, "organochlorine pollutants—namely, polychlorinated biphenyls (PCBs), pesticides (DDT, dieldrin, chlordanes, and hexachloro-cyclohexane [HCH])—and mercury (inorganic and organic) are typically present in cetacean tissues"[51] These contaminants are considered "ubiquitous pollutants of the marine environment and biomagnify up the marine food chain as a result of their lipophilic and persistent nature" and bioaccumulate "in lipid-rich tissues, particularly [whale] blubber."[52] Moreover, studies conducted on laboratory animals, marine mammals and humans accidentally poisoned prove that PCBs and organochlorine pesticides "have the potential to cause adverse health effects, such as immunosuppression, endocrine disruption, reproductive and nervous system disorders, and cancer,"[53] while mercury has been associated with kidney damage as well as "neurological and developmental abnormalities."[54] Finally, even if the Makah remain undeterred by the known toxicity risk, a large number of the whales they slaughters could simply go to waste. As detailed in the DEIS, "[s}ince 1998, Chukotka Natives have been reporting a number of hunted whales from the Bering Sea that exhibit a strong medicinal odor, referred	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.

Sort #	Commenter Code	Comment	Response
		to as the 'stinky whale' phenomenon (IWC 2007b). From 2008 through 2012, 1 to 8 stinky whales (approximately 1 to 6 percent of whales landed) have been reported by Chukotka Natives each year. Tissues from these whales have been deemed inedible by hunters. In some cases, people who have tasted the blubber or meat have reported symptoms of numbness of the oral cavity, skin rashes, or stomach aches. Toxicologists have recommended that such whales be considered unfit for human consumption."[55] The risk is very real. As with the whales killed by the Chukotka, the gray whales subject to the Makah hunt are exposed to exorbitant levels of pollution throughout their lives.[56] [50] Simmonds, M. P., et al. Human health significance of organochlorine and mercury contaminants in Japanese whale meat. Journal of Toxicology and Environmental Health Part A 65.17 (2002): 1212. [51] Id. [52] Id. at 1213. [53] Id. [54] Id. [55] Id. 3-376. [56] Based on multiple scientific reports over the course of more than 20 years on the contaminant load of numerous beached and stranded whales. See Wolman, A.A. and AJ Wilson. Occurrence of pesticides in whales. Pesticides Monitoring J., 4 (1970): 8–10; Schafer, Henry A., et al. Chlorinated Hydrocarbons in Marine Mammals. Biennial Report (1983) 109; Varanasi, Usha, et al. Chemical Contaminants in Gray Whales (Eschrichtius robustus) Stranded Along the West Coast of North America. Science of the Total Environment 145.1 (1994): 29-53. ; and Ruelas-Inzunza, J., and F. Páez-Osuna. Distribution of Cd, Cu, Fe, Mn, Pb and Zn in Selected Tissues of Juvenile Whales Stranded in the SE Gulf of California (Mexico). Environment International 28.4 (2002): 325-329.	
455	Pruett (Sea Shepherd Legal)_7-27-15	**The Makah Do Not Have a Subsistence Need To Hunt Whales** The argument that the Makah have a subsistence need is similarly a fallacy. By definition, subsistence is "the action or fact of maintaining or supporting oneself at a minimum level."[57] The Makah do not require whale meat, blubber or other whale products to maintain or support themselves. NMFS has not shown that the Makah require access to whale meat or blubber to subsist. Indeed, NMFS cannot point to a single shred of evidence that the Makah have suffered from or have in any way been adversely impacted by failing to have access to whale products. As noted above, the Makah have access to boundless resources to ensure that they will not only subsist - but thrive.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		[57] Concise Oxford English Dictionary 1438 (12th ed. 2011).	
456	Pruett (Sea Shepherd Legal)_7-27-15	**The Makah Cannot Show that Any Alleged "Cultural Need" Exists** As noted above, the Makah have neither a nutritional need nor a subsistence need to hunt whales. Lacking either one of those required criteria is enough to affirmatively state that the Makah do qualify for an the ASW exception. While a cultural need alone is not a sufficient basis for an ASW quota, we address this claim as well. The Makah stated that "[w]haling and whales are central to Makah culture. The event of a whale hunt requires rituals and ceremonies which are deeply spiritual. Makah whaling the subject and inspiration of Tribal songs, dances, designs, and basketry."[58] Historically, "the process of dividing up the carcass was a community affair [for the Makah], with all sharing in the work and bounty. . . the entire village turned out to divide up the carcass."[59] In 1999, the Makah killed and landed a whale in an allegedly legal hunt using modern assault weaponry.[60] Captured on film, it became immediately clear that no one in the tribe knew how to render a whale. Indeed, an Inuit member of an Alaskan tribe was recruited to assist with the slaughter. Left alone to butcher the whale by himself after the Makah had gone home, the Inuit man proclaimed "[w]here are my Makah brothers?! Where I live we butcher our own whales!" Footage showed that traditionally used whale parts, including meat and blubber were wasted and left to rot.[61] As the evidence suggests, with much of the historical knowledge of the process lost, the actual killing of a whale is clearly not a cultural necessity. [58] Makah website http://makah.com/makah-tribal-info/whaling/ (Last visited July 31, 2015). [59] Collins, Cary C. Subsistence and Survival: The Makah Indian Reservation, 1855–1933. Northwest Quarterly 87:4 (Fall 1996): 180-193 [60] http://makah.com/makah-tribal-info/whaling/ [61] DVD titled, Butchering of Gray Whale; Neah Bay, WA; May 18, 1999; © Erin O'Connell.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
457	Pruett (Sea Shepherd Legal)_7-27-15	**3. The Makah Do Not Have a Continuing Traditional Dependence on Whaling and the Use of Whales** When originally seeking a quota from the IWC for the Makah, the U.S. relied upon the following functional definition of "Aboriginal Subsistence Whaling" [W]haling for purposes of local aboriginal consumption carried out by or on behalf of aboriginal, indigenous or native peoples who share strong	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		community, familial, social and cultural ties related to a continuing traditional dependence on whaling and on the use of whales. [62] The Makah do not fit within the ASW definition because they do not have a "continuing traditional dependence on whaling and on the use of whales." While whaling may have been a regular part of the Makah culture over 150 years ago, any "dependence" on whaling had nearly completely died out by 1860, when the Makah turned to the more economically lucrative and socially equitable practice of sealing. Indeed, by 1875, sealing had become the Makah's principal source of income.[63] A "continuing" activity is one that is enduring and uninterrupted. Here we are, more than a century after the Makah's whaling activities nearly completely ceased, faced with the claim that the tribe has a "continuing traditional dependence" on whaling. The argument is ludicrous. NMFS' reference to the short-lived and minor resurgence in whaling activity between 1916 and 1920 does not change that, nor does the one inappropriately authorized hunt in 1999.[64] As the Makah concede, there simply is not a "continuing cultural dependence" on whaling or the use of whales. For example, after the 1999 hunt, a young fisherman pointed out, "[i]t's not like we have a bunch of favorite recipes to work with . . . this may be an ancient tradition, but it's all new to us."[65] Similarly, an elder opposed to whaling noted that, with the passage of time since whaling ceased, "none of us knows what it tastes like or likes what it tastes like."[66] [62] G.P. Donovan, The Ad Hoc Committee Working Group on Development of Management Principles and Guidelines for Subsistence Catches of Whales by Indigenous (aboriginal) Peoples, International Whaling Commission and Aboriginal/Subsistence Whaling: April 1979 to July 1981, Special Issue 4 (1981). [63] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services, Draft Environmental Impact Statement for Proposed Authorization of the Makah Whale Hunt. May 2008. (2008 DEIS), 3-235. [64] DEIS at 3-306. [65] Interview of Richard Markishtum, fisherman and member of the Makah tribe. After the Hunt, Bitter Protest and Salty Blubber. May 19, 1999. Sam Howe Verhovek. New York Times. [66] Interview of Makah Elder, Alberta Thompson. Elder Opposed to Whaling Finds Resistance at Home. October 04, 1998. Peggy Anderson, Associated Press.	

Sort #	Commenter Code	Comment	Response
458	Pruett (Sea Shepherd Legal)_7-27-15	**4. Alternatives to Simultaneously Honor Makah Cultural Traditions and Protect Whales** A purely ceremonial hunt - without the bloodshed, without the risk of extirpation of whole whale populations, and without the certain ensuing public outcry against the Makah - could readily supplant and restore the associated traditional practices. The Makah could still honor whales and their whaling heritage through "rituals and ceremonies," much as they once did. These ceremonial hunts could still be "deeply spiritual" and remain "the subject and inspiration of Tribal songs, dances, designs, and basketry."[67] From an economic and social standpoint, a purely ceremonial hunt - particularly one open to the public - would be lucrative. Rather than undermining the source of critical tourist dollars, and risk being boycotted by the public, the Makah would be heralded for showcasing their inherent respect for nature and humanity's place in nature. It its DEIS, NMFS fails to even consider this possibility, similarly dismissing whale watching - a $2.1 billion dollar industry across 120 countries[68] - as a lucrative alternative for the Makah. The Makah could follow the laudable path taken by their neighbors, the Quileute Tribe, who have abandoned whaling traditions and found great spiritual and cultural enrichment in celebrating the lives of whales. In 1988, the Quileute passed a resolution to end all whaling. A tribal member strongly supporting this move commented: Our tribe fully supports our Makah neighbors in their treaty rights. But our Quileute elders have made a different decision. Even though we and other tribes along the coast have the same treaty rights to hunt, our elders have chosen to support the gray whale. For thousands of years, this whale has been valuable under subsistence, but now the value is in its life. The gray whale is more valuable to the Quileutes living than hunted. We must begin the healing here in our village and hope it can help others, as well. We Quileutes would like to offer a new vision and a different model for other tribes, as well as peoples."[69] Appalled by the needless slaughter of the whale targeted in the 1999 Makah hunt, the First Nations Environmental Network issued the following press release: **Press Release: May 18th, 1999.** Re: The Killing of a Grey Whale by Makah at Neah Bay, Washington, U.S.A. on May 17th, 1999. **NOT ALL INDIGENOUS PEOPLE SUPPORT MAKAH WHALING** We are deeply concerned and saddened by the killing of a whale at Neah Bay, Washington by members of the Makah Nation. There are many implications	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		involved in this and we cannot support this action due to the following: 1) The International Whaling Commission meets this month to determine what is acceptable globally to the world's whale populations and this will have a negative impact on their decision. 2) Japan, Norway, Iceland and other countries are working towards getting commercial whaling approved once again. The Japanese have been lobbying First Nations Peoples on the West Coast and around the world to open the door on 'cultural whaling' which they also claim as a 'right'. 3) The Makah Nation is divided within, with many elders and others speaking against this 'return to Traditional Practices' and their voices are being ignored and suppressed. 4) While we respect Treaty Rights, this is a political reason being used for killing and not a true meaning of need when it comes to the taking of another being's life. Using 'Treaty Rights' in this way may set dangerous precedents. At this point in human history, we feel that spiritually and morally, the act of killing whales cannot be justified. For All Our Relations, Steve Lawson FNEN Representative on West Coast[70] NMFS completely disregards the sentiments and guidance of the Makah's indigenous neighbors. [67] Makah website. http://makah.com/makah-tribal-info/whaling/ (last visited July 26, 2015). [68] R. McLendon, supra n. 11. [69] Kim, Claire Jean. Dangerous Crossings. Cambridge University Press, 2015, citing Peterson, Brenda and Linda Hogan, Sightings: The Gray Whales' Mysterious Journey, Washington DC: National Geographic 2002, 121. [70] Kim C. J. at 241. According to its website (http://www.fnen.org/), the First Nations Environmental Network is a Canadian national organization of individuals, non-profit groups and Indigenous Nations who are actively working on environmental issues. It is an affiliate network of the Canadian Environmental Network.	
459	Pruett (Sea Shepherd Legal)_7-27-15	**C. If Permitted, the Hunt Will Set a Dangerous Precedent** The court in Anderson v. Evans expressed a grave concern that the actions taken by the U.S. to rely on a self-fashioned and implemented "cultural whaling" exception would set a dangerous precedent for other countries to claim a subsistence need.[71] The court stated: The 1997 IWC gray whale quota, as implemented domestically by the United States, could be used as a precedent for other countries to declare the subsistence need of their own aboriginal groups, thereby making it easier for such groups to gain approval for whaling. If such an	Comments noted. Please also see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		increase in whaling occurs, there will obviously be a significant impact on the environment.[72] The validity of the court's concern had been established long before this ruling. As the First Nations Environmental Network noted in the press release above, these nefarious machinations were already well underway.[73] Countries such as Japan, Norway and Iceland had been lobbying Pacific Coast tribes for years in an effort to encourage the development of the "cultural whaling" exception.[74] [71] Anderson, 371 F.3d 475 at 493. [72] Id. [73] Kim, C. J. at 241. [74] Id.	
460	Pruett (Sea Shepherd Legal)_7-27-15	There is no doubt that if NMFS approves the Makah's proposal to whale it will create a new form of ASW based solely on purported "cultural needs." There is clear and present danger that this precedent could open the door to whale hunting by other coastal tribes and aboriginal populations that have preserved hunting (or even fishing) rights in their treaties.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
461	Pruett (Sea Shepherd Legal)_7-27-15	NMFS inaccurately claims that Japan has not yet attempted to propose an amendment to the IWC Schedule to allow for small-type coastal whaling.[75] On the contrary, Japan has tried to get on the "cultural needs" bandwagon on multiple occasions - most recently in May 2014, when it proposed a new kind of "small-type coastal whaling," which it alleges should be treated like aboriginal subsistence whaling.[76] Japan claims that the "nutritional, subsistence and cultural needs" of small-type coastal whaling in some of its communities should be recognized, given that "Japanese have utilised whale meat as one of the principal sources of protein since ancient times."[77] [75] DEIS at 4-266. [76] 2014 Report of the International Whaling Commission Scientific Committee (2104) IWC/65/Rep 1. Available at www.iwc/int [77] Government of Japan, (1986) Small-Type Coastal Whaling in Japan's Coastal Seas, (IWC) TC/38/AS2.	This comment mischaracterizes the analysis in the DEIS. The DEIS page cited does not make the claim attributed to NMFS in the first sentence of this comment, nor could we find such a claim elsewhere in the DEIS. Rather, the DEIS states: "Japan's argument that small-type coastal whaling is similar to aboriginal subsistence whaling is an example of how an IWC party might use Makah whaling to support its desired whaling operations." The comment also mischaracterizes Japan's 2014 proposal, which would have allowed small-type coastal whaling through an exemption to the moratorium on commercial whaling and not through an ASW catch limit (IWC 2014).

Sort #	Commenter Code	Comment	Response
462	Pruett (Sea Shepherd Legal)_7-27-15	The Anderson Court expressed further disquiet about NMFS' claim that bad precedent was improbable given that only the Makah hold a treaty right to whale. On this point the court stated: [W]e cannot agree with the agencies' assessment that because the Makah Tribe is the only tribe that has an explicit treaty-based whaling right, the approval of their whaling is unlikely to lead to an increase in whaling by other domestic groups. And the agencies' failure to consider the precedential impact of our government's support for the Makah Tribe's whaling in future IWC deliberations remains a troubling vacuum.[78] The court was clearly not persuaded by NMFS' position - nor should it have been. Surprisingly, NMFS does not appear to have taken the court's concerns seriously; it continues to take the same unsupportable and speculative position. [78] Anderson, 371 F.3d 475 at 493.	Pursuant to the court's direction in Anderson v. Evans, the DEIS takes a hard look at the potential precedential domestic effect of the action alternatives (Subsection 4.17, Regulatory Environment Governing Harvest of Marine Mammals).
463	Pruett (Sea Shepherd Legal)_7-27-15	NMFS also claims that "[i]f a Makah hunt were to have a precedential effect on whaling regulations, it is likely such an effect would have manifested following approval of a U.S. request for a catch limit on the Makah Tribe's behalf."[79] This statement is absurd for at least two reasons. First, the U.S. never received approval of a request for a catch limit "on the Makah Tribe's behalf." As noted above, the U.S. request for the Makah was denied outright. Just because the U.S. pursued a spurious plan to share a quota with Russia does not change this fact. Again, the U.S. is unilaterally applying its designated catch quota to benefit the Makah, without the required finding by the IWC that the Makah qualify under the ASW exception. [79] DEIS at 4-269.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
464	Pruett (Sea Shepherd Legal)_7-27-15	Second, it is not even remotely logical to assume that the mere request for a catch limit would trigger a multitude of new claims for ASW quotas. The threat of a dangerous precedent would not become patent until NMFS follows through on its ill-fated mission to allow the Makah to hunt whales under an unsupportable "cultural whaling exception."	We disagree and stand by the analysis we report in DEIS Subsection 4.17 (Regulatory Environment Governing Harvest of Marine Mammals).
465	Pruett (Sea Shepherd Legal)_7-27-15	The Anderson Court conveyed the following additional concerns about potential dangerous precedent in speculating whether tribes with only "fishing" rights might also be able to claim a whaling right: If the MMPA's conservation purpose were forced to yield to the Makah Tribe's treaty rights, other tribes could also claim the right to hunt marine mammals without complying with the MMPA. While defendants argue that the Makah Tribe is the only tribe in the United States with a treaty right expressly	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		guaranteeing the right to whale, that argument ignores the fact that whale hunting could be protected under less specific treaty language. The EA prepared by the federal defendants notes that other Pacific Coast tribes that once hunted whales have reserved traditional "hunting and fishing" rights in their treaties. These less specific "hunting and fishing" rights might be urged to cover a hunt for marine mammals. Although such mammals might not be the subject of "fishing," there is little doubt they are "hunted."[80] As of July 9, 2015, the Anderson Court's dire predictions may be one step closer to reality. In U.S. v. State of Washington, the U.S. District Court for the Western District of Washington concluded that the term "fish" in the Treaty of Olympia was intended to include sea mammals such as whales and seals. Thus, the Quinault and Quileute tribes, as signatories to the Treaty of Olympia, could be said to have a right to take whales and seals.[81] If the Makah hunt is permitted, the court's decision in U.S. v. State of Washington could set the stage for a rapid-fire onslaught of claims for further cultural whaling privileges. [80] Anderson, 371 F.3d 475 at 499. [81] Findings of Fact Conclusions of Law and Memorandum Order, U.S. v. State of Washington, 2:70-cv-09213, subproceeding 09-01. July 9, 2015.	
466	Pruett (Sea Shepherd Legal)_7-27-15	**D. NMFS Has Doomed the PCFG Gray Whales to Certain Extirpation** Two general themes emerge from NMFS' analysis of PCFG whales in the DEIS: uncertainty concerning their conservation status and risk that their populations, especially in the Makah U&A, will be decimated by any of the proposed action (whaling) alternatives. SSL is disturbed and amazed by these circumstances given that the Anderson court made it very clear that PCFG whales should be one of the cornerstones of the EIS: **The crucial question . . . is whether the hunting, striking, and taking of whales from this smaller group could significantly affect the environment in the local area.** The answer to this question is, we are convinced, both uncertain and controversial within the meaning of NEPA. No one, including the government's retained scientists, has a firm idea what will happen to the local whale population if the Tribe is allowed to hunt and kill whales pursuant to the approved quota and Makah Management Plan. There is at least a substantial question whether killing five whales from this group either annually or every two years, which the quota would allow, could have a significant impact on the environment.[82] The same dire state of affairs described by the court exists today. In its DEIS, NMFS repeatedly (but dismissively) acknowledges the risks to the PCFG	Please see the response to frequent comment # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
		occasioned by any degree of whale hunting and admits that a great deal of uncertainty remains as to whether e.g. PCFG whales are within their optimal sustainable population ("OSP"). Yet, in the face of this risk and uncertainty, the agency attempts to hide any concerns within a linguistic maze while actively promoting the whale hunt. NMFS' actions are, again, arbitrary and capricious and will certainly lead to the eventual extirpation of these unique, fascinating and much appreciated resident whales in the very near future. [82] Anderson, 371 F.3d 475 at 490.	
467	Pruett (Sea Shepherd Legal)_7-27-15	As a threshold matter, one chief concern is NFMS' decision to proceed with this DEIS without first determining whether the PCFG should be designated as a stock under the MMPA. Throughout the DEIS, the agency repeatedly notes that it "does not recognize the PCFG as a 'population stock' as [it] interpret[s] that term under the MMPA, but [it] [has] stated that the PCFG seems to be a distinct feeding aggregation and may warrant consideration as a distinct stock in the future."[83] NMFS further discloses that it convened a task force in 2012 to consider gray whale stock structure, including whether the PCFG was a distinct stock.[84] The workshop ended with no consensus and a recommendation of continued research in the future.[85] Despite this uncertainty, NMFS has elected to proceed with this consideration of the Tribe's proposed hunt. This decision is potentially dire for the PCFG whales in light of their acknowledged small population – approximately 188 animals in the PCFG survey area[86], 152 in the OR-SVI area,[87] and 33 in the Makah U&A.[88] As discussed below, the Makah's preferred Alternative 2 will likely result in the extirpation of the local U&A population. Additionally, the admitted impacts to the PCFG whales of permitting hunting under any of the action alternatives are likely to have significant consequences for the small PCFG population as well as the considerably larger ENP gray whale population. Accordingly, NMFS should adhere to the precautionary principle, as required under the MMPA, and suspend this NEPA process until there is a final decision on the PCFG stock status. In fact, a recent study, partially authored by one of the Tribe's own marine biologists, recommends caution on the face of uncertainty surrounding the PCFG: Although uncertainty remains, our results indicate that it is plausible that the PCFG represents a demographically independent group and suggest that caution should be used when evaluating the potential impacts of the proposed Makah harvest on this group of animals.[89] [83] DEIS at 5-1, 3-36, 3-130, & 5-36.	We disagree with the comment. NMFS has made a decision and does not recognize the PCFG as a stock. Please see the response to frequent comment # 5 regarding the stock status of the PCFG.

Sort #	Commenter Code	Comment	Response
		[84] Id. at 3-129. [85] Id. at 3-130. [86] Id. at 3-145 n.40. [87] Id. at 3-155. [88] Id. [89] Lang, A. R. et. al. (2014). Assessment of genetic structure among eastern North Pacific gray whales on their feeding grounds. Marine Mammal Science, 30(4), 1473 –1493.	
468	Pruett (Sea Shepherd Legal)_7-27-15	NMFS openly admits that all of the action (whaling) alternatives pose a danger to the small PCFG population, with the worst impact from Alternative 2: "All action alternatives are likely to increase the risk of adverse impacts on gray whales using local survey areas. Alternative 2 would likely have the most impact …." Alternative 2 is particularly problematic for a multitude of reasons, which are summarized in the following chart:	Comment noted.
469	Pruett (Sea Shepherd Legal)_7-27-15	**Makah Proposal -** Only whales in Cascadia Research Collective's photo-identification catalog that have been seen in at least 1 year are used for determining whether a harvested whale is a PCFG whale and therefore counts against a bycatch or mortality limit.[90] **Issue -** Given that some whales seen in year 1 may not be seen in year 2, this method artificially inflates the abundance measure of PCFG whales used in calculating the Potential Biological Removal ("PBR"). [90] DEIS at 2-7.	Comment noted.
470	Pruett (Sea Shepherd Legal)_7-27-15	**Makah Proposal** - The allowable bycatch limit for PCFG whales does not count whales that were struck but not landed toward the bycatch limit, which is set according to the Tribe's PBR calculation of the PCFG.[91] **Issue** - The requirement that the PCFG be landed allows for a larger number of PCFG whales to be killed than would be permitted if the Allowable Bycatch Limit counted struck but not landed whales. [91] Id. at 2-8 & 2-9.	The comment is correct. The other action alternatives vary this element, including an assumption that all struck and lost whales are PCFG whales.
471	Pruett (Sea Shepherd Legal)_7-27-15	**Makah Proposal** - In calculating PCFG PBR, the Tribe will use the same recovery factor (currently 1.0) that NMFS uses to calculate PBR for the ENP stock as a whole.[92] **Issue** - The recovery factor should be no greater than 0.4-0.5, which is the range used for threatened or depleted species, and for stocks of unknown status. Given the small PCFG population, it is possible that the range for endangered species or stocks known to be declining (0.1-0.3) should be used.	While the tribe's proposal relied on a recovery factor of 1.0, other action alternatives explored in the DEIS used a recovery factor of 0.5 (or lower) which is consistent with the current MMPA stock assessment report for ENP gray whales.

Sort #	Commenter Code	Comment	Response
		[92] Id. at 2-9.	
472	Pruett (Sea Shepherd Legal)_7-27-15	**Makah Proposa**l - The PCFG minimum abundance is calculated using the OR-SVI.[93] **Issue** - The minimum abundance should be calculated using the Makah U&A because this will be the site of the hunt. Using the much larger population numbers from the OR-SVI overinflates the PBR. [93] Id.	The Makah U&A abundance estimates would be inappropriate to use in a PBR calculation because such estimates only address a portion of the whales making up the PCFG. The SAR notes that a separate PBR is calculated for PCFG whales as a means to assess local depletion, but it does not suggest that a PBR is appropriate for some smaller unit/geographic area.
473	Pruett (Sea Shepherd Legal)_7-27-15	**Makah Proposal** - Other sources of human-caused mortality not considered when setting the allowable bycatch limit for PCFG whales.[94] **Issue** - "In its comments on the 2008 DEIS, the Marine Mammal Commission questioned this approach."[95] A 2013 IWC Implementation Review of PCFG used a precautionary estimate of non-hunting human caused mortality: 2.0 PCFG.[96] [94] Id. at 2-10. [95] Id. [96] Id. at 5-37.	While the tribe's proposal (Alternative 2) does not propose to account for other sources of human-caused mortality, DEIS alternatives 4 and 6 do. The agency's current MMPA stock assessment report (which undergoes public and scientific peer review) monitors the status and trend of ENP gray whales - and more recently PCFG whales - and concludes that total annual human-caused mortality of PCFG gray whales during the period 2008 to 2012 includes deaths due to commercial fisheries (0.15/yr), and ship strikes (0.1/yr), or 0.25 whales annually..
474	Pruett (Sea Shepherd Legal)_7-27-15	The above-identified issues with Alternative 2 will likely have serious consequences for the PCFG. Using the Tribe's proposed numbers yields a PBR of 3.0, which corresponds to a PCFG allowable bycatch of 3 whales. When combined with the failure to count struck but lost PCFG whales, the potential number of PCFG whales killed each year is 6 (3 struck but not landed and 3 bycatch).[97] In the likely event that all 6 whales are from the Makah U&A, then there is a possibility of a loss of 18 whales in only three years and 30 whales in 5 years. In light of the fact that there are only estimated to be 33 PCFG whales in the Makah U&A, the proposed hunt represents a significant threat to this small whale population. [97] Alternative 2 allows 3 whales to be struck and lost. See DEIS at 2-10.	Comments and assumptions noted.

Sort #	Commenter Code	Comment	Response
475	Pruett (Sea Shepherd Legal)_7-27-15	Although Alternative 2 presents the greatest risk to PCFG survival, given the level of uncertainty associated with these whales, the loss of even a single PCFG whale presents an unacceptable level of risk – one that NMFS is apparently prepared to accept. One key piece missing with respect to the PCFG is whether the population is within OSP. This should be a significant issue for NMFS in fulfilling its management obligations under the MMPA. The regulations implementing the statute clearly mandate that "marine mammals should be managed "to obtain an optimum sustainable population [OSP] keeping in mind the carrying capacity of the habitat."[98] Yet, as acknowledged in the DEIS, the IWC has concluded that it is currently not possible to determine if PCFGs are within OSP.[99] Under these circumstances, it is unclear how NMFS could even contemplate authorizing whaling in the Makah U&A – when there is such great potential (of unknown proportions) for permanently harming the PCFG. [98] 16 U.S.C. § 1361(6). See id. § 1361(2). [99] DEIS at 3-158.	We disagree that the loss of even a single PCFG whale presents an unacceptable level of risk. In addition, the PCFG is not recognized as a population stock under the MMPA and determining OSP is not a requisite for our consideration of the tribe's request. Regardless, we did initiate research on this topic and the DEIS discusses the PCFG analysis of Punt and Moore (2013). They concluded "it was not possible to draw a definitive conclusion as to whether the PCFG is within OSP." Their other conclusions are reviewed in Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates.
476	Pruett (Sea Shepherd Legal)_7-27-15	NMFS proposes other action alternatives allegedly designed to minimize the risk to the PCFG, but also admits that the true level of risk from the taking of only one or a few PCFG whales is not presently known. For example, in NMFS' own words: • "If one PCFG whale was killed in a year it would represent a 0.5% reduction in the current abundance estimate of 209 PCFG whales . . . This would represent a small decrease in abundance...Over time it is uncertain to what extent the death of one PCFG whale per year might decrease the abundance of the PCFG whales."[100] • "[I]t may take a long time to detect if the proposed action is affecting gray whales as expected under current harvest models. In addition, killing even a few animals per year [especially over an extended period of time] from the relatively small PCFG could have long-lasting impacts for a group of whales whose population dynamics are not well understood."[101] • "Under current conditions, 2.3 Makah U&A whales, or 2.6 OR-SVI whales might be killed per year. It is unclear whether killed whales would be replaced in the same year in which they were killed or in subsequent years because of the uncertainties regarding PCFG recruitment. It is also unclear whether the intensity of unsuccessful harpoon attempts [14 to 16 per year] or approaches	Comments noted.

Sort #	Commenter Code	Comment	Response
		[117 to 131 per year] would result in more than a temporary disturbance of whales using local survey areas." [102] [100] Id. at 4-92. [101] Id at 5-3. [102] Id. at 4-277.	
477	Pruett (Sea Shepherd Legal)_7-27-15	The third quote above highlights one particular area of uncertainty that NMFS goes to great lengths to marginalize: the effect of the admittedly high frequency of predicted disturbances on PCFG distribution. This issue is especially relevant to the small population of PCFG whales in the Makah U&A. For example, NMFS notes the uncertainty concerning the effect of unsuccessful strikes on PCFG whales in the OR-SVI or Makah U&A.[103] The agency then dismisses any concerns about the potential negative effect upon PCFG whale distribution on two highly speculative grounds: • Many new whales are seen in the Makah U&A and OR-SVI every year and there is significant interchange with whales from other adjacent areas in the PCFG range . . . Thus, even if some whales do abandon the area as a result of hunting disturbance, new whales that had not previously been exposed to hunting might come into the area.[104] • The example of gray whales hunted by Chukotka Natives may be instructive in trying to predict whether there would be a change in gray whale use of the Makah U&A and OR-SVI survey areas. Scores of whales have been hunted and killed by Chukotka Natives over several years (Table 3-52), yet whales continue to be available for harvest, suggesting that hunt-related activities have not resulted in major changes in gray whale numbers, distribution, or habitat use in that area.[105] As to the first point, Dr. James Sumich, a prominent whale scientist, has a different opinion.[106] SSL asked Dr. Sumich to review the statement in Anderson that "[I]t remains a reasonable possibility that removals of resident whales would deplete their presence in specific areas from which they would require an extended time period to recover." Agreeing with that statement, Dr. Sumich explained: I know of no evidence to indicate that the individual whales are randomly distributed within the PCFG range or that they move randomly within that range. Consequently, it seems meaningless to focus on the total population size when the removal effort will be concentrated in a very localized area. The available evidence on individual whale site fidelity does not support the idea that removed whales will necessarily be replaced by 'fill-ins' from other	The comment mischaracterizes the analysis in the DEIS. The DEIS does not dismiss concerns about PCFG whales abandoning the hunt area in response to disturbance from hunting, stating "there is a risk that the killing or disturbance of whales caused by a Makah hunt could result in decreased numbers of whales using these survey areas during the summer period" (Subsection 4.4.3.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas). The DEIS does not assert that the distribution or movement of whales in the PCFG area is random. Rather, the DEIS concludes "The best available information indicates that feeding aggregations (the whales) and feeding areas (the prey) are dynamic, with both small- and large-scale changes over time and space. Gray whales change location and habitat to exploit the optimum prey species at any one time, based on abundance, density, size, caloric content, and predation pressure. Such factors may vary by season and year, depending on environmental variability and the population dynamics of prey" (Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem).

Sort #	Commenter Code	Comment	Response
		portions of the PCFG range. Therefore, I agree with the court's statement . . . .[107] A recent PCFG study, not cited in the DEIS, offers a similar opinion concerning the absence of random movement, thus further undercutting NMFS' replacement theory: [W]hile some whales are known to move throughout the range of the PCFG, sightings of other whales are concentrated within subareas (Calambokidis et al. 2012), suggesting that individual gray whales may not use the range of the PCFG randomly.[108] [103] Id. at 4-87–4-88. [104] Id. at 4-88 (emphasis added). [105] Id. [106] Dr. Sumich is the author of a best-selling textbook on marine biology and co-author of the widely adopted "Marine Mammals: Evolutionary Biology." He has taught at the college and university level for more than four decades and has conducted research on gray whales from British Columbia to Baja California. [107] Dr. Sumich, personal communication, July 27, 2015. [108] Lang, supra n. 89, at 1485.	
478	Pruett (Sea Shepherd Legal)_7-27-15	NMFS' second basis for minimizing the likely effects of disturbances on PCFG behavior is even more fanciful. Even assuming the accuracy of the referenced example, it does not follow that ENP whales occupying a distinctly different habitat in Russian waters with likely very different feeding regimes (e.g. less distinct feeding areas with greater population dispersal over a wider area) will react in the same manner as PCFG whales in the e.g. Makah U&A. Additionally, while subject to some uncertainty, there is evidence that matrilineally directed fidelity plays a role in the PCFG.[109] NMFS presents no similar evidence concerning the ENP whale populations that are subject to the Chukotka hunts. There is simply no basis for drawing a parallel between the two groups, much less one to support a theory concerning the degree of replacement in PCFG feeding areas. [109] Id. at 1486.	The DEIS does not dismiss concerns about PCFG whales abandoning the hunt area in response to disturbance from hunting, stating "there is a risk that the killing or disturbance of whales caused by a Makah hunt could result in decreased numbers of whales using these survey areas during the summer period" (Subsection 4.4.3.2.4, Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas). While we are not aware of genetic studies pertaining to matrilineal fidelity in whales subjected to Russian harvest, we are also not aware of evidence to suggest that gray whales in the Makah U&A would react differently to a hunt from those in Chukotkan hunting areas. DEIS

Sort #	Commenter Code	Comment	Response
			Subsection 4.4.2.3 (Change in Abundance and Viability of PCFG Whales) provides our analysis of replacement- and recruitment-related aspects of the PCFG.
479	Pruett (Sea Shepherd Legal)_7-27-15	NMFS engages in yet more flights of fancy in attempting to deemphasize the potential harm to the ENP whales from the possible loss of PCFG whales under Alternative 2. The agency begins by recognizing the likely importance of the PCFG to the ENP whale population: "If PCFG whales are uniquely adapted to exploit feeding areas in the southern portion of the ENP summer range, and that adaptation were lost if the PCFG were compromised, Alternative 2 has the potential to affect the long-term viability of the ENP stock as a whole."[110] NMFS then backs off from this observation – claiming that the maximum removal rate of PCFG whales will likely be 2.8 rather 5 individuals.[111] The agency bases this assertion upon the dubious assumption that a smaller number of PCFG whales will be present during the hunting season than the total number that have been observed in the area of the hunt.[112] However, NMFS next predictably retreats from that position as well in admitting that it is unclear whether even this smaller removal rate will not adversely affect the PCFG.[113] NMFS then resorts to its speculative replacement (through external recruitment) theory again, while also acknowledging that the PCFG abundance trend is "flat."[114] The agency's final fallback position is that a study by the IWC Scientific Committee suggests that the PCFG would remain viable under Alternative 2 if there is a bycatch limitation and a monitoring program.[115] Nevertheless, for reasons discussed previously, the bycatch limitation is hopelessly flawed.[116] As to the proposed monitoring, there are numerous challenges to obtaining accurate sighting records. In the end, it is clear that NMFS' conclusion regarding the viability of the PCFG under Alternative 2 is beset by uncertainty and based upon speculation. Despite NMFS' attempt to muddy the waters in its over 1200 page DEIS, one very clear and undeniable truth emerges from the depths: there is an unacceptably strong likelihood that PCFG whales will be severely impacted by all of the proposed action alternatives. [110] DEIS at 4-82. [111] Id. at 4-83. [112] Id. at 4-14. [113] Id. at 4-83. [114] Id. at 4-84.	This comment takes excerpts from the DEIS out of context and mischaracterizes the analysis. The DEIS explicitly considers the impact of actions on the PCFG feeding aggregation, even though it is not an MMPA stock, in part because of the possibility that actions affecting the PCFG may affect the ENP as a whole. The DEIS does not suggest the PCFG could be "sacrificed" without affecting the ENP stock. To the contrary, the DEIS links these two elements of the environment.

Sort #	Commenter Code	Comment	Response
		[115] Id. [116] Id. 117 Kokechik, 839 F.2d 795 at 802.	
480	Pruett (Sea Shepherd Legal)_7-27-15	In light of the additional fact that OSP cannot presently be determined for this population, NMFS should strongly reconsider its rejection of the Marine Mammal Commission's ("MMC") entreaty that the agency look to the Kokechik decision. As held by the court, no taking could be authorized for any marine mammal stock because of the virtual certainty of taking marine mammals from stocks for which an optimum sustainable population determination could not be made.[117] Precisely the same circumstances exist here. The MMC was not inviting the agency "to assert legal opinions or conclusions," but rather reminding NMFS of its obligation under the MMPA to manage marine mammals in a manner that allows them to attain or maintain their OSP. [117] Kokechik, 839 F.2d 795 at 802.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
481	Pruett (Sea Shepherd Legal)_7-27-15	E. NMFS' Analysis of WNP Gray Whales Is Fatally Deficient The population of the WNP gray whale stock is extremely small – numbering no more (and likely less) than 140 animals.[118] The WNP stock is also listed as "endangered" under the Endangered Species Act ("ESA") and as "depleted" under the MMPA.[119] Despite these dire circumstances, NMFS provides very little analysis in the DEIS of the potential effects of the action alternatives on the WNP stock. NMFS' abject failure to meaningfully address WNP whales is especially troubling given its admissions that the WNP stock is present in the Makah U&A and will likely be negatively affected by the proposed hunt. The following are a few examples of the agency's numerous admissions concerning the WNP stock: • "The limited sighting data available on WNP migrations and movements suggest that it is most likely that whales from this stock could be encountered in the vicinity of the Makah U&A during the hunting season proposed by the Tribe . . . ."[120] • "[T]here is a high probability that during a 6-year period a WNP whale would be pursued or approached by Makah hunters [a probability of 0.98 to 1.0]."[121] • "The probability of an attempted strike on at least one WNP in 6 years was still fairly high...[35%] and the chance of actually striking at least at least one WNP whale in 6 years was relatively low but non trivial" [7%].[122] • "PBR values for the WNP stock are estimated to range "from 0.07...to .033, with uncertainty in these values being driven by uncertainty in the fraction of WNP animals migrating in ENP areas."[123]	We disagree that the DEIS analysis of WNP whales is inadequate. The DEIS analyzes the best available information regarding the implications of the various alternatives on WNP gray whales, as reflected in the citations provided in the comment. In addition, we convened a Task Force to review North Pacific gray whales and this effort resulted in NMFS releasing an MMPA stock assessment report for the Western North Pacific stock of gray whales in January 2015. Agency scientists also modeled the expected impacts on WNP gray whales of various actions under the DEIS alternatives (i.e., Moore and Weller, 2013).

Sort #	Commenter Code	Comment	Response
		• The loss of a single whale, particularly if it were a reproductive female, would be a conservation concern for this small stock."[124] • "It is unclear how natural mortality may be influencing WNP whales. High incidence of orca tooth scars, small size and limited number of reproductive females, and relatively low calf survival, are likely to be key factors limiting potential population growth. They are likely more susceptible to changes in mortality, natural or human caused."[125] [118] DEIS at 3-67. [119] Id at 3-66. [120] Id. at 3-93. [121] Id. [122] Id. [123] Id. at 3-93. [124] Id. at 4-83. [125] Id. at 5-29.	
482	Pruett (Sea Shepherd Legal)_7-27-15	What additional evidence does the agency need to take the next logical step to conclude that, in light of the WNP stock's precarious biological status and the high likelihood of, at the very least, extremely stressful encounters with the Makah hunters, absolutely no hunting should be permitted? The answer is of course that the agency has preordained that tribal whaling, in one form or another, will take place in the Makah U&A. NMFS makes that intent clear in its statement of purpose and need and in its summary dismissal of the no action alternative and the non-whaling action alternatives.	We disagree that we have a predetermined outcome. We have undertaken two environmental reviews to ensure adequate information is available for decision-makers. The first DEIS was terminated because among other things we wanted to provide new and best available science regarding the WNP for review. The present DEIS explores risks to WNP gray whales (e.g., Subsection 3.4.3.2.4, WNP Status, Carrying Capacity, and Related Estimates, and Subsection 4.1.2.3, Potential Number of ENP and PCFG Whales Killed; Likelihood of Striking a WNP Whale; Likely Number of Whales Harvested), including the extremely low likelihood of the tribe striking such a whale. Further we did not identify a preferred alternative to ensure a full range of comments on all the

Sort #	Commenter Code	Comment	Response
			alternatives. Finally any proposed decision we make on a waiver informed by this DEIS will be reviewed by an administrative law judge during formal rulemaking.
483	Pruett (Sea Shepherd Legal)_7-27-15	To conceal this agenda, NMFS again raises the specter of scientific uncertainty – adopting the mantra throughout the DEIS that "[t]here are very limited data for WNP whales in the project area to inform this analysis."[126] Yet, the agency should be well-aware of its NEPA obligations when it seeks to invoke scientific uncertainty as a basis for its actions (or inaction). NEPA requires agencies to ensure the "professional integrity, including scientific integrity," of the discussions and analyses that appear in EISs.[127] When an agency claims that the information is unavailable or incomplete, and that "the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known," then it must follow certain steps to ensure full transparency.[128] To that end, the agency must make every attempt to obtain and disclose data necessary to their analysis.[129] Agencies are further required to identify their methodologies, indicate when necessary information is incomplete or unavailable, acknowledge scientific disagreement and data gaps, and evaluate indeterminate adverse impacts based upon approaches or methods "generally accepted in the scientific community."[130] While repeatedly acknowledging scientific uncertainty in the face of reasonably foreseeable significant adverse impacts to the WNP stock, NMFS fails to comply with its NEPA obligations – choosing instead to erect the alleged uncertainty as a barrier to further scrutiny of its actions (or inaction). Such conduct by an agency – charged with the duty of ensuring the biological integrity of marine mammal populations – is arbitrary, capricious, and contrary to law. One example of NMFS' grossly deficient approach to alleged scientific uncertainty is its assessment of the effects of the admittedly high probability of an "approach" by a Makah hunting party and strong likelihood of an attempted strike on a WNP gray whale.[131] For each of the action alternatives (except 4), the agency downplays the likely impact on the whale with the following statement: It is uncertain how whales would react to unsuccessful harpoon attempts, but the reaction may be similar to that observed in whales that are tagged or biopsied (i.e., a dramatic but temporary change in behavior).[[132]]	Comments noted. The commenter provides no additional scientific information we did not consider in the DEIS . We did initiate and report on an analysis by Moore and Weller (2013) regarding the probabilities of various types of encounters (approaches, strikes, and unsuccessful strike attempts) with WNP gray whales during a Makah hunt. Please also see the response to frequent comment # 10 regarding the response of gray whales to being hunted.

Sort #	Commenter Code	Comment	Response
		Aside from speculation, NMFS provides no scientific basis for this blanket statement, thus violating its NEPA obligations when faced with alleged uncertainty or incomplete information. Additionally, from a common sense point of view, the statement defies reality. Although not described in the DEIS, the tagging process presumably involves considerably less stress for the whale than a group of whale hunters hurling harpoons or firing guns at a retreating whale. Moreover, NMFS utterly fails to address the likely indirect effects of these highly stressful encounters that may occur long after the hunt if the whale survives the initial attack.[133] This deficiency is especially egregious in light of the agency's admission that: "The loss of a single whale, particularly if it were a reproductive female, would be a conservation concern for this small stock."[134] [126] See, e.g., id. at 4-14. [127] 40 C.F.R. § 1502.24. [128] See 40 C.F.R. § 1502.22(b). "Reasonably foreseeable" impacts include "impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason." [129] Id. 130 40 C.F.R. §§ 1502.22(2), (4), 1502.24. [131] See, e.g., DEIS at 4-83. [132] Id. Action Alternative 4 is specifically tailored to allegedly avoid the WNP stock migration period, but times the hunt to coincide with the period in which PCFG whales will allegedly be present in the hunt area. [133] NMFS' analysis cannot simply be limited to direct effects, i.e., effects that occur at the same time and place as encounters with the hunting party. 40 C.F.R. § 1508.8(a). It must also take into account the activity's indirect effects, which, though reasonably foreseeable, may occur later in time or are further removed. 40 C.F.R. § 1508.8(b). [134] DEIS at 4-83. [135] 40 C.F.R. § 1502.14(f).	
484	Pruett (Sea Shepherd Legal)_7-27-15	NMFS further fails to make a meaningful attempt to identify sufficient mitigation measures (if such are even possible) for the WNP stock.[135] In this regard, the agency repeats the following simplistic statement for each action alternative: "To mitigate for the possibility of a Makah hunt killing a WNP whale, regulations governing a hunt could require a suspension of the hunt if a WNP whale were killed."[136] This statement is astounding in view of the agency's admission that even the loss of a single whale would be a conservation concern. NMFS also neglects	In addition to the hunt suspension noted in this comment, the DEIS does explore a summer/fall hunt alternative (Alternative 4) and a split-season alternative (Alternative 5) designed to avoid hunting impacts on WNP gray whales.

Sort #	Commenter Code	Comment	Response
		to explain the parameters of any required suspension. Accordingly, there is no question that the agency has failed to make any meaningful attempt to provide for mitigation measures protecting the WNP stock.	
485	Pruett (Sea Shepherd Legal)_7-27-15	Finally, the same considerations under the Kokechik decision discussed with respect to the PCFG apply with even more force to the smaller population of endangered WNP gray whales. In the DEIS, NMFS acknowledges that OSP has not been assessed for this population.[137] [136] DEIS at 4-83. [137] Id. at 3-162.	Comments noted.
486	Pruett (Sea Shepherd Legal)_7-27-15	While obscured behind a wall of alleged scientific uncertainty, it also seems a virtual certainty that a WNP whale will be taken during a Makah hunt – further driving the stock toward inevitable extinction.	It is unclear whether the commenter intends in this statement to equate "take" with mortality. If so, it is an inaccurate statement, as the chances of the Makah Tribe killing a WNP whale under Alternative 2, the Tribe's proposal, are about 7 percent over 6 years. If the suggestion is that an approach by a Makah canoe will "driv[e] the stock toward inevitable extinction," it is an overstatement unsupported by any evidence.
487	Pruett (Sea Shepherd Legal)_7-27-15	**F. NFMS Failed To Comply with the Endangered Species Act** Although not explicitly addressed in the DEIS, the Tribe's MMPA waiver only applies to the ENP stock, not the WNP stock. In order to engage in an activity with the potential to affect an ESA listed species, the Tribe would have to obtain an incidental take permit. There are, however, many steps that must be completed before such a permit could even potentially be secured. As an initial matter, under Section 7 of the ESA, NMFS must conduct an internal consultation for any agency action that "may affect" a listed species or its critical habitat.[138] The ESA defines "action [s]" requiring consultation broadly to include "the granting of permits."[139] Further, "may effect" has been interpreted broadly to mean that "any possible effect, whether beneficial, benign, adverse, or of an undetermined character," triggers the consultation requirement.[140] ESA regulations additionally define "effects" as: [T]he direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or	The DEIS describes the ESA status of WNP gray whales and other listed species. We will undertake relevant consultations once there is a proposed action under the ESA.

Sort #	Commenter Code	Comment	Response
		interdependent with that action, that will be added to the environmental baseline.[141] Following formal (in this case, internal) consultation, NMFS must produce a biological opinion ("BiOp") that analyzes whether the proposed action is likely to jeopardize the continued existence of a listed species or adversely modify its critical habitat.[142] If the BiOp concludes that the action is not likely to jeopardize the species, but is likely to result in some take, NMFS will include an incidental take statement ("ITS") with its BiOp.[143] An ITS specifies the impact (e.g. the "amount or extent") of the incidental take on the listed species, contains terms and conditions designed to minimize the impact, and, in the case of marine mammals, specifies measures that are necessary to comply with Section 101(a)(5) of the MMPA.[144] Take that complies with the terms and conditions of an ITS is not a prohibited take under ESA Section 9.[145] [138] 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). [139] 50 C.F.R. § 402.02(c). [140] See 51 Fed.Reg. 19926, 19949 (June 3, 1986). There are additional standards applicable to the Section 7 process that come into play once a "may affect" determination has been made. However, SSL does not reach those standards at this stage given NMFS' failure even to acknowledge the applicability of the Section 7 process. SSL reserves the right to further address NFMS' Section 7 obligations in the future. [141] 50 C.F.R. § 402.02. [142] 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(h). [143] 50 C.F.R. § 402.14(i). [144] 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(1). [145] 16 U.S.C. § 1536(o)(2); 50 C.F.R. § 402.14(i)(5).	
488	Pruett (Sea Shepherd Legal)_7-27-15	NMFS does not address any of the above-outlined procedural steps in the DEIS and has not attempted to comply with its mandatory ESA obligations. Projecting that there is, at the very least, an extremely high probability that the Makah will approach (chase) a WNP gray whale (e.g. 97% for Alternative 2) and a significant chance of an actual attempt, the DEIS clearly spells out circumstances demonstrating the hunt "may affect" the WNP stock. Accordingly, NMFS must suspend the current EIS process pending its compliance with ESA Section 7.	NEPA does not require the agency to address ESA processes prior to issuing a DEIS. Moreover, there is no agency proposed alternative at this time that would form a basis for consultation. We will undertake ESA consultation as appropriate after NMFS has completed its decision making under the MMPA.

Sort #	Commenter Code	Comment	Response
489	Pruett (Sea Shepherd Legal)_7-27-15	**G. NMFS Failed To Adequately Consider Cumulative Impacts** Under NEPA, it is not enough for NMFS to simply consider the impacts of the proposed hunt. Rather, NMFS must also consider the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[146] Two points emerge clearly from this regulatory definition: (1) the identity of the acting party is of no relevance to the analysis; and (2) the action need not be guaranteed to occur – it must be only "reasonably foreseeable." It is well-established that "a cumulative impacts analysis must include 'some quantified or detailed information' since without such information it is not possible for the court or the public to be sure that the agency provided the hard look that is required of its review.'"[147] In a cumulative impact analysis, "general statements about possible effects and some risk do not constitute a hard look. . . . The cumulative impact analysis must be more than perfunctory; it must provide a 'useful analysis of the cumulative impacts of past, present, and future projects."[148] Moreover, a cumulative impact analysis must be timely; "it is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now."[149] "If the agency did not present this detailed information and analysis it will be found to have violated NEPA unless it provides a convincing justification as to why more information could not be provided."[150] When judged by these standards, NMFS' cumulative impacts analysis is woefully inadequate. While the analysis is generally perfunctory, SSL focuses its attention on three categories: (1) Military Exercises; (2) Marine Energy and Coastal Development; and (3) Climate Change. [146] 40 C.F.R. § 15807.1. See also Kern v. BLM, 284 F.3d 1062, 1078-79 (9th Cir. 2002). [147] Soda Mountain Wilderness Council v. Norton, 424 F. Supp. 2d 1241 (E.D. Cal. 2006). [148] Muckleshoot Indian Tribe v. U.S. Forest Serv, 177 F.3d 800, 810 (9th Cir. 1999). [149] Neighbors of Cuddy Mountain, 137 F.3d 1372 at. 1380. [150] Id. (citing Ocean Advocates v. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 1998)).	Comment noted and addressed in other responses specific to the issues raised.
490	Pruett (Sea Shepherd	**1. Military Exercises**	The DEIS accurately reflects the likely impacts of military exercises.

Sort #	Commenter Code	Comment	Response
	Legal)_7-27-15	In its discussion of the potential cumulative impacts of military activities throughout the range of the ENP gray whales (thus, including WNP and PCFG whales), NMFS concentrates on the training activities conducted by the U.S. Navy. Among the possibly deleterious impacts addressed are underwater noise and pressure waves and ship strikes.[151] Not surprisingly, the agency concludes that gray whales will not be impacted by the naval activities. In reaching this conclusion, NMFS largely relies upon its BiOP submitted in connection with the Southern California Range ("SOCAL") Complex and the Navy's EIS for the Northwest Training Range ("NWTR") Complex. As SSL pointed out in its previously submitted oral comments, in Conservation Council for Hawaii v. NMFS, a federal court recently found that NMFS' approval of a Navy training and testing plan violated multiple requirements of the MMPA and ESA.[152] The court ruled that nearly 9.6 million underwater assaults on whales and dolphins were improperly assessed as "negligible" by the agency. NMFS not only takes the same dismissive approach here, but also employs many of the same tactics that the court held violated NEPA, the MMPA, and the ESA. At issue in the Conservation Council case was the Hawaii-Southern California Training and Testing ("HSTT") Study Area, which includes the SOCAL Complex that is discussed in the DEIS. NMFS stated in its BiOP that it did "not expect any western North Pacific gray whales to be involved in a ship strike event" because of "the low number of western North Pacific gray whales in the HSTT Study Area." Rejecting this contention, the court held: But if Western North Pacific gray whales are so scarce in the area, why does NMFS proceed to authorize mortalities for that species and on what basis does NMFS conclude that those mortalities in an area where the species is low in number "would not appreciably reduce the Western North Pacific gray whales' likelihood of surviving and recovering in the wild"? . . . The "no jeopardy" finding is rendered further perplexing by the recognition within the Biological Opinion itself that "[t]he death of a female of any of the large whale species would result in a reduced reproductive capacity of the population or species."[153] [151] See, DEIS, at 5-11 – 5-13. [152] See SSL oral comments submitted during public comment session held in Seattle, Washington, April 29, 2015; see also May 31, 2015 Amended Order (Docket #98) filed in Conservation Council for Hawaii v. NMFS, 1:13-cv-00684-SOM-RLP. [153] Conservation Council for Hawaii v. NMFS, at 50.	Consultations under the MMPA and ESA of such exercises provide more detailed, threshold-based assessments that can help inform our cumulative effects analysis. A final EIS will consider any new information such as new environmental reviews (including that resulting from court decisions such as cited in this comment) bearing on cumulative effects.

Sort #	Commenter Code	Comment	Response
491	Pruett (Sea Shepherd Legal)_7-27-15	The court further criticized NMFS' "Species-Specific Analysis" in the BiOp for including "a subsection on 'mysticetes' that mentions 'humpback, blue, Western North Pacific gray, fin, and sei whales' without including a separate discussion of the effects on the population of each."[154] Similarly, NMFS discussed the "potential effects of impulsive and nonimpulsive sound sources and vessel strike on marine mammals, but [did] not examine, with specific reference to the Navy's proposed activities, what impact those potential effects may have on annual rates of recruitment and survival of affected species and stock."[155] On this issue, the court observed: [A]n agency may have a basis for assuming that members in different stocks of that species will react similarly . . . That does not mean, however, that the analysis of population effects may be grouped, as it is unlikely that different stocks of the same species will share the same population numbers, or have identical sex, age, and reproduction statistics such that the effects of an activity on the different stock populations can be assumed to be identical . . . NMFS provides record references to only general discussions with little, if any, relevance to the population-level effects on specific species and stock, and to conclusory statements that no such effects are expected.[156] Significantly, the court then concluded that "NMFS' failure to explain the bases of its conclusion with respect to all species and stocks affected renders its 'negligible impact' findings arbitrary and capricious."[157] [154] Id. at 24. [155] Id. at 25. [156] Id. at 25-26. [157] Id. at 29.	Comment noted; The commenter offers an interpretation of the referenced Biological Opinion and court decision but does not offer comments on the DEIS.
492	Pruett (Sea Shepherd Legal)_7-27-15	In addition to finding fault with the agency's failure to consider population level effects, the Conservation Council court rejected NMFS' slavish reliance on the Navy's conclusion that time and area restrictions were impractical: NMFS cannot just parrot what the Navy says. If NMFS is accepting the Navy's position, NMFS must articulate a rational basis for that decision. NMFS does not meet the "least practicable adverse impact" requirement when it just repeats the Navy's position.[158] Turning to the DEIS at issue here, the same precise issues identified by the Conservation Council court are present in the cumulative impacts analysis. First, with respect to WNP gray whales in the NWTR Complex, NMFS repeats the Navy's claim that "it does not anticipate encountering WNP gray whales during	The DEIS accurately reflects the likely impacts of military exercises and that consultations under the MMPA and ESA of such exercises provide more detailed, threshold-based assessments that can help inform our cumulative effects analysis. We note that for our review of the Tribe's request we undertook our own analysis of risk associated with the hunt on WNPs (Moore and Weller 2013). A final EIS will consider any new information

Sort #	Commenter Code	Comment	Response
		training or testing activities, as their presence is very rare in the study area.[159] In this statement, NMFS is committing two of the same errors identified in Conservation Council: (1) assuming that WNP whales will not be affected because of their small numbers in the operational area and (2) parroting the Navy's conclusions as a basis for a finding of no impact. NMFS similarly concludes that WNP whales in the SOCAL complex will not be affected because of their small numbers.[160] NMFS' conclusions based on small numbers of whales is equally specious as its finding for the HSST area given its similar determination here that "[w]hile the chances of killing a WNP whale are low . . . the loss of WNP whales, particularly reproductive females, from this small stock could be a conservation concern." The second area of overlap with the Conservation Council case concerns NMFS' extrapolation of the anticipated effects of training activities on other whale species to gray whales without considering population level effects. As explained by NMFS': We did not specifically analyze gray whales in that Biological Opinion because at the time recent sightings of WNP gray whales in the ENP were still being investigated to determine whether or not those sightings were anomalies . . . However, we did analyze other ESA-listed baleen whales, including humpback, fin, blue, and sei whales. Our analysis did not identify situations where the proposed training activities are likely to indirectly affect ESA-listed species by disrupting marine food chains or by adversely affecting the predators, competitors, or forage base of endangered or threatened species. In addition, we concluded that endangered or threatened individuals that are likely to be exposed to the Navy's activities in the NWTR Complex are not likely to experience reductions in fitness. In light of the expected impacts on other whale species analyzed in that Biological Opinion, we believe it is reasonable to conclude that any stress responses or disruptions of normal behavior patterns of gray whales would not continue long enough to have fitness consequences for individual animals.[161] This quote illustrates the extent to which NMFS provides "only general discussions with little, if any, relevance to the population-level effects on specific species and stock" and, based on these generalities, makes "conclusory statements that no such effects are expected." As held by the Conservation Council court, by doing so, NMFS acted arbitrarily and capriciously. [158] Id. at 44. [159] Id. 5-13.	(including that resulting from court decisions such as cited in this comment) bearing on cumulative effects.

Sort #	Commenter Code	Comment	Response
		[160] Id. at 5-11. [161] Id. at 5-13.	
493	Pruett (Sea Shepherd Legal)_7-27-15	**2. Marine Energy and Coastal Development** The DEIS is also flawed for failure to consider the cumulative impacts of a proposed phosphate mine off the coast of Mexico. If approved, this suction-dredging "mine" (known as the "Don Diego Project") would wreak havoc on lagoons used by gray whales for birthing and rearing calves.[162] When the impacts of this reasonably foreseeable project are added to the baseline – as they must be under NEPA – the impacts of the Makah hunt become much more serious. NMFS cannot ignore the Don Diego Project simply because it is sponsored by a private enterprise and subject to approval by the Mexican government. And where, as here, the project is "reasonably foreseeable," NMFS cannot turn a blind eye on the grounds that the project is speculative. Publicly available documents, including documents filed with the Mexican government, establish the following: • The Don Diego Project is an initiative by Odyssey Marine Exploration, Inc. ("Odyssey"), a U.S. company based in Tampa, Florida, in conjunction with Mexican affiliate Exploraciones Oceánicas.[163] • The Don Diego Project is set to take place in the Gulf of Ulloa, a region of Baja California Sur characterized by a high level of biodiversity, including various species of whales, sharks, rays, lobster, shrimp, and sea turtles.[164] • The Don Diego Project calls for the use of marine dredges to rip phosphatic sand from the ocean floor and to load the sand onto barges.[165] • According to statements made by Mexican affiliate Exploraciones Oceánicas, "The objective for the dredging project is the extraction of 7 million tons of phosphatic sand every year over 50 years . . . to produce 350 million tons of phosphatic sand . . . as a final product. The dredging and pumping of material to the barge will be a continuous process, 24 hours per day, 7 days per week, 52 weeks per year."[166] • The Don Diego Project is far from speculative. Through a concession from the Mexican government, Odyssey already has rights to the phosphate located in the Don Diego deposit, estimated at over 327 million tons.[167] • The area to be dredged is 91,000 hectares in size.[168] • Odyssey has filed an environmental impact statement that is several hundred pages in length. Given the scope and unprecedented nature of this project, the length of this document is hardly surprising.[169]	Comments noted. We will monitor this prospective project and determine whether it warrants evaluation and inclusion in any FEIS. However, on April 11, 2016, Odyssey Marine Exploration, Inc. ("Odyssey") announced that the Mexican Secretary of Environment and Natural Resources (SEMARNAT) had notified the company that it was denying Odyssey's application regarding the "Don Diego" project (apparently due to concerns over sea turtles), so it is unclear whether Odyssey will pursue a new application (see http://ir.odysseymarine.com/releasedetail.cfm?ReleaseID=964396).

Sort #	Commenter Code	Comment	Response
		• The work area is in close proximity to coastal lagoons that serve as nurseries for Pacific gray whales, whales that migrate up the west coast of the United States to Alaska and beyond. The lagoons at issue are San Ignacio and Ojo de Liebre Lagoons.[170] • San Ignacio and Ojo de Liebre Lagoons are located within the Whale Sanctuary of El Vizcaino, a UNSECO World Heritage Convention site. "The lagoons are recognized as the World's most important place for the reproduction of the once endangered Eastern subpopulation of the North Pacific Grey Whale."[171] • The proposed mining technique is Trailer Suction Hopper Dredging. Odyssey proposes to dredge millions of tons of sediment from the ocean floor, collect the phosphate, and dump the spoils back into the ocean.[172] • According to Exploraciones Oceánicas, "seabed sediments are removed by a process that is essentially similar to a 'vacuum cleaner.'[173] • As Exploraciones Oceánicas acknowledges, this mining process is associated with the release of highly toxic substances, including uranium.[174] • In addition, the mining process will produce dangerous levels of noise pollution. Gray whales depend on sound to communicate, stay together, and track down food. The dredging involved in the Don Diego Project will disrupt the whales' ability to use echolocation. Odyssey's own environmental assessment acknowledges as much, stating that the mine could create a "modification of vocal behavior or surprise reaction" in the whales.[175] • The process of dredging the ocean floor will change the topography of the seabed, upending mineral and organic matter that forms the basis of the local marine ecosystem. This, too, is acknowledged by Odyssey and Exploraciones Oceánicas.[176] • As Exploraciones Oceánicas candidly admits, "[f]ew if any of the seabed organisms that are removed under the path of the draghead are likely to survive the dredging process."[177] • Perhaps of most concern, the dredging and discharge process will produce massive sediment plumes.[178] • Scientists report that such sediment plumes "would smoother habitats and flora and fauna and, depending on their origins and composition, could result in the exposure of benthic communities to heavy metals and acidic wastes."[179] • Moreover, "[i]t is likely to be impossible to restrict impacts of sedimentation . . . to a local mining area due to current movements and the unconstrained	

Sort #	Commenter Code	Comment	Response
		nature of the oceans. Depending on the scale of mining, impacts could spread between ocean basins, far away from original mine sites . . . ."[180] • In fact, the contemplated mining process is so fraught with risk and uncertainty that the government of Namibia imposed an 18-month moratorium on off-shore phosphate mining pending further study.[181] • Citing "significant and permanent adverse effects," New Zealand has likewise recently rejected a bid for offshore phosphate mining.[182] With these facts in mind, NMFS' failure to analyze the Don Diego Project as a source of cumulative impacts is unacceptable. The Don Diego Project is reasonably foreseeable; it entails the use of a highly destructive process – laden with uncertainties and unknown risks – on an unprecedented scale; and it is set to take place in a fragile ecosystem that serves as a critical nursing ground for gray whales. The Makah hunt for these whales cannot properly be analyzed without taking this project into account. [162] See generally Anna Cederstav, Underwater Mining in Mexico Threatens Gray Whale Nursery, EARTHJUSTICE (June 11, 2015), at http://earthjustice.org/blog/2015-june/underwater-mining-in-mexico-threatens-grey-whale-nursery (last visited July 30, 2015). [163] See "Don Diego" Project Achieves Important Milestone, ODYSSEY MARINE EXPLORATION (Sept. 9, 2014) at http://ir.odysseymarine.com/releasedetail.cfm?ReleaseID=869839 (last visited July 30, 2015); see also Advierte ONG Afectaciones a Ballena Gris por Proyecto Minero Don Diego (NGO Warns of Impacts to Gray Whales from Don Diego Mining Project), BAJA CALIFORNIA SUR NOTICIAS (describing relationship between Odyssey and Exploraciones Oceánicas) (in Spanish) (last visited July 30, 2015). [164] See generally Estudio Sobre La Caracterización Socioeconómica y Pesquera del Área Golfo de Ulloa (Study Regarding the Fishing and Socio-economic Characteristics of the Gulf of Ulloa Area), COMISIÓN NACIONAL PARA EL CONOCIMIENTO Y USO DE LA BIODIVERSIDAD, available at http://www.conabio.gob.mx/institucion/proyectos/resultados/HQ003_Anexo5_Carac_Socioeco_Golfo_Ulloa.pdf (last visited July 30, 2015) (in Spanish). [165] Carlos Ibarra, Exploraciones Oceánicas Presenta ante la Semarnat Proyecto Minero para el Golfo de Ulloa (Exploraciones Oceánicas Presents Gulf of Ulloa Mining Project to the Secretary of Environment and Natural Resources), BAJA CALIFORNIA SUR NOTICIAS (Sept. 4, 2014), at	

Sort #	Commenter Code	Comment	Response
		http://www.bcsnoticias.mx/exploraciones-oceanicas-presenta-ante-la-semarnat-proyecto-minero-para-el-golfo-de-ulloa/ (last visited July 30, 2015) (in Spanish). [166] Id. [167] See "Don Diego" Project Achieves Important Milestone, ODYSSEY MARINE EXPLORATION (Sept. 9, 2014) at http://ir.odysseymarine.com/releasedetail.cfm?ReleaseID=869839 (last visited July 30, 2015). [168] Id. [169] See Manifestación de Impacto Ambiental, Modalidad Regional para el Proyecto "Don Diego" (Environmental Impact Assessment, Regional Modality for the "Don Diego" Project) (filed with the Mexican Secretary of Environment and Natural Resources), available at app1.semarnat.gob.mx/dgiraDocs/documentos/.../03BS2014M0007.pdf (in Spanish) (last visited July 30, 2015). [170] See Anna Cederstav, Underwater Mining in Mexico Threatens Gray Whale Nursery, EARTHJUSTICE (June 11, 2015), at http://earthjustice.org/blog/2015-june/underwater-mining-in-mexico-threatens-grey-whale-nursery (last visited July 30, 2015). [171] UNESCO, Whale Sancturay of El Vizcaino, at http://whc.unesco.org/en/list/554 (last visited July 31, 2015). [172] See "Don Diego" Project Achieves Important Milestone, Odyssey Marine Exploration (Sept. 9, 2014) at http://ir.odysseymarine.com/releasedetail.cfm?ReleaseID=869839 (last visited July 30, 2015). [173] Exploraciones Oceánicas, Environmental Impact Assessment, Non-Technical Executive Summary, Don Diego Project: Feeding the Future, at 4, available at www.rockphosphate.co.nz/s/Oceanica-Non-Technical-Summary.pdf (last visited July 31, 2015). [174] Id. at 14. [175] Manifestación de Impacto Ambiental, Modalidad Regional para el Proyecto "Don Diego" at 229 (Environmental Impact Assessment, Regional Modality for the "Don Diego" Project) (filed with the Mexican Secretary of Environment and Natural Resources), available at app1.semarnat.gob.mx/dgiraDocs/documentos/.../03BS2014M0007.pdf (in Spanish) (last visited July 30, 2015); see also Mario Sánchez Castro and Haydée Rodríguez, Comentarios Adicionales Acerca de Afectaciones por Ruido al	

Sort #	Commenter Code	Comment	Response
		Ecosistema Marina (Additional Commentary Regarding Sound Impacts on the Marine Ecosystem) (submitted to Mexican government by AIDA-Americas) (June 2, 2015) (in Spanish) (on file with Sea Shepherd Legal). [176] Exploraciones Oceánicas, supra n.11, at 4. [177] Id. at 6. [178] Id. at 7-11. [179] M. Allsopp, et al., Review of the Current State of Development and the Potential for Environmental Impacts of Seabed Mining Operations at 12, Greenpeace Research Laboratories Technical Report (2013), available at www.greenpeace.to/greenpeace/.../seabed-mining-tech-review-2013.pdf (last visited July 30, 2015). [180] Id. at 13. [181] Phosphate Mining Banned, The Namibian (Sept. 19, 2013), at http://www.namibian.com.na/indexx.php?archive_id=114235&page_type=archive_story_detail&page=1. [182] See Jamie Morton, EPA Rejects Second Seabed Mining Bid, The New Zealand Herald (Feb. 11, 2015), at http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11400171 (last visited July 30, 2015).	
494	Pruett (Sea Shepherd Legal)_7-27-15	**3. Climate Change** Finally, there is NMFS' "analysis" of the potential cumulative effects of climate change. This section requires little analysis by SSL because NMFS provides virtually none. NMFS devotes about a single page to this complex topic – filling that page with generalities about e.g. global warming, sea level rise, ocean acidification, and the trophic plasticity of some (unnamed) marine species. NMFS makes no mention of gray whales and reaches the resounding conclusion that "it is speculative to predict how those changes will affect marine food webs."[183] NMFS' reliance on generalities without making population specific findings, again, echoes its rejected approach in Conservation Council. Further, the agency, again, abdicates its NEPA obligation to address alleged uncertainty and incomplete information rather than using it as a shield.[184] Thus, NMFS has, again, acted arbitrarily, capriciously, and contrary to law. [183] DEIS, at 5-29 – 5-30. [184] 40 C.F.R. §§ 1502.22.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
495	Pruett (Sea Shepherd	**H. SSL Strongly Supports the No Action Alternative** SSL concludes by strongly urging NMFS to reverse its apparent course and approve the No Action Alternative. As discussed above, the agency fatally	Comments noted.

Sort #	Commenter Code	Comment	Response
	Legal)_7-27-15	marginalizes this, the only non-whaling, alternative by finding it to be contrary to the narrowly drafted statement of purpose and need that preordains the approval of some degree of whaling. One of the agency's chief criticisms of this alternative is that, if the Makah do not use the allocated portion of the Chukotkan quota, it will just be allocated back to the Russian natives – with the result that gray whales will not benefit from a denial of the Makah hunt. The agency's assessment is flawed. If the No Action Alternative receives approval, the WNP and PCFG gray whales, who do not travel to the icy arctic waters of the Chukotka natives, will certainly benefit handsomely. They will be permitted to continue feeding, playing and rearing their young in their ancestral waters without being chased and harpooned or shot. These small populations of magnificent, social and highly intelligent beings will be given the gift, sought by all sentient life on the planet, to live out their lives in peace. SSL cannot conceive of a better outcome.	
496	Reichgott (Environmental Protection Agency)_7-31-15	Dear Mr. Stelle, We have reviewed the National Oceanic and Atmospheric Administration's February 2015 Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (EPA Region 10 Project Number: 08-030-NOA). Our review was conducted in accordance with the EPA's responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Our review of the DEIS prepared for the proposed action considers expected environmental impacts and the adequacy of the EIS in meeting procedural and public disclosure requirements of the NEP A. We are rating the DEIS "LO" (Lack of Objections) because we have not identified any potential impacts requiring substantive changes to the proposal. A copy of our rating system is enclosed. Project summary The DEIS considers various alternatives to the Makah Indian Tribe's proposal to resume treaty-based hunting of eastern North Pacific gray whales for ceremonial and subsistence purposes. The Tribe proposes to harvest up to 24 whales over a 6-year period, with no more than five gray whales harvested in any single year.	Comments noted.
497	Reichgott (Environmental Protection	Adaptive management In our July 2012 scoping comments we noted NOAA's interest and effort to plan for effective adaptive management. We stated that your adaptive management efforts were appropriate, in part because of substantive scientific issues such as potential problems with population estimates for eastern North Pacific gray whales, genetic evidence of a population	Comments noted.

Sort #	Commenter Code	Comment	Response
	Agency)_7-31-15	substructure that may warrant consideration as a separate management unit, and whale tracking data indicating that some members of the endangered western stock of gray whales migrate into the Makah hunting area. To assist your adaptive management efforts, we recommended consideration of two documents from the Council on Environmental Quality the 2003 NEPA Task Force Report, "Modernizing NEPA Implementation" and CEQ's "Guidance for Mitigation and Monitoring." The DEIS is responsive to our scoping comments because all of the action alternatives' harvest limits are based on current conditions and could change based on updated information.	
498	Reichgott (Environmental Protection Agency)_7-31-15	While all of the action alternatives adaptively manage harvest limits, Alternative 6 provides the most meaningful opportunity to adaptively manage the method for calculating harvest limits, as well as hunt timing and hunt area. Alternative 6 provides the most meaningful additional opportunity for adaptive management because it is the only alternative where NOAA's waiver of the Marine Mammal Protection Act take moratorium would expire, and because the term of any hunt permit would be relatively shorter than the other action alternatives. We believe there is a larger opportunity for adaptive management with Alternative 6, and that it would be environmentally preferable because it provides a more meaningful opportunity to consider updated information on scientific issues and certain environmental consequences, several of which are characterized in the DEIS as having mixed beneficial and adverse impacts.	Comments noted.
499	Reichgott (Environmental Protection Agency)_7-31-15	In the interest of further developing Alternative 6 in regards to the unique element of limited duration for regulations and permits, we recommend that the Final EIS include additional supporting information for the proposed waiver and permit expiration periods (10 and 3 years respectively), and that it identify: • reasons why NOAA believes 10 years is a reasonable amount of time to develop additional information about stock structure as well as any other reasons why 10 years would be an appropriate duration limit for the waiver; and, • concern(s) about a 5 year permit period that could be addressed with a 3 year permit period. To the extent that additional information supports altering the proposed duration limits for regulations and permits, we would expect to see those alterations reflected in the FEIS. Enclosure: EPA Rating System for Draft Environmental Impact Statements	Comments noted. We appreciate the advice regarding issues to address in an FEIS.
500	Sedlacek (Humane Society of the	Dear Mr. Stone: The Humane Society of the United States (“The HSUS”) asked our members and supporters to submit comments on the Draft Environmental Impact Statement Regarding the Makah Tribe’s Request to Hunt Eastern North Pacific Gray Whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
	US)_COVER_7-29-15	80 Fed. REg. 14,912 (March 20, 2015). Over 21,000 individual sent comments directly to The HSUS and we are submitting them to you here on one disc. We understand that these comments will be uploaded to your website and considered by the Agency in its review process. The disc contains a folder labeled "The HSUS Comments". The HSUS Comments folder contains a total of 21,479 comments. The comments are divided between ones that have been edited (1,309) and the ones that have not been edited (20,170). Attached is an example of the unedited comment letter. Thank you for providing our supporters the opportunity to weigh in on the Draft Environmental Impact Statement Regarding the Makah Tribe's Request to Hunt Eastern North Pacific Gray Whales. If you have any questions or need any further information or materials, please do not hesitate to contact me. Sincerely, Keisha Sedlacek Regulatory Specialist, Federal Affairs The Humane Society of the United States 2100 L St. N.W. Washington, D.C. 20037 ksedlacek@hsus.org Tel: (202) 955-3661 [Name] [Address] [Date] Whaling is an archaic practice that has no place in today's society.	
501	Sedlacek (Humane Society of the US)_COVER_7-29-15	The methods used to hunt these whales are cruel,	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
502	Sedlacek (Humane Society of the US)_COVER_7-29-15	and if even one of the endangered western Pacific gray whales were killed, it would be devastating for their recovery.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
503	Sedlacek (Humane Society of the US)_COVER_7-29-15	Tradition should not serve as an excuse for the slaughter of these animals--especially when that tradition hasn't been practiced legally in nearly one hundred years.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
504	Sedlacek (Humane Society of	Instead of returning to whaling, the Makah Tribe should rely on non-lethal ceremonial celebrations of these creatures that traverse their waters. Please	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
	the US)_COVER_ 7-29-15	deny the Makah Tribe's request to resume the hunting of whales off the west coast. Sincerely, [Name]	
505	Young (Humane Society of the US)_7-30-15	Dear Mr. Stone: On behalf of the members and constituents of The Humane Society of the United States (The HSUS), I am writing to express our opposition to the U.S. government's proposal to waive the Marine Mammal Protection Act's (MMPA) moratorium allowing the Makah tribe to re-initiate whaling for Pacific gray whales—a practice that largely ceased close to a century ago.[1] The HSUS has opposed the Makah proposal to re-initiate whaling since it was first suggested in the 1990's shortly after Eastern North Pacific (ENP) gray whales were de-listed from the Endangered Species Act (ESA), an action in which the tribe itself was involved.[2] Our opposition has several bases. First, the Makah tribe's request has never fit within the definitions and requirements of domestic and international management regimes [1] See Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (DEIS), at I-6 available at http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/ cetaceans/gray_whales/makah_deis_feb_2015.pdf. [2] 58 Fed. Reg. 3,121 (Jan. 7, 1993).	The introductory comments in 504 to 510 are noted; specific responses are provided below.
506	Young (Humane Society of the US)_7-30-15	and creates a novel category of "ceremonial" whaling at the international level that, all too easily, could be used by other nations to justify killing more whales.	
507	Young (Humane Society of the US)_7-30-15	In addition, it may lead to requests from other native tribes to seek similar authority to kill marine mammals based on long-abandoned whaling practices.	
508	Young (Humane Society of the US)_7-30-15	The methods proposed are arguably inhumane.	.

Sort #	Commenter Code	Comment	Response
509	Young (Humane Society of the US)_7-30-15	Further, there is risk to other smaller populations of gray whales that is not properly mitigated in various alternatives proposed in the Draft Environmental Impact Statement (DEIS).	
510	Young (Humane Society of the US)_7-30-15	Moreover, the action alternatives provided are inappropriately limited and are therefore inadequate. Although the National Marine Fisheries Service (NMFS) presents a "no action" alternative and five additional action alternatives; it also should have provided an additional option, as discussed in more detail below, that combines the more conservative aspects of action alternatives 3-6 such that the hunt would be maximally constrained to limit adverse impacts on whales and on the social environment.	
511	Young (Humane Society of the US)_7-30-15	Finally, not all impacts of the hunt have been thoroughly analyzed as required. We support the "no action" alternative, as this hunt cannot be justified as a true subsistence hunt and the MMPA provides no basis for granting a quota for a "ceremonial" hunt.	
512	Young (Humane Society of the US)_7-30-15	<u>The Makah Proposal Does Not Constitute Aboriginal Ceremonial and Subsistence Whaling As It Is Said to be Cultural Whaling</u> As noted earlier, the Makah tribe was among those petitioning to remove gray whales from the protection of the ESA in the 1990's. At the time of the delisting, NMFS stated it is: unclear at this time whether they would be interested in pursuing open-boat whaling or could satisfy subsistence and/or cultural needs by other means. For any Native American group to begin harvesting large whale, they would need to demonstrate a subsistence need and request (through the Bureau of Indian Affairs) the U.S. Commissioner to the IWC to petition that body for a portion of the subsistence quota for gray whales. Such a scenario is considered unlikely at this time.[3] Almost immediately after the de-listing, the tribe expressed a desire to resume whaling. The agency was apparently mistaken in its perception of the tribe's interest. In any case there is no support for the notion that this is a subsistence hunt, as the Makah do not have an unbroken tradition of hunting this species and, in fact, have not hunted gray whales since the 1920's—almost a century ago.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
		NMFS avers that the Makah wish to reinitiate whaling for "ceremonial and subsistence" purposes. We noted in our comments on the 2008 DEIS that the Makah proposal to reinitiate whaling did not conform to international standards for aboriginal subsistence whaling and has de facto proposed to create a new category of whaling—cultural whaling—which does not reflect a true subsistence need. Those comments are incorporated here by reference. The DEIS provides a definition of "aboriginal subsistence whaling" in its glossary that references the International Whaling Commission's (IWC) adoption of a description of subsistence whaling.[4] The IWC definition of subsistence use is vague and defines "aboriginal subsistence whaling" as: (1) The personal consumption of whale products for food, fuel, shelter, clothing, tools, or transportation by participants in the whale harvest; (2) The barter, trade, or sharing of whale products in their harvested form with relatives of the participants in the harvest, with others in the local community or with persons in locations other than the local community with whom local residents share familial, social, cultural, or economic ties…. (3) The making and selling of handicraft articles from whale products, when the whale is harvested for the purposes defined in (1) and (2) above.[5] [3] Id. [4] DEIS, at iv. [5] The Treaty of Neah Bay, which forms the basis of the Administration's support for this proposed activity stipulates in Article XIII that the Makah "agree not to trade at Vancouver Island or elsewhere outside the dominions of the United States." This would appear to preclude distribution of products of the hunt outside of the general area of Neah Bay and, should NMFS approve this hunt; this stricture should be clearly stated in conditions regarding the fate of any dead whales.	
513	Young (Humane Society of the US)_7-30-15	However, we also point to the common understanding of the meaning of the word "subsistence" in America English as contained in the Merriam-Webster Dictionary. In the dictionary, subsistence is defined as "the amount of food, money, etc., that is needed to stay alive."[6] Because the tribe's last truly legal gray whale hunt took place in the 1920's, it is clear that the Makah individually and collectively have stayed alive and their numbers have increased despite not being able to kill and eat or otherwise utilize whales. Killing whales is not necessary for the members of the Makah tribe to subsist. [6] See http://www.merriam-webster.com/dictionary/subsistence	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
514	Young (Humane Society of the US)_7-30-15	In a 2002 review of global aboriginal subsistence whaling, Reeves[7] wrote that the people of Chukotka and Northern Canada have a long history of whaling for gray whales and he contrasts that hunting tradition with that of the Makah. He wrote that, in the case of hunting by the Chukotka and northern Canada, their hunting tradition: has remained intact, obviating the need for significant reorientation, provisioning and training in seamanship. The Makah, in contrast, have needed literally to recreate a culture in which whaling and whale products are tangible features. This has meant, among other things, learning how to construct and operate traditional whaling boats and weapons, getting instruction from experienced northern whalers on how to butcher whales and process whale products, and even developing a taste for whale meat and blubber. In view of these factors, it is difficult to see how Makah whaling can be made to fall within any credible definition of 'subsistence'. It is less a resumption than an initiation, and in this fundamental respect Makah whaling deserves to be judged as something different in kind from other whaling initiatives."[8] [7] Dr. Randall Reeves, the author, is the current chair of the International Whaling Commission's Cetacean Specialist Group. [8] Reeves, R. 2002. The origins and character of 'aboriginal subsistence' whaling: a global review. Mammal Review. V.32, No.2, pp 71-106 (emphasis added). Available at: http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2907.2002.00100.x/full.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
515	Young (Humane Society of the US)_7-30-15	We find it peculiar that the Makah wish to re-initiate whaling as a means to reclaim their culture when many of their traditions are non-lethal and celebrate life in a manner that does not require killing whales,	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire for cultural or subsistence whale hunts.
516	Young (Humane Society of the US)_7-30-15	particularly when the death may fall on a small stock that could be put at risk at the population level.	Please see the response to frequent comment # 13 regarding risks to PCFG whales.
517	Young (Humane Society of the US)_7-30-15	Further, it is also worth noting that, when whaling was a significant part of the Makah's culture and tradition, it was the Makah elite, not commoners or the tribe's slaves that conducted the hunt.[9] This hunt does not appear to be structured to preserve that very exclusive cultural and ceremonial aspect of the hunt with regard to who is allowed to participate as a hunter.	The charter of the Makah Whaling Commission states that "The Commission is an organization of traditional heads of Makah families which will: (a) advise the Council

Sort #	Commenter Code	Comment	Response
		[9] Narayan 1997 quoted in vanGinkel, R. 2004. The Makah Whale Hunt and Leviathan's Death: Reinventing Tradition and Disputing Authenticity in the Age of Modernity. ETNOFOOR, XVII(1/2) pp.58-89. At: http://www.jstor.org/stable/25758069?seq=1#page_scan_tab_contents. See also references to slavery in Fn.10	regarding the administration and management of treaty ceremonial and subsistence whaling, including the adoption and enforcement of rules and regulations and the certification of whaling captains and whaling team members; and (b) conduct educational programs and research relating to ceremonial and subsistence whaling." Thus, it emphasizes "traditional heads of Makah families" playing a key role in ceremonial aspects of the hunt.
518	Young (Humane Society of the US)_7-30-15	The DEIS states that the Makah wish to reinitiate whaling "to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions."[10] While we respect the desire to preserve longstanding cultural traditions, we see no justification contained in the IWC regulations or other international agreements that either define or justify this "ceremonial" purpose as a legitimate basis for killing a public trust resource. Indeed, there are many outmoded traditions in native American cultures in the U.S. that are now outlawed including animal fighting and the taking of slaves.[11] There are times when societal norms and mores must supersede a desire to return to some traditional practices now considered cruel or abhorrent. [10] DEIS at 1-27. [11] In common with other tribes in the Pacific Northwest at the time, the Makah captured slaves in the wake of warfare or purchased them from other tribes. See: "Non- Indians and the Makah: 1788-1855. Available at: http://nativeamericannetroots.net/diary/1526. In 1855 the U.S. government inserted into the Treaty of Neah Bay an article prohibiting slavery on the Makah reservation to ensure consistency with actions prohibited to other Americans. Page 247 in C.J. Kim. Dangerous Crossings. Cambridge University Press. 2015. 342 pages. Excerpts at: https://books.google.com/books?id=eOJwBwAAQBAJ&pg=PA221&lpg=PA221&dq=gray+whale+delisting+petition+tribal&source=bl&ots=ZelfUZqx5&sig=hTt8aEQm4laI4XZlYaQmaZdbDMw&hl=en&sa=X&ved=0CB4Q6AEwAGoVChMIuIHMha3xxgIVhZUNCh1vPgZM#v=onepage&q=gray%20whale%20delisting%20petition%20tribal&f=false.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
519	Young (Humane Society of the US)_7-30-15	In 1855, the Treaty of Neah Bay granted the Makah "[t]he right of taking fish and whaling and sealing at usual and accustomed grounds and stations [and]is further secured to said Indians in common with all citizens of the United States…"[12] At that time in U.S. history, the Treaty simply sought to give the Makah (and other tribes at that time) many of the same privileges and rights as non-natives residing in the United States. At that time in history, whaling was a common practice of citizens of the United States, and the 1850's, when the treaty was signed, were the peak of commercial whaling in this country.[13] The last commercial whaling ship in the U.S. fleet was sailed from New Bedford, Massachusetts in the 1920's.[14] The Makah themselves gave up whaling in the 1920's. Just as the other "citizens of the United States" no longer have the right to whale, neither should the Makah. [12] See Article 4 of the 1855 Treaty with the Makah; see also DEIS, at 1-8. [13] US Bureau of the Census, 1960, Historical Statistics of the United States, Colonial Times to 1957, p.445. [14] "But one ship left in whaling port" In: Sausalito News, Volume XXXXIII, Number 36, 3 September 1927. At: http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=SN19270903.2.24 And New Bedford timeline 1602-present. at: http://www.whalingmuseum.org/learn/research-topics/timeline-1602-to-present.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
520	Young (Humane Society of the US)_7-30-15	Whaling is not necessary for either the tribe or its members to "subsist" (in contrast to the situation for Inuit hunters near the Arctic circle)	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
521	Young (Humane Society of the US)_7-30-15	nor need they return to practices that were abandoned almost a century ago and that are no longer in common with those of other citizens of the United States.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire for to revive its whaling tradition and # 8 regarding the Treaty of Neah Bay.
522	Young (Humane Society of the US)_7-30-15	This hunt does not qualify as an aboriginal subsistence hunt under the IWC as it is not an unbroken tradition nor is there a subsistence dependence on whale meat as is demonstrated by the more than 80 years during which the tribe has subsisted without it.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
523	Young (Humane	Creating a new category of whaling for "cultural" reasons, based on a long-abandoned practice, sets a dangerous precedent. Moreover, allowing the Makah	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
	Society of the US)_7-30-15	tribe to resume whaling for cultural purposes could signal an opportunity for aboriginal or coastal peoples who hunted whales in the past but no longer do so to seek to resume their own historic traditions.	precedential effect of a waiver internationally and domestically.
524	Young (Humane Society of the US)_7-30-15	**Some of the Alternatives Presented Propose Amending Significant Aspects of the NMFS Gray Whale Stock Assessment and NMFS Guidelines Regarding Maximum Allowable Anthropogenic Mortalities, Simply to Suit the Purposes of a Single Special Interest** In the presentation of Alternative 2 (the Makah's proposal)[15] NMFS discusses an alternative means of calculating a Potential Biological Removal level (PBR).[16] Amending the proposal to redefine the basis and use of the required elements of calculating PBR, could increase the PBR and thus the upper limit on the Makah hunt or, alternatively, perhaps propose an entirely separate PBR that would apply only to the tribal hunt. In its proposal, as described in the DEIS, the tribe would use a 4% per year maximum net productivity level (MNPL) in the PBR formula rather than half of the MNPL 6.3% used in the NMFS Stock Assessment Report (SAR). The tribe also proposes to calculate an abundance of the Pacific Coast Feeding Group (PCFG) estimate using only a subset of the range of the PCFG that was defined in the official NMFS SAR.[17] According to the DEIS, this re-calculation results in a projected "bycatch limit" of the PCFG of 3.0 per year. This is higher than the current final SAR's PBR for the PCFG gray whales of 2.7 and the equal to the entire PBR of 3.1 for the WNP proposed in the draft 2014 SAR. The NMFS SARs have been peer-reviewed by its MMPA-mandated Scientific Review Groups and have undergone public comment prior to being finalized. It would be inappropriate to re-calculate a PBR solely to suit the desire for this proposed hunt. NMFS should rely on and apply the PBR calculated in the final SAR for gray whales. [15] DEIS, at 2-9. [16] 16 U.S.C. § 1362(20) (the term "potential biological removal level" means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammals stock while allowing that stock to reach or maintain its optimum sustainable population."). [17] Elements of the SARs are described in 16 U.S.C. 1386 §117 and The NMFS Guidelines for calculating elements used in the PBR formula are provided in NMFS. 2005 Revisions to Guidelines for Assessing Marine Mammal Stocks. 24 pp. Available at : http://www.nmfs.noaa.gov/pr/pdfs/sars/gamms2005.pdf.	Comments noted. The Tribe initially submitted its proposal in 2005, before NMFS had calculated a PBR for the PCFG in its SAR. Alternatives 3 through 6 in the DEIS include management regimes that would rely on the PBR as calculated in the SAR.
525	Young (Humane	The DEIS also states that the Makah do "not propose to account for other sources of human-caused mortality when setting the allowable bycatch limit for	Comments noted. Alternatives 3 through 6 explore other methods of

Sort #	Commenter Code	Comment	Response
	Society of the US)_7-30-15	PCFG whales."[18] Since the NMFS stock assessment documents that there is also fisheries-related mortality and mortality originating from other anthropogenic sources,[19] and the PBR is intended to inform the "maximum number of animals" that can be removed while still meeting the goals and objectives of the MMPA; NMFS should not allow the tribe to kill the entire (or exceed the) PBR as calculated in the final NMFS SAR. Under no circumstances should an alternative method of calculating PBR be used, nor should the tribe be permitted to lethally remove the entire PBR for the PCFG (or other) stock when there are in fact other sources of mortality that must be accounted in assuring recovery to or maintenance of the optimum sustainable population. [19] See NMFS draft SARs for both gray whale stocks at http://www.nmfs.noaa.gov/pr/sars/pdf/pac2014_draft.pdf	accounting for PCFG mortality. Please also see the response to frequent comment # 7 regarding calculation and use of PBR for a PCFG mortality limit.
526	Young (Humane Society of the US)_7-30-15	Similarly, Alternative 4 proposes an alternative to the use of the current PBR when setting a mortality limit for the PCFC; proposing to lower the recovery factor used in calculating PBR to 0.35 rather than the 0.50 that is currently used in calculating PBR for the PCFG whales.[20] The rationale is that this would result in an annual limit of 1 whale and would allow the PCFG to equilibrate at 80 percent of its carrying capacity over a 200-year period. Again, we point out that the PBR in the SARs have undergone peer- review and public comment to assure that the elements of the PBR and the resultant mortality limits are consistent with the goals and purposes of the MMPA. It would be inappropriate to change the peer-reviewed elements of the PBR formula or to, in some way, subdivide and apportion some part of the PBR solely to the Makah tribe. NMFS cannot arbitrarily choose to alter the elements of the PBR in its SAR in order to suit the needs of a group seeking intentional removals of otherwise protected marine mammals. [20] In both the 2013 final SAR and the draft 2014 SAR, the PCFG is "lumped" into discussions of the ENP gray whales although separate PBRs are calculated for each. In the draft SAR for 2014 (which is still not final as of the date these comments are written), the recovery factor for the ENP whales is 1.0 but for the PCFG it is 0.5.	Comments noted. Alternative 4 proposes a management regime, not an alteration of the SAR.
527	Young (Humane Society of the US)_7-30-15	**Methods Proposed Are Arguably Inhumane** The MMPA requires that taking of marine mammals must be humane, defined as inflicting the least possible degree of pain and suffering practicable.[21] The DEIS indicates that the tribe plans to use "both traditional and modern methods for hunting whales to balance the preservation of traditional cultural methods with safety and the need for increased hunting efficiency."[22] Choosing a	Please see the response to frequent comment# 1 regarding the humaneness of a whale hunt

Sort #	Commenter Code	Comment	Response
		method that would be most humane was apparently not in the tribe's consideration of "balance" although there is a nod given to the need to meet "MMPA permit requirements." With the exception of alternative 3, which would not use canoes, hunting would be done from two canoes, each manned by eight tribal members, including a harpooner. These canoes would be accompanied by one or more "chase" boats and the captain of the hunt could be on any of these vessels. Each chase boat would be manned by a pilot, diver, rifleman, backup harpooner, and at least one other crew member serving as a safety officer. NMFS acknowledges that the chase boat may not itself be capable of towing a dead whale to shore for butchering and, in that instance, there would need to be an additional vessel with that capability. Under the proposed method of killing, if the canoe-based harpooner can pierce the whale with the toggled harpoon and affix floats, a rifleman in the chase boat would then shoot the whale with a "high powered rifle" (defined as .50 caliber) with the intent of hitting the whale with a lethal shot to "its central nervous system." This appears to be similar to the method originally proposed by the tribe and used in its killing of a gray whale in 1999 in which the whaling crew struck a young female gray whale with a cold harpoon and then fired four .50 caliber bullets from a rifle into her body. NMFS acknowledges in the DEIS that approximately eight minutes elapsed from the first harpoon strike until she ceased moving after firing the fourth bullet. [21] 16 U.S.C. § 1362(4); 50 C.F.R § 216.3. [22] DEIS, at 2-12.	
528	Young (Humane Society of the US)_7-30-15	Citing its own veterinary expert, the NMFS states in the DEIS that the success or failure of the hunt depends on rifles being tested for their effectiveness before they are used in a hunt. The NMFS expert is quoted as expressing grave reservations about the use of a .50 caliber in the confined space of a boat.[23] Yet NMFS apparently dismisses these reservations (except suggesting a .577 caliber rifle as an alternate method in Alternative 3). The NMFS expert states: "importantly, the 3-shot magazine of the .577 clearly makes the .577 the more suitable weapon for humanely dispatching gray whales..."[24] NMFS only proposes use of this weaponry in Alternative 3. NMFS cites the fact that the tribe's .577 rifle, intended for use in the initial hunt, was lost during the manifestly illegal hunt in 2007 and NMFS inexplicably asserts that the tribe may not be able to replace this rifle and, further, obtaining this ammunition is more difficult so the tribe will "most likely use" a .50 caliber weapon. This passive	The expert cited in these comments did express reservations about the .50 caliber rifle, especially its weight and shot capacity relative to a .577 caliber rifle. However, he did not conclude that it would be an ineffective weapon for the hunt. The commenter fails to note that the DEIS also observes that gun manufacturers continue to modify the .50 caliber and there are currently models available that are as light or lighter than the .50 caliber rifle tested during preparation for the 1999 hunt,

Sort #	Commenter Code	Comment	Response
		acceptance of a .50 caliber rifle is not an acceptable rationale for choice of weapon when the use of higher caliber weapon and ammunition, as advised by the NMFS' own expert, is more humane. That said, while we adamantly oppose use of the .50 caliber rifle and ammunition and believe NMFS should only consider weaponry with increased firepower; we believe that the most humane means of attempting to kill a gray whale is requiring a darting gun that fires an explosive projectile into the whale, a method which is proposed and discussed in other action alternatives and is used in other extant aboriginal hunts. [23] DEIS, at 3-170. [24] Id.	have multi-round magazines, and modern muzzle break or silencer systems that may reduce blast and noise concerns. The DEIS evaluates a .577 caliber rifle as an alternative rifle to kill a whale and, as recommended by the commenter, a darting gun (with penthrite grenades) as an alternative to strike and kill a whale.
529	Young (Humane Society of the US)_7-30-15	NMFS has proposed an alternative method wherein the tribe would be required to use a hand-held darting gun capable of firing an explosive projectile attached to a toggled harpoon with floats that would assist in recovering a dead whale. While the efficacy of this method in insuring an immediate kill is not certain (i.e., NMFS also stipulates that if it fails to kill the whale, additional explosive grenades would be delivered using either a smooth-bore, eight-gauge shoulder gun or a darting gun), nonetheless, this method requiring the use of penthrite grenades appears more likely to result in a quicker kill and it is used in native subsistence hunts elsewhere in their pursuit of bowhead and fin whales. The DEIS reports that, in the "Alaska bowhead hunt in 1988 [it was] reported that seven of the eight whales struck with penthrite grenades died from the first grenade thrown"[25] Under the guidelines of the IWC, humane killing is "[d]eath brought about without pain, stress, or distress perceptible to the animal. . . . Any humane killing technique aims first to render an animal insensitive to pain as swiftly as technically possible. In practice this cannot be instantaneous in a scientific sense"[26] Indeed, in 1999, using the same essential methods proposed by the tribe, even with a higher caliber rifle, it took 8 excruciating minutes for the whale to die. NMFS provides no assurance in the scenarios it proposes that the whale would be rendered instantaneously insensible let alone killed. One study of commercial whaling, in which even more efficacious methods are used, including deck mounted cannons, found that "[f]ewer than one in five whales were killed instantaneously and the average time to death for the remaining whales was around 10 min."[27] [25] DEIS. at 3-168. [26] IWC Resolution 2004-3.	Please see the response to frequent comment # 1 regarding humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		[27] Gales, N., R. Leaper and V. Papastavrou. 2008. Is Japan's Whaling Humane? Science Direct., V. 32, issue 3, pages 408-412 Available at: http://www.ifaw.org/sites/default/files/Is%20japan%20whaling%20humane.pdf.	
530	Young (Humane Society of the US)_7-30-15	Killing whales appears inhumane regardless of method; however, if NMFS permits this hunt, it must require the use of weaponry with the highest possible likelihood of rendering a whale insensible and causing almost immediate death. We strongly object to allowing use of a .50 caliber weapon as being inappropriate to either of these outcomes. NMFS should heed the advice of its own veterinary expert who concluded this proposed weaponry was not humane. The slow death of a sentient species is something we do not accept in farm animal slaughter and it should not be permitted to happen in the killing of a sentient aquatic species such as gray whales. Thus, if NMFS grants the permit, and does not require the use of weaponry with penthrite grenades, we request that NMFS mandate the use of a .577 rifle that its expert concluded was more humane.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt
531	Young (Humane Society of the US)_7-30-15	**Gray Whale Stock Status and the Impact of a Hunt** NMFS essentially recognizes three gray whale stocks that may be affected: Eastern North Pacific (ENP) gray whales that are the intended target, Western North Pacific (WNP) gray whales that are listed as endangered under the ESA and a Pacific Coast Feeding Group (PCFG), a distinct and seasonally resident population numbering only approximately 173 individuals. In the DEIS, NMFS acknowledges that the IWC found the PCFG to be "a demographically distinct feeding group" and NMFS itself determined in its stock assessment report that the PCFG may warrant consideration as a distinct stock, and the agency has established a separate PBR level for this stock within ENP gray whales.[28] The co-occurrence of these different gray whale stocks at certain times in the area where the hunt poses risk at the population level for some of the stocks. **<u>There Is a Risk of the Makah Taking a Whale from the Endangered Western North Pacific Stock</u>** Citing work by Lang and colleagues, the most recent NMFS stock assessment for ENP gray whales acknowledges that "[t]agging, photo-identification and genetic studies show that some whales identified in the WNP off Russia have been observed in the ENP, including coastal waters of Canada, the U.S. and Mexico. In combination, these studies have recorded a total of 27 gray whales observed in both the WNP and ENP."[29] The DEIS itself acknowledges that some of these WNP gray whales travel to the "coastal waters off the west coast of the United States during winter and may transit the Makah [proposed whaling	Comments noted. Note that NMFS recognizes one ENP stock and one WNP stock and does not recognize the PCFG as a stock.

Sort #	Commenter Code	Comment	Response
		area]."[30] In 2015, research was published documenting trans-Pacific travels of satellite tagged WNP gray whales originating in Russia. One of them visited all three major ENP reproductive areas before returning to the western Pacific the following year, resulting in the authors speculating that there is wide mixing of the stocks.[31] Despite the trans-oceanic travels of WNP gray whales, the WNP and ENP whales show significant mtDNA and nuclear DNA differences.[32] The risk of taking a whale from this small[33], endangered population cannot be as lightly dismissed as the agency might wish.[34] The DEIS acknowledges that there is overlap in time and space with the ENP and PCFG whales (generally between December-May) and up to 19% of identified WNP whales have been seen in the ENP.[35] In some of the alternatives in the DEIS, NMFS attempts to address this concern, though how it proposes to do this differs significantly amongst the various alternatives, some of which suggest alternative timing for the hunt, which is likely to be more precautionary than the Makah proposal. In its ruling in Anderson v. Evans, the court concluded that NMFS must consider not just effects to the PCFG whales, but effects to the smaller group of whales frequenting the Makah tribe's usual and accustomed area, stating that "...the summer whale population in the local Washington area may be significantly affected. Such local effects are a basis for a finding that there will be a significant impact from the Tribe's hunts."[36] Given the mixing of ENP whales with those from the small PCFG and the endangered WNP stocks in the area in which a hunt may occur, this impact is not trivial. If NMFS opts to permit this hunt to occur it must choose an alternative with the lowest possible risk of taking a WNP gray whale in this area where mixing may occur and whales would almost surely be indistinguishable. [28] DEIS, at 3-30. [29] See also DEIS, at 3063. [30] DEIS, at 1-5. [31] Mate, B., VY Ilyashenko, A. Bradford, V. Vertyankin, G. Tsidulko, V. Rozhnov and L. Irvine. 2015. Critically endangered western gray whales migrate to the eastern north Pacific. Biol. Lett. 11:20150071. At: http://dx.doi.org/10.1098/rsbl.2015.0071. [32] DEIS, at 3-63. [33] The DEIS, citing Cook et al. (2013), states that there are an estimated 140 WNP gray whales. DEIS, at 3-67. The most recent (2014) NMFS draft stock, provides a minimum population estimate of 135 from which the PBR would be calculated. See: Caretta et al. 2014. Gray Whale: Western North Pacific Stock. In: U.S. Pacific	

Sort #	Commenter Code	Comment	Response
		Marine Mammal Draft Stock Assessments: 2014. NOAA-NMFS SW Fisheries Science Center. Draft at: http://www.nmfs.noaa.gov/pr/sars/pdf/pac2014_draft.pdf [34] The DEIS indicates that, under the tribe's proposed action, modeling predicts only a 7% chance of hunters striking at least one WNP gray whale in 6 years. However, the DEIS also acknowledges on p. 3-91 that up to 19% of these individuals (thus approximately 1 in 5 whales from this stock) have been seen in the range of the ENP. This should concern the agency. [35] See DEIS, at chapter 3.4.3.2.2. [36] See DEIS, at 3-121.	
532	Young (Humane Society of the US)_7-30-15	**<u>There is a Risk of Taking a Whale from the Pacific Coast Feeding Group</u>** This is a small stock of approximately 188 gray whales that occurs within the range of the ENP. The DEIS itself defines the PCFG as an assemblage of ENP whales observed in 2 or more years between June 1 and November 30 between latitudes 41°N to 52°N. Citing work by Calambokidis in its most recent stock assessment, NMFS states that, for the PCFG, the "high rate of increase" seen in the 1990's and early 2000's has not continued and the population...has been relatively stable since 2003 [37]. Given the acknowledged uncertainties in the SAR for the PCFG, NMFS calculates a PBR for the PCFG of 3.1 per year in its most recent draft SAR.[38] The agency also states that the PCFG "appears to be a distinct feeding aggregation and may warrant consideration as a distinct stock."[39] The DEIS discussed various theories regarding internal recruitment (via maternal site fidelity) versus immigration and NMFS cites a recent study by Calambokidis that concluded that "abundance estimates have been fairly stable since 2002, indicating that recruitment may currently be offset by losses (either whales dying or permanently emigrating)."[40] Fishery-related mortality is calculated in table 3-6 of the DEIS. It is not clear from this whether these mortalities were within the time/area usage by PCFG whales. The most recent draft SAR for the PCFG stipulates that, only 4-13% of gray whales that die are found and reported. In this most recent SAR, NMFS reports that three gray whales (including one death and two serious injuries) were detected in California waters during the known PCFG season, but were south of the area recognized by the IWC as the PCFG management area. It is possible that some of these whales could be PCFG whales, but the SAR acknowledges that there were no photographic identifications available to establish their identity. Given the lack of a clear determination of stock origin, these deaths and serious injuries were included in ENP gray whale serious injury	DEIS Table 3-6 does not separate out PCFG whale mortality/injury estimates but instead addresses all such estimates for the entire ENP stock as reported in the SARs. As noted in this comment, Alternative 4 includes a management measure that would count all struck and lost whales as PCFG whales. This is because hunting would be authorized in the summer, when most whales present are likely to be PCFG whales.

Sort #	Commenter Code	Comment	Response
		and death totals in the SAR. NMFS should apply a similarly conservative rationale in attributing a kill to the smallest stock if the stock-origin of the animal cannot be definitively determined (either because it is struck and lost or could not be photographically identified); that is, unless it can be otherwise confirmed, NMFS should assume that an unidentified struck whale is counted as a take of an animal from the PCFG stock. This is proposed in some of the alternatives. [37] Caretta et al. 2014. Gray Whale: Eastern North Pacific Stock and West Coast Feeding Group. In: U.S. Pacific Marine Mammal Draft Stock Assessments: 2014. NOAA-NMFS SW Fisheries Science Center. Draft at: http://www.nmfs.noaa.gov/pr/sars/pdf/pac2014_draft.pdf. [38] Id. [39] Id. [40] DEIS, at 3-128.	
533	Young (Humane Society of the US)_7-30-15	**The Suite of Action Alternatives is Inappropriately Limited.** In addition to discussing each alternative in various portions of the text, Table ES-1 in the DEIS summarizes impacts of the various alternatives. It is clear from this terse summary alone that each has distinct advantages or disadvantages with regard to minimizing risk to PCFG or WNP whales, limiting the overall number of whales killed for what is clearly a ceremonial and not subsistence need, and/or reducing the likelihood of a protracted death when an animal is struck. NMFS should combine the most precautionary aspects from each alternative to construct a seventh action alternative that, if NMFS permits a hunt, would assure that it has minimal impacts on animals and the environment. We will discuss aspects of this missing alternative following a discussion of the Alternatives that were provided in the DEIS.	As noted in this comment, the DEIS analyzes an array of provisions across the five action alternatives. It would not be practicable to analyze all possible combinations of provisions. Moreover, NEPA does not preclude the agency from selecting a preferred alternative that contains provisions from different alternatives (as the commenter suggests).
534	Young (Humane Society of the US)_7-30-15	**Discussion of the Action Alternatives** Alternative 1 is the 'no action' alternative and is the alternative we support.	Comments noted.
535	Young (Humane Society of the US)_7-30-15	Alternative 2 contains the Makah proposal and many of its provisions are held in common in all the action alternatives. As such, many of the action alternatives share similar failings. We agree with NMFS' analysis that this alternative is the most risk prone with regard to marine wildlife (including all three stocks of gray whales) and, its impact analysis contains the greatest number of impacts yielding "mixed" results.[41] For this reason alone, we strongly oppose it.	Comments noted.

Sort #	Commenter Code	Comment	Response
		[41] See summary in DEIS Table ES-1.	
536	Young (Humane Society of the US)_7-30-15	Under this alternative, the Makah could harvest up to five whales in any one year, and up to 24 over a six-year period. The tribe also proposes to allow up to three strikes each year in which the whale was ultimately lost. It is unacceptable—and almost unprecedented—to permit a struck/loss ratio in which close to half the struck whales would be lost (i.e., 3 losses per year out of a total of 8 whales struck). For example, in the last ten years of calculating efficiency measures in the bowhead hunt, in the struck loss ratio has averaged 77% landed.[42] Further, hunting of gray whales by Russian aboriginals was said to be 2 lost and 126 struck in 2003, the most recent year for which we were able to find data.[43] The Makah proposal for the number of struck and lost whales is excessive. [42] See in Bowhead Whale Final EIS, at 66 (bowhead whale struck and lost). NOAA/NMFS Alaska Region. January 2013 at: https://alaskafisheries.noaa.gov/protectedresources/whales/bowhead/eis0113/final.pdf. [43] Id. at 47.	Comments noted. The comment misrepresents the provisions of Alternative 2, which would allow for 7 strikes rather than 8, but the comparison remains valid, that the Makah Tribe's proposed provisions would allow for a rate of struck and lost whales that is higher than other ASW hunts. In the DEIS analysis we analyze total mortality from a Makah tribal hunt when considering impacts to PCFG whales.
537	Young (Humane Society of the US)_7-30-15	With regard to the impact of this alternative on WNP gray whales, the DEIS cites several studies supporting the conclusion that "data available on WNP migrations and movements suggest that it is most likely that whales from this stock could be encountered in the vicinity of the Makah U&A during the hunting season proposed by the Tribe..."[44] If a WNP female was killed from this population of barely more than 100 whales, it would be, as NMFS says in its understated prose, "a conservation concern."[45] Because there is the possibility of accidentally killing a whale from this ESA-listed and highly imperiled stock (which NMFS states is "non-trivial"[46]), the timing of a hunt proposed under this alternative is clearly risk-prone and untenable. [44] DEIS, at 3-93. [45] Id. [46] Id.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
538	Young (Humane Society of the US)_7-30-15	For the purpose of determining whether a harvested whale is a PCFG whale (i.e., it counts against a bycatch or mortality limit), this alternative would include a whale that was cataloged and seen in at least 1 year, while the other action alternatives in the DEIS would only include cataloged whales seen in 2 or more years or at least once in the prior 4 years.[47] Photographs of any landed whale would be taken by a "Makah Fisheries Management Observer" and provided to NMFS to determine whether or not the animal was one of the animals in a photo-archive maintained by Cascadia Research Collective and this	Comments noted. DEIS alternatives 3, 5, and 6 include the provision that all struck but not landed whales count as PCFG whales in proportion to the presence of PCFG whales in the hunt area.

Sort #	Commenter Code	Comment	Response
		alternative stipulates that the tribe "proposes to stop hunting when a predetermined number of cataloged whales (sighted at least once in the PCFG range from June 1 through November 30) are landed." It is not clear how long it will take to photo match an animal to the extant gray whale catalog to determine whether or not it is from the PCFG but, based on this author's experience with photo-identifying and matching whales, it would not be immediate and one presumes the hunt would be permitted to continue until such time as a match could be made—a process that could take days or weeks and result in the death of another PCFG animal. This is not an acceptable conservation measure. Further, the tribe does not propose to count whales struck but not landed against the "allowable bycatch limit" of PCFG whales unless they can be definitively identified as from the PCFG—something that would almost surely not be possible for an animal struck and lost (and likely to die and sink at sea).[48] This too is risk-prone and unacceptable. We have previously discussed the inappropriate proposal for calculating an alternate PBR for PCFG whales and reiterate that is it unacceptable. [47] DEIS, at 3-122. [48] DEIS, at 2-9.	
539	Young (Humane Society of the US)_7-30-15	With regard to the Makah desire to hunt between December 1 and May 31, the DEIS (citing Calambokidis 2014) states that "a hunt conducted in spring (March to May) potentially could take whales from the PCFG."[49] Further, Scordino's (2013) analysis, cited in the DEIS, found that 31% of whales in the Northern Washington Area between December and May were PCFG whales. Given the acknowledgement in the DEIS that WNP gray whales are also in the area at that time, this argues strongly against allowing a hunt to take place during the times indicated by these researchers (i.e., it should not occur between December and the end of May). We strongly oppose this alternative, which has the greatest risk of adverse impacts to whales of the alternatives provided. [49] DEIS, at 3-140.	Comments noted.
540	Young (Humane Society of the US)_7-30-15	Alternative 3 (offshore hunt) would retain many of the provisions of the Makah's preferred Alternative 2, regarding numbers of ENP whales struck, total allowance of struck and lost, and harvested; seasonal restrictions; and regulatory conditions including the number of ENP animals that can be struck and lost although it prevents initial strikes within 5 miles of shore, which would be more precautionary in reducing disturbance to nesting birds and coastal marine	Comments noted; to clarify, the calculated limited of 1.6 female PCFG whales are part of the overall limit on PCFG whales (i.e., not in addition to the calculated limit of 2.7 males).

Sort #	Commenter Code	Comment	Response
		mammals. This alternative also requires the use of a .577 rifle and assumes only motorized vessels would be used. As previously noted, if NMFS chooses an alternative that does not require the use of more potent weaponry utilizing penthrite grenades, the higher caliber rifle suggested in this alternative is preferable for increasing the likelihood of a humane kill although other aspects of this proposed alternative are more risk prone. With regard to possible impacts on the PCFG, the total allowable mortality would be equal to the stock's PBR of 2.7 (or 3.1 based on the updated calculations in the draft 2014 SAR). The allowable mortality of females would be one-half of the PBR. NMFS states that "[u]nder present circumstances, this calculation would result in an annual mortality limit of approximately 2.7 PCFG whales total, with an additional limit of approximately 1.6 female PCFG whales."[emphasis added] This wording makes it unclear whether the 1.6 female PCFG whales are in addition to or part of the overall kill limit of the PBR of 2.7 (or 3.1). NMFS should clarify this.	
541	Young (Humane Society of the US)_7-30-15	Further, if a whale is struck and lost, the lack of sexual dimorphism will make it difficult to impossible to identify whether it was a female and that determination in turn affects the management of the "quota" and any resultant restrictions on the hunt. The loss of a female, particularly if from the WNP or PCFG stocks, would result in a significant and unacceptable impact to either of these stocks. This calculation of a mortality limit is not acceptable.	Under Alternative 3, struck and lost whales would be counted as female in proportion to their presence in the hunt area. The tribe has not sought a waiver for WNP gray whales and would not be authorized to harvest WNP gray whales.
542	Young (Humane Society of the US)_7-30-15	We cannot support this alternative. Many of the concerns we raised with Alternative 2 pertain here as well, particularly with regard to the number of strikes and animals struck and lost. Allowing a kill equal to the PBR means that any fishery-related incidental mortality would result in anthropogenic impacts exceeding the PBR, and could result in a potentially adverse impact on commercial fisheries that may then be required to reduce their fishery-related mortality to compensate.[50] [50] PBR is considered the "maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimal sustainable population. 16 U.S.C 1362 § 3(20). Implementing regulations under the MMPA stipulate that a fishery that takes up to 50% of a stock's PBR (in this case, approximately one animal) becomes a category I fishery (60 Fed. Reg. 45,086 (Aug. 30, 1995)) and, when a stock suffers mortality in excess of the PBR, Category I and II fisheries are required to reduce mortality to below PBR and further to achieve the Zero	Comments noted. Alternative 3 would set a mortality limit for PCFG whales that accounts for other sources of human-caused mortality.

Sort #	Commenter Code	Comment	Response
		Mortality Rate Goal which is 10% of the PBR (or .27 per year in this case). 16 U.S.C. § 1387 § 118 (f)(2).	
543	Young (Humane Society of the US)_7-30-15	Alternative 4 (summer/fall hunt) has many of the same conditions as Alternative 2 except it would reduce the time in which a hunt can be conducted to a six month period from June 1 through November 30 as an attempt to reduce the risk of unintentionally killing a PCFG or WNP gray whale. However, as NMFS acknowledges, this proposed time period for the hunt still occurs during the period of residency that helps define membership in the PCFG, so the time period chosen does not entirely address that risk.	The comment mischaracterizes the intent of Alternative 4, which was to effectively eliminate risk to WNP whales, not PCFG whales. On the contrary, most whales present in the hunt area would be PCFG whales.
544	Young (Humane Society of the US)_7-30-15	NMFS proposes to require avoidance of female gray whales. This would appear to restrict takes to male gray whales; however, as is the case with most baleen whales, there is little sexual dimorphism in this species. Males are slightly smaller than females[51] but this is not definitive, particularly when an animal is alone, making its relative size is more difficult to gauge or, similarly it could be difficult to differentiate a male from a juvenile female. Because of this lack of obvious dimorphism, a requirement to avoid females is insufficient to assure that a female will not be taken and is thus a meaningless condition. It is highly likely that the sex of the whale could not be determined until it is already dead and would not be known at all if it is struck and lost and the carcass unrecovered. It seems likely that a female would be killed in this hunt under this and most other options. [51] Gray Whales at: http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/graywhale.htm.	Alternative 4 would only target known males, i.e., whales for which we had photographic information as well as genetic data demonstrating the animal's sex as male.
545	Young (Humane Society of the US)_7-30-15	As was previously discussed, this alternative also inappropriately considers an alternate means of calculating PBR for PCFG whales that is risk prone and certainly should not be done simply to permit lethal removal by a special interest. Determining the stock origin (ENP or PCFG) of a dead, landed whale would likely be difficult since not all gray whales are photo-identified and confirming a photo-match takes time even if a whale is landed. As a precautionary measure, this alternative would presume that all whales struck and not landed would be members of the PCFG. This is more appropriately precautionary than some other alternatives. The hunt would only be disallowed "if the PCFG mortality limit for a single year is less than 0.5. The purpose of this provision is to prohibit a hunt if the PCFG declines to half its current abundance or if PCFG whales are killed in unexpected numbers by other sources of human-caused mortality." The most recent NMFS draft (not finalized) SAR indicates that the estimate of fishery-related mortality in the PCFG season averages 0.75	The method of calculating PBR in Alternative 4 is the second most conservative of the 5 action alternatives. The reasons this alternative presumes all whales struck and lost would be PCFG whales are: (1) hunting occurs during the summer feeding period, when most whales struck would be PCFG whales and (2) hunters would be targeting known PCFG males and would have made an ID prior to striking a whale that was then lost.

Sort #	Commenter Code	Comment	Response
		whales per year for the prior 5 year period. However, this level of mortality fluctuates and the final 2013 SAR indicates that, during the 5 year period of review for that SAR, mortality averaged 1.75 per year for the PCFG. As we discussed in our comments under Alternative 3, it is not clear how a mortality resulting from the Makah hunt would affect commercial fisheries that also have annual mortality and serious injury of this stock. We assume that any whale struck and lost would be counted as "seriously injured" (i.e., likely to die) since it would have a penetrating wound, though this scenario was not specifically envisioned in the NMFS own Guidelines for Assessing Serious Injury.[52] If the mortality and serious injury of a presumed PCFG whale is combined with that of commercial fisheries and the sum exceeds the PBR, this may require the affected fisheries to reduce their incidental mortality, even if that mortality would have otherwise been less than the PBR. [52] See Criteria L5a: "Deep laceration" –serious injury. Any incision or tearing that potentially penetrates the body cavity or cuts into the skeletal structure, or a deep laceration at the insertion of the flippers or flukes where major arteries are near the skin surface, is counted as a serious injury. In NOAA/NMFS 2015. Process for Distinguishing Serious from Non-Serious Injuries of Marine Mammals. At: http://www.nmfs.noaa.gov/pr/pdfs/serious_injury_procedure.pdf.	As noted in the DEIS, the DEIS analysis assumes that a struck and lost whale will die of its injuries. Regarding other sources of human-caused mortality, the mortality limit in a tribal hunt under Alternative 4 would take other sources of human-caused mortality into account.
546	Young (Humane Society of the US)_7-30-15	Alternative 5 (split season hunt) again contains many of the same conditions as Alternative 2 but would instead provide two short hunting seasons of three weeks each (December 1-21 and May 10-31) rather than a single longer season. The DEIS notes that the period in which detections for WNP whales are lacking tends to be between early May and late December, when there would be a reduced likelihood of their being encountered during a hunt.[53] These two shorter hunting seasons are said to further reduce the chance of killing a WNP whale or a PCFG gray whale so would be preferable to a single longer season. This alternative's seasonal limit appears more precautionary. Under this alternative, the annual mortality limit for PCFG whales would be 0.27, which is 10 percent of the PBR (equivalent to the Zero Mortality Rate Goal in the MMPA which seeks to insure that anthropogenic mortality has a "negligible impact"[54]). We find this mortality limit for an intentional kill preferable to other alternatives, as it furthers the MMPA goals. Under this alternative, if a PCFG whale is killed (or presumed killed), then no other could be killed for the next 4 years in order to assure that PBR is not exceeded. Any whale struck but not landed would be considered to be a PCFG gray whale "in proportion to the observed presence of PCFG whales in the Makah	Comments noted. Hunts under all of the alternatives would be halted when the PCFG mortality limit is reached.

Sort #	Commenter Code	Comment	Response
		hunt area during that season." With regard to the proportion of the presence of PCFG whales in the hunt area, the DEIS states that the difficult sighting conditions in December through February and the limited number of whales sighted during studies "prevent making informed estimates of the proportion of PCFG whales present during the winter months."[55] To say the least, this is troubling for the proposed December time period. Although the summary discussions of this alternative in Chapter 2 of the DEIS do not make this entirely clear, we presume that the hunt would be halted when the annual limit on mortality and serious injury for PCFG whales is reached. [53] DEIS, at 3-91. [54] 64 Fed. Reg. 28,800 (May 27, 1999). [55] DEIS, at 3-140.	
547	Young (Humane Society of the US)_7-30-15	Alternative 6 (different limits on strikes and PCFG, and limited duration of regulations and permits) has the same conditions as the Makah's preferred alternative (Alternative 2) with the exception of the time span of the hunt authorization. This alternative would limit strikes to seven over a 2 year period and the PCFG mortality limit would be limited to the PBR in the NMFS SAR (minus other anthropogenic mortality). This limit on authorizing takes to assure they remain under the PBR is a more conservative approach to preventing excessive take than is proposed in other alternatives (with the exception of Alternative 5) and, unlike Alternative 2, it acknowledges that they are also taken in commercial fisheries. The take moratorium would expire in 10 years, and a take permit would be limited to 3 years. Further, all whales struck and not landed would be considered PCFG whales "based on their proportional presence during the season they were struck and lost." We prefer the shorter authorization period to those in the other alternatives and believe it is imperative that the Makah takes do not result in combined anthropogenic mortality exceeding the PBR.	Comments noted.
548	Young (Humane Society of the US)_7-30-15	**NMFS has not included an Adequate Suite of Alternatives** Although there are 5 action alternatives, each has different suites of possible limits or mitigation that include proposing differences in season, area, weapon used, the proposed calculation of a conservative harvest quota and specifying the term limit of a waiver and so forth. As a result, each alternative has certain possible conservation advantages but most offer only minor variations on the Makah's preferred Alternative 2 that often do little to mitigate the disadvantages of the more risk-prone aspects of each proposal. NMFS should have constructed a seventh alternative (a sixth action alternative) that would be maximally protective of the WNP and ENP populations	As noted in this comment, the DEIS analyzes an array of provisions across the five action alternatives. NEPA does not require that we combine the most conservative elements into a single alternative, nor does it preclude us from selecting a preferred alternative in a Final EIS that incorporates elements from different alternatives Because the purpose of NEPA is to

Sort #	Commenter Code	Comment	Response
		and would incorporate a combination of the greatest conservation or humanitarian benefits from each of the other 5 action alternatives. For example, NMFS indicates that Alternative 4 is the most risk averse with regard to minimizing risk to WNP gray whales. It indicates that Alternative 5 is more risk averse with regard to minimizing risk to PCFG gray whales and is preferable for minimizing disturbance to other marine mammals. Construction of another action alternative that is a more cohesively conservative alternative would require the use of penthrite grenades in making a kill as is suggested in several alternatives. With regard to the hunt timing, it would stipulate a split season, as in Alternative 5 to minimize impacts on WNP and PCFG whales. The hunt area would be limited to an area 5 miles from shore (as stipulated in Alternative 3) to minimize impacts on other coastal animals. The limit on harvested, struck and lost ENP whales would be the same as in Alternative 6 (i.e., up to 4 harvested and 7 in two years with the same limit on struck and lost). Additional limits on harvest or mortality of PCFG whales would be similar to Alternative 5 which limits mortality to 10% of the PBR or approximately one whale killed in a 4 year period and animals struck but not landed would count as a PCFG whale in proportion to their presence in the area at the time of the hunt. With regard to the duration of the waiver, the waiver period would end after 10 years with permits granted for 3 years as is stipulated in Alternative 6.[56] It would be useful, if not imperative, to provide an additional action alternative that combines the various precautions (e.g., limiting permit length, counting strikes not landed, providing the shortest possible season or prescribed area to reduce likelihood of killing a PCFG or WNP gray whale and so on). As NMFS has already considered these various aspects of a hunt in its NEPA analysis, the agency would not be required to reinitiate the public process in creating a new alternative that incorporates these aspects. [56] The various strictures under each Alternative are summed in DEIS Table 2-1 which also references more detailed descriptions in the narrative under each alternative presented in that chapter.	illuminate relevant effects and impacts of alternatives to inform decisionmaking.
549	Young (Humane Society of the US)_7-30-15	However, we reiterate our support for the No Action alternative which avoids all adverse conservation and welfare-related impacts on the whales and other animals in the marine environment.	Comments noted.
550	Young (Humane	**There Are Adverse Impacts that were not Adequately Considered** <u>Aesthetics</u>	DEIS Subsection 4.12 (Aesthetics) did consider the effects on observers who

Sort #	Commenter Code	Comment	Response
	Society of the US)_7-30-15	In discussion of possible impacts, NMFS discusses whether or not whale watching or tourism might be affected and incur fiscal costs and this risk is largely dismissed as trivial; however, in the discussion in Chapter 5 of "aesthetics" there is an even more blithe dismissal of human impacts from the hunt, saying merely that there may be "some temporary aesthetic effects" to people viewing the hunt on media or from local vantage points. Although NMFS predicts that there will be animals struck and lost, we were unable to find a discussion of impacts on members of the general public if they are on the water either in a commercial whale watching boat or a private vessel and are not intending to view the hunt but are subjected to the sight of a harpooned and dying gray whale that was struck and lost as it fled to an area outside of the immediate hunt area and into an area where the public would not be expecting to see such a sight. The public has a well-documented and visceral response to seeing stranded or entangled whales. In those cases, the public often immediately seeks help for the whale that they perceive as suffering. In the case of an intentional hunt in which a whale is struck and lost and swims off injured, the public may well be subjected to seeing a harpooned whale that is injured and likely dying.[57] The U.S. Coast Guard photograph below is of the whale that was illegally harpooned in 2007. One can readily imagine the horror of the public encountering such a sight. The visceral reaction of the public is likely to affect their image of the Makah tribe when they learn the reason for the animal's suffering. This impact to members of the public who had not wished to view the hunt or its lethal consequences and to the resultant adverse public perception of the tribe was not considered. [photo of harpooned whale in motion on the surface of the water; see p. 15 of the letter] [57] Figure 5-3 in the DEIS shows a plethora of whale watching ports ringing the potential hunt area, all well with the range in which a seriously injured whale may attempt to flee.	may be present at sites with direct views of a whale hunt (including views of a whale dying, being towed to shore, and/or being butchered), as well as observers who may see such images through various media outlets. Also, numerous comments received on the DEIS express concern about such impacts and these will be considered when we identify a preferred alternative in the final EIS.
551	Young (Humane Society of the US)_7-30-15	Costs to U.S. Taxpayers NMFS acknowledges that hunt protests are likely and the agency estimates a cost of $5.5 million for security over a 60 day period—most of it falling to the U.S. Coast Guard (USCG)—which would need to address the security of hunters in the presence of passionate hunt protesters. There are at least two concerns here that do not appear to be considered. First, a cost of this magnitude has almost surely not been budgeted by the Administration. As such, the multi-million dollar security cost of facilitating the hunt are likely to be borne at the expense of other USCG enforcement programs (e.g., USCG fishery enforcement,	Comments noted.

Sort #	Commenter Code	Comment	Response
		drug interdiction or other important enforcement functions) or, alternately, supplemental funds will have to be allocated to this hunt. The cost of security surrounding any hunt should be borne by the tribe, not the U.S. taxpayer as it is the tribe and not the taxpayer who wishes to see whales killed. Nor should these costs come at the expense of other aspects of the USCG enforcement mission which is a fiscal impact not considered. Further, these costs incurred in protecting the hunt, if borne by the American taxpayer, would be borne by a public that, by and large, does not support killing whales for any reason.[58] Thus, taxpayers are being asked to subsidize the Makah hunt at a cost of over 5 million dollars, even though most members of the public would almost surely not support their tax dollars being used to enable such an enterprise. [58] Several different surveys of the whale watching public have been conducted. A California survey, found that 75% of those surveyed responded that it was 'morally wrong' to kill whales; a survey in Vancouver using a scale of 1-5 with 5 being "strongly agree" had a score of 4.47 given to the statement "it is wrong to kill whales" and a survey of New England whale watchers found 83% agreed it was 'morally wrong' to kill whales regardless of the reason. Cited in: Hoyt, E. and G. Hvenegaard. 2002. A Review of Whale-Watching and Whaling with Applications for the Caribbean. Coastal Management. 30: 381-399. Available at. http://www.cetaceanhabitat.org/pdf_bin/cmg-p381-399.pdf.	
552	Young (Humane Society of the US)_7-30-15	**Cumulative Impact Analysis** azimpacts to affected gray whale populations that include population level impacts from global climate change that may affect prey resources and individual reproductive fitness; impacts from mortality resulting from commercial fishing and shipping; adverse effects from intense sound generated in Defense Department-related activities; and the potential risk from oil and gas exploration and extraction. However, though the effect of each of these impacts is assessed individually in the DEIS; there appears to be no attempt to look at their cumulative impact. This is of particular concern for the ESA-listed WNP whales that venture into the area or the smaller stock of PCFG whales where cumulative impacts to these stocks may push them past a tipping point and away from recovery. Chapter 5 of the DEIS acknowledges that, "given the small size of the WNP stock and the very limited data on the occurrence of whales observed in the WNP in the analysis area, it is speculative to predict whether appreciable effects would be expected from any of the activities assessed in Subsection 5.1.3, Past,	In our cumulative effects analysis we asses each of the affected resources and provide a conclusion regarding impacts. For example, for Marine Energy and Coastal Development Projects (DEIS Subsection 5.1.3.6) "...we conclude that marine energy and coastal development projects are reasonably foreseeable future actions that could impact gray whales in localized areas of their range in the ENP. However, it is speculative to predict the likely extent or impacts from most of these types of projects. Oil and gas exploration and development are the most likely

Sort #	Commenter Code	Comment	Response
		Present, and Reasonably Foreseeable Future Actions."[59] But, indeed, that is what this analysis is supposed to do: speculate on the cumulative effects. In any case, although Chapter 5 provides a fairly thorough analysis of the past, present and reasonably foreseeable future actions, the impacts are viewed individually and we see nowhere that these are summed in a truly cumulative impact analysis. [59] DEIS, at 5-36.	activities, but impacts would depend on the location, timing, and magnitude of disturbances (e.g., construction noise or accidental oil spills).
553	Young (Humane Society of the US)_7-30-15	**Impact on the Regulatory Environment** As NMFS acknowledges in its impact analysis, some Northwest Indian tribes traditionally harvested and used products from seals, sea otters, and other marine mammals. Northwest Indian tribes have, in the past, expressed an interest in harvesting marine mammals. This is true of other tribes outside of the northwest as well, though these other tribes and areas were not mentioned in the analysis.[60] NMFS also acknowledges that authorizing a Makah hunt may prompt other requests by Indian tribes for a similar waiver of the MMPA. The agency says that the outcome of future requests would depend on the specific facts presented. Authorization of this hunt has significant precedential impacts that are glossed over in a discussion of impacts of the hunt. [60] In 1998, in the midst of a fishery management dispute, the Passamaquoddy tribe of Maine killed several harbor porpoises in Canadian waters and subsequently met with U.S. officials asserting "a sacred right" to hunt harbor porpoise off the coast of Maine. This dispute remains unresolved. See the Passamaquoddy tribal resolution at: https://atlanticalive.wordpress.com/2008/05/04/passamaquoddy-tribes-stand-on-porpoise-hunting/	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
554	Young (Humane Society of the US)_7-30-15	**Conclusion** We can only support the No Action Alternative.	The concluding comments in #553 through # 559 are noted. Responses were provided above.
555	Young (Humane Society of the US)_7-30-15	The hunt as proposed by the Makah tribe, and even in most of the action alternatives, contains a real and not-insignificant risk of an endangered WNP or remnant PCFG gray whale or a female being unintentionally killed.	
556	Young (Humane Society of	Much of the weaponry proposed is likely to result in a prolonged and inhumane death.	

Sort #	Commenter Code	Comment	Response
	the US)_7-30-15		
557	Young (Humane Society of the US)_7-30-15	In all but Alternative 5, there is an excessive struck/lost ratio.	
558	Young (Humane Society of the US)_7-30-15	NMFS failed to offer an action alternative that combined the more conservative aspects incorporated in some but not all other action alternatives;	
559	Young (Humane Society of the US)_7-30-15	further, not all non-whale impacts of the hunt were properly considered.	
560	Young (Humane Society of the US)_7-30-15	Importantly, the proposed gray whale hunt is not a subsistence hunt, but is proposed for "cultural" reasons by a tribe that has not legally hunted gray whales in almost a century. This proposed ceremonial hunt is a far cry from the true subsistence hunts that occur in Alaska and, if approved, will set a dangerous national and global precedent for proposing and approving similar take of otherwise protected animals largely on the basis that a native tribe used to hunt them a century or more ago. Sincerely, Sharon B. Young Marine Issues Field Director The Humane Society of the United States syoung@humanesociety.org	
561	AWI_3-2-15_-_Final_Letter_to_Steve_Stone_NMFS_Makah_Whaling_EIS_3-2-15.pdf	Re: Impending release of Draft Environmental Impact Statement on whaling by the Makah Tribe Dear Mr. Stone: On behalf of the undersigned organizations, I am writing to request that the National Marine Fisheries Service delay the publication of its notice announcing the availability of the Draft Environmental Impact Statement (DEIS) on whaling by the Makah Tribe until upcoming meetings relevant to the gray whale are concluded and any information from these meetings can be	On March 5, 2015, we notified AWI that we would be monitoring and participating in the meetings noted and would proceed with our scheduled release of the DEIS. These meetings occurred and information developed has been incorporated into NMFS SAR process and will be

Sort #	Commenter Code	Comment	Response
		incorporated into the DEIS. Specifically, the undersigned organizations are aware of two upcoming meetings that will discuss gray whales, their status, and their management. The first, scheduled for April 1-3, 2015 in La Jolla, California is a technical workshop (the second such workshop) organized by the International Whaling Commission's Scientific Committee (IWC SC) to perform a range-wide review of the population structure and status of the North Pacific gray whale. The second, to be held in San Diego, California from May 20 to June 4, 2015, is the annual meeting of the IWC SC where gray whale conservation and management will be a topic of discussion. Considering that both of these meetings may produce data and evidence directly related to the analysis contained in the DEIS, it is difficult to understand why NMFS would publish the DEIS ahead of these meetings instead of waiting to integrate relevant information from these meetings into the analysis. The undersigned organizations understand that the Makah Tribe and others may be eager to have the DEIS published for public review. However, considering the years taken to prepare this DEIS, waiting a few additional months to publish a more complete document that includes the most recent and relevant gray whale information from these upcoming scientific meetings is warranted and justified. Thank you in advance for considering this request. Should you have any questions about this request or should you elect to provide a response, you can contact me at susan@awionline.org. Sincerely, Susan Millward Executive Director cc: Ms. Eileen Sobeck, Assistant Administrator for Fisheries, National Marine Fisheries Service Mr. Russell Smith, United States Commissioner to the International Whaling Commission and Deputy Assistant Secretary for International Fisheries, National Oceanic and Atmospheric Administration Ms. Donna Darm, Assistant Regional Administrator, Protected Resources Division, National Marine Fisheries ServiceDr. Rebecca Lent, Executive Director, Marine Mammal Commission On behalf of: Australians for Animals California Gray Whale Coalition Cetacean Society International Dolphin Connection Green Vegans/The New Human Ecology Humane Society International In Defense of Animals International Marine Mammal Project of Earth Island Institute Peninsula Citizens for the Protection of Whales Whale and Dolphin Conservation	incorporated into future decision-making on the Makah Tribe's request.
562	AWI_3-27-15_-_Final_Letter_to_NMFS_Requesting_	Dear Mr. Stone: On behalf of the undersigned organizations representing members and constituents in the United States and internationally, I am writing to request a 60-day extension in the deadline for public comments on the Draft Environmental Impact Statement (DEIS) on the Makah Tribe Request to Hunt	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.

Sort #	Commenter Code	Comment	Response
	Extension_in_Makah_DEIS_Comment_Deadline_3-27-15.pdf	Gray Whales. As further explained below, the undersigned organizations believe that this request should be granted to ensure that all stakeholders, regardless of their perspective on this issue, are provided sufficient time to fully evaluate the DEIS, the referenced studies, and new information in order to produce substantive and informed comments for consideration by the National Marine Fisheries Service. Should this request be granted, the new deadline for public comments on the DEIS would be on August 10, 2015. The undersigned organizations assert that this request should be granted for the following reasons: 1. Public participation is fundamental to the National Environmental Policy Act (NEPA). The Council on Environmental Quality's regulations implementing NEPA emphasize the role and value of the public's participation in the NEPA decision-making process both to ensure that the public is aware of the government's activities but also to provide the public with an opportunity to review and evaluate the environmental impacts of the government's actions. Specifically, NEPA requires federal agencies to: NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. 40 CFR §1500.1(b). Furthermore, NEPA mandates that federal agencies "encourage and facilitate public involvement in decisions which affect the quality of the human environment. Id. at §1500.2(d). Similarly, the National Oceanic and Atmospheric Administration's Order 216-6 on implementing NEPA specifies that "public involvement is essential to implementing NEPA" noting that agency officials "must make every effort to encourage the participation of affected Federal, state, and local agencies, affected Indian tribes, and other interested persons throughout the development of a proposed action and to ensure that public concerns are adequately considered in NOAA's environmental analyses of a proposed action and in its decisionmaking process regarding that action."1 While the undersigned recognize that the existing 90-day comment period is often standard for Environmental Impact Statements, given the importance of this issue, the inherent controversy, and for other reasons articulated herein, an additional 60 days is essential to satisfy the clear intent of the public participation provisions under NEPA. 2. The length of the DEIS warrants providing additional time for its review. The DEIS is 1,230 pages in length and includes over 1,300 references. The length and content of the DEIS reflects the complexity, controversy, and	

Sort #	Commenter Code	Comment	Response
		seriousness of the action under review. As NMFS is aware, this controversy is not fabricated but reflects genuine legal (domestic and international) and scientific disputes over the Makah Tribe's interest in whaling and whether the action is permitted by treaty, can be authorized under federal law, is consistent with international treaties, and what effect whaling could have on the Eastern North Pacific (ENP) gray whale (migratory population), the Pacific Coast Feeding Aggregation of ENP gray whales, and Western North Pacific gray whales. Consequently, to properly review all relevant legal, scientific, and other information, including information that is not referenced in the DEIS, additional time beyond the present 90 day comment period is required. 3. The DEIS comment period overlaps with the upcoming International Whaling Commission's Scientific Committee meeting. The current deadline for public comments on the DEIS is June 11, 2015 which is only seven days after the IWC's Scientific Committee's meeting in San Diego, CA will end. Some of the scientists attending the IWC's Scientific Committee meeting are also interested in and intend to participate in the review of the DEIS. Among non-governmental organizations, Dr. Naomi Rose of the Animal Welfare Institute is one scientist who will be attending the IWC's Scientific Committee meeting while also participating in the review and preparation of comments on the DEIS. Undoubtedly there are other scientists affiliated with non-governmental organization, universities, government agencies (US and foreign), the Makah Tribe, and private research institutions that intend to participate in the DEIS decision-making process. Considering the time necessary for these individuals to prepare for the IWC Scientific Committee meeting not to mention the two weeks consumed by the meeting itself, it is unfair to these individuals and antithetical to facilitating their ability to participate in the decision-making process by requiring comments on the DEIS to be due only seven days after the IWC Scientific Committee meeting ends. By providing an additional 60 days, NMFS will facilitate such expert participation in the decision-making process. 4. The DEIS does not include new information relevant to gray whales that will result from upcoming scientific meetings. As NMFS is aware, in addition to the IWC's Scientific Committee meeting an IWC intersessional workshop on gray whales will be held in La Jolla, CA from April 1 to April 3, 2015. Both the La Jolla workshop and the IWC's Scientific Committee meeting will result in reports that contain new findings, conclusions, or information relevant to the analysis of the environmental impacts contained in the DEIS. While the undersigned organizations recognize that NMFS intends to incorporate such information into	

Sort #	Commenter Code	Comment	Response
		its decision-making process, NEPA requires that such information be available for the public to consider and evaluate as they prepare substantive and informed comments on the DEIS. To accommodate public review of the results of these scientific meetings, extending the comment deadline by 60 days is essential. An additional 60 days would be sufficient to ensure that the public will have sufficient time to evaluate both the results of the La Jolla intersessional workshop and the report of the IWC's Scientific Committee meeting and to incorporate any relevant information into their comments on the DEIS. 5. Providing the requested extension will not harm any party and will serve only to improve and strengthen the decision-making process. Extending the comment deadline on the DEIS for 60 days as requested will not harm the Makah Tribe or any other entity that may support the tribe's request. Nor will such a delay adversely affect NMFS or any other governmental entity. Indeed, as is clear from the DEIS, the NEPA process is only one of several decision-making processes that need to be completed before any final action can be taken. An extension in the comment deadline, however, would benefit every interested stakeholder by providing the additional time required to properly and comprehensively evaluate the environmental impacts associated with allowing the Makah Tribe to whale. The NMFS, in particular, would benefit by ensuring that it receives substantive and informed comments from the public, including scientists, which will only strengthen its decision-making process. For the foregoing reasons, the undersigned organizations respectfully request that the NMFS extend the comment period on the DEIS on the Makah Tribe's Request to Hunt Gray Whales by 60 days until August 10, 2015. Thank you in advance for considering this request. Should you have any questions about this request or to reply to this correspondence, please contact me at susan@awionline.org , by telephone at 202-446-2123, or by mail at the address provided below. Respectfully, Susan Millward, Executive Director Animal Welfare Institute 900 Pennsylvania Avenue, SE Washington, DC 20003 Cc: Ms. Eileen Sobeck, Assistant Administrator for Fisheries, NOAA Fisheries Ms. Donna Darm, Associate Deputy Regional Administrator, NOAA Fisheries, West Coast Region Dr. Rebecca Lent, Executive Director, Marine Mammal Commission On behalf of: Australians for Animals California Gray Whale Coalition Cetacean Society International Dolphin Connection Green Vegans/The New Human Ecology Grupo de los Cien, Mexico Heart and Paws Animal Healing The Humane Society of Canada In Defense of Animals International Marine Mammal Project of Earth Island Institute Lifeforce Foundation, Canada Marine Connection NY4Whales.org OceanCare Ocean	

Sort #	Commenter Code	Comment	Response
		Friends, WA Origami Whales Project Peninsula Citizens for the Protection of Whales reEarth Voice for Animals Humane Society Whale and Dolphin Conservation The Whaleman Foundation World Animal Protection 1 NOAA Administrative Order Series 216-6 May 20, 1999 ENVIRONMENTAL REVIEW PROCEDURES FOR IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT (available at: http://www.nepa.noaa.gov/NAO216_6.pdf	
563	Bell_4-29-15.pdf	As long as the gray whale is not listed as an endangered species and the request has time limits as to its duration so that any change in the gray whale population can be reconsidered, I believe that the Makah treaty should be honored to allow them to hunt whales. They as a tribe should be allowed to monitor their own ethical and spiritual rituals regarding the details of the hunt. As a culture and people, they have been doing this in regards to their food sources for thousands of years. I do not believe non-Makahs have a right to comment on the value of this cultural tradition to them as a people.	Comments noted.
564	Bowen_4-29-15.pdf	NOAA NMFS Does not address in any portion of the DEIS the impact to safety infrastructure, such as the lack of availability of police, EMT, emergency services to the local communities because those services have to be retasteed to support the exercise of the hunting rights. We are left out in the cold and it's the NOAA NMFS obligation to solve this.	Subsection 4.14 (Public Services) analyzes the potential for a whale hunt and hunt-related activities to impede the ability of law enforcement to maintain order, and medical professionals and facilities to treat injuries. Subsection 4.13 (Transportation) discusses the potential for the alternatives to have transportation related effects on access by emergency vehicles.
565	Capozzelli_6-2-15	RE: Please Deny the Makah Tribe's Request to Resume Hunting Whales I am writing to ask the NMFS not to allow a whale hunt in U.S. waters. The Makah Tribe located in Washington State has requested to resume hunting of eastern North Pacific gray whales, an act they have not done legally since the 1920s. Whaling is an archaic practice that has no place in today's society. The methods used to hunt whales are cruel. Whaling is inherently inhumane, with whales being harpooned from a moving vessel on a moving ocean. But even the most advanced whaling methods cannot render the animals insensitive to pain prior to death. (Some whalers use harpoons fitted with penthrite grenades, which penetrate the whale's body and then explode, releasing claw-like protrusions to rip into the flesh.)	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
566	Capozzelli_6-2-15	The Tribe has requested that it be allowed to hunt up to five whales per year, and there is no way to ensure they will not take a whale from the endangered western Pacific stock of gray whales. If even one of the endangered western Pacific gray whales were killed, it would be devastating for their recovery.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
567	Capozzelli_6-2-15	Tradition should not serve as an excuse for the slaughter of these animals, especially when that tradition has not been practiced legally in nearly one hundred years. Though there are things which may be considered "tradition," it is in human nature to shed past traditions that become barbaric in light of advancements in knowledge and ethics. It has been wisely said, "... laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regimen of their barbarous ancestors."	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
568	Capozzelli_6-2-15	Instead of returning to whaling, the Makah Tribe could rely on non-lethal ceremonial celebrations of these amazing creatures that traverse their waters, celebrating life instead of killing. Please deny the Makah Tribe's request to resume the hunting of whales off the west coast. Thank you for your help on behalf of our ocean's whales. Yours truly, J. Capozzelli 1 315West90" Street New York, NY 10024	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
569	Capozzelli_7-17-15	I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. I support Alternative 1, the no-action alternative. I respect the Makah and the tribe's culture, but I am strongly opposed to the proposed hunt because: the Makah do not have a nutritional and subsistence need for whales the hunt could further imperil both the resident and Western North Pacific gray whale populations the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS the proposed hunt is inherently cruel I agree with the following comments I have read: The Makah do not have a nutritional and subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why the NMFS should deny the Makah's proposal.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
570	Capozzelli_7-17-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by the NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
571	Capozzelli_7-17-15	The NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is one of several deficiencies in the DEIS. The NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative like whale watching would enable the Makah to reconnect to the gray whale without killing, would bring revenue to the tribe, would provide additional employment to Makah tribal members, and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
572	Capozzelli_7-17-15	The NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats are most serious and include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, fishing bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just several of the activities that impact or will impact gray whales. None of these threats was adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
573	Capozzelli_7-17-15	The proposed hunt is inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, the NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding humaneness of a whale hunt.
574	Capozzelli_7-17-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed,	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
575	Capozzelli_7-17-15	and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
576	Capozzelli_7-17-15	Though some things may be considered "tradition," it is in human nature to shed past traditions that become barbaric in light of advancements in knowledge and ethics. It has been wisely said, "... laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regimen of their barbarous ancestors." Thank you for your consideration. Yours truly, J. Capozzelli New York, NY	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
577	Chamblin_6-2-15	Hello distinguished guest, council, and community. I am Ba' Ba' Sit – my English name is Carlton Chamblin.I am the oldest grandson of the late Clifford Johnston Sr., whom was the oldest grandson of Ba Ba' Sit Andrew Johnston whom killed the last whale in 1907 and signed the Treaty of Neah Bay. While I was in college in 2010 I developed a legal paper that set forth the argument that the Makah Indian Reservation was established to create a more efficient whaling economy, – and it set forth the argument that Winters Waters Rights are applicable to the Makah whaling issue. Under Winter Water Law, users of water are assigned appropriation dates when they began utilizing a water resource or regulating a water resource. In this light the Marine Mammal Protection Act (MMPA) would have an appropriation date as of the date of enactment – 1972. The MMPA is a competing user, as it seeks to prevent whaling. The Makah Treaty has an appropriation date of 1859—when our treaty was ratified by the U.S. Senate. Because the Marine Mammal Protection Act has a subordinate or newer appropriation date in relation to the Makah treaty the strictures contained within the MMPA do not apply to Makah whaling. The MMPA is an ambiguous Act, in one sentence it purports to protect endangered mammals while granting Alaska Natives an exemption to harvest the same mammals it's supposed to protect. Alaskan Natives sold out their aboriginal rights in the Alaska Land Claims Settlement Act and when they realized this they re-negged on the deal. Hurriedly Congress/Senate passed a quasi-restoration act in the form of the MMPA. The Makah never sold out or relinquished our whaling – and under Winters Water Law Makah whaling is not lost to non-use. Alaskan whaling is allowed under	Comments noted. The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.

Sort #	Commenter Code	Comment	Response
		Executive Order, and they have no constitutional support. Makah whaling on the other hand is buttressed by the U.S. Constitution. Article 6, Clause 2 of the Constitution holds that treaties are the Supreme Law of the Land. In U.S. v. Washington the U.S. Supreme Court acknowledged this fact and reminded state legislators "that when you regulate a right that is protected by the Constitution that it must be narrowly tailored and sparingly applied. The NOAA process falls short of these requirements: The Makah Treaty according to the U.S. Constitution is superior to the MMPA and through the prism of the Winter Water Law: the MPA is subordinate. I presented this to my tribal council several times – to no avail. So now I present this to you on behalf of my family, myself, and all Makah whales. Lastly I would like to say for the record that when Justice Arnold told the whalers in the "illegal hunt" they could not cite either spirituality or the treaty right as an affirmative defense it was because of this white judges efforts to diminish our treaty whaling right that I created this argument on behalf of Makah whaling. Klecko-Klecko Carl Chamblin P.O. Box 10 Neah Bay, WA 983571) Minutes of Treaty of Neah Bay 12 stat 939	
578	Comment from Alicia Godreau	There are many reasons to protect ALL whales; among those reasons are: (1) Whales play a very important role in the biodiversity of their environment;	The DEIS evaluates the impacts of each alternative on the marine environment, including pelagic and benthic habitats and species (see Subsection 4.3.3, Evaluation of Alternatives).
579	Comment from Alicia Godreau	(2) Whales are among the most cognitively developed species living in the oceans.	Comments noted.
580	Comment from Alicia Godreau	(3) Protecting them because they are living beings;	Comments noted.
581	Comment from Alicia Godreau	Therefore, tradition and culture must not be a basis for slaughter, more so, when it is not necessary for sustenance. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
582	Comment from Alicia Godreau	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
583	Comment from Alicia Godreau	There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
584	Comment from Alicia Godreau	In conclusion, whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely.	Comments noted.
585	Comment from Anonymous Anonymous	Thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. I would like to urge you to adopt Alternative 1 No Action for the following reasons:1.The Treaty of 1855 states the that the Makah reserve the right to whale and fish in usual and accustomed places in common with all citizens of the United States. The last portion of that sentence tends to be left out of written descriptions regarding this issue, but it is an important one to consider. It implies that the Makah share the same rights as other U.S. citizens when it comes to whaling and the United States is not currently a whaling nation.	The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.
586	Comment from Anonymous Anonymous	2. Gray Whales are the focus of an enormous ecotourism industry along the entire coast of North America from Alaska to Baja California. In the breeding lagoons of Mexico, gray whales are known to be friendly and approach boats soliciting interaction with humans. As someone who works in the ecotourism industry in Baja I have frequently heard visitors express their concern about the threat of hunting these whales who have been become so trusting of humans, and that perhaps they shouldn't be taking part in whale watching for that reason. A renewed gray whale hunt could jeopardize the whale watching industry along this migratory corridor, and this should be taken into consideration.	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
587	Comment from Anonymous Anonymous	3. The Pacific Coast Feeding Aggregation (PCFA) of gray whales numbers in the low hundreds and previous research has suggested that it may be a genetically distinct sub-population. Likewise, the Western Pacific gray whale population numbers only approximately 130 individuals and is also thought to be genetically distinct. The taking of a whale from either of these populations could be devastating and is unacceptable. While the status of the Western gray whale has recently been called into question due to new research results, it is imperative that more research be conducted on both of these populations before a hunt is considered or authorized. 4. There is no way to plan timing of a hunt in such a way that will ensure that a whale from either the PCFA or the Western Pacific population will not be harmed. Since we still know so little about the Western gray whale it is impossible to determine which months they might be passing by	Comments noted; hunt observers are a common element under all action alternatives as described in DEIS subsection 2.3.2.2.12 (Other Environmental Protection Measures)

Sort #	Commenter Code	Comment	Response
		Washington State. Likewise, limiting a hunt to the spring and fall months when the PCFA is not likely to be present, will instead target migrating whales, including potentially pregnant females and Western gray whales. The only way to ensure that this doesn't happen is to have an expert gray whale researcher on board the whaling vessel to identify every whale being targeted by the Makah, and that does not seem feasible or likely.	
588	Comment from Anonymous Anonymous	5. The area where the Makah will be hunting also happens to be habitat for endangered Southern Resident killer whales and humpback whales as well as other marine mammal species protected by the Marine Mammal Protection Act. It is unacceptable to allow the use of a high powered rifle in an area that could pose to a threat to any of these animals especially the critically endangered Southern Residents which were just listed as one of the 8 species most likely to go extinct.	Comments noted. Subsection 4.5.2.1.1, "Marine Mammals (Excluding Gray Whales)," discusses the impact of the alternatives on marine mammals, including ESA-listed mammals such as Southern Resident killer whales and humpback whales.
589	Comment from Anonymous Anonymous	6. There is no way to kill a whale quickly and humanely. Even with a high caliber rifle that is meant to decrease time to death, these sentient mammals take several minutes to hours to die and it is most certainly an agonizing, painful and terrifying death.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt
590	Comment from Anonymous Anonymous	7. When the treaty of 1855 was written, whales were thought of as little more than large fish species that were only valuable for human use and consumption. Since then we have learned much more about whales and their intrinsic value, not as a resource but as sentient intelligent animals. Their social structures and communication abilities are still poorly understood but could be very complex. They have large well developed brains and possess the ability to feel pain, loss and grief.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
591	Comment from Anonymous Anonymous	While I am supportive of indigenous peoples trying to regain their culture and sense of community in general, I feel very strongly that it is wrong to knowingly cause a sentient animal pain and terror and to take its life simply for the sake of culture. There is much we still need to learn about every aspect of gray whale life and social structure before we can and should consider the proposal to resume whaling. I understand that you chose not to consider the alternatives brought forth by individuals during the last comment period. But I strongly urge you to reconsider that and to encourage and help the Makah Nation to establish a whale watching business using a traditional whaling canoe. In this way they can revive and teach visitors about the customs and culture of whaling without harming the whales. Thank you for your consideration.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
592	Comment from Barb	Dear NOAA, I am writing in opposition to your granting the Makah a waiver, and a permit to hunt gray whales off the Coast of Washington State. You cannot go	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
	Schmidt (posted 5/12/15)	around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington, Oregon, California Coastlines on their way to the birthing bays. In 2015 there is no need to kill whales. The Makah Tribe has access to food, clothing and traditional history. Tradition is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Tribe's desire to revive its whaling tradition.
593	Comment from Barb Schmidt (posted 5/12/15)	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
594	Comment from Barb Schmidt (posted 5/12/15)	If you allow the Makah whalers to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition that has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon, Washington and California Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
595	Comment from Barb Schmidt (posted 5/12/15)	In closing I want to reiterate that I oppose any permit to allow the Makah whalers to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason. It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Barb Schmidt	Comments noted.
596	Comment from Barb Schmidt (posted 7/20/15)	These are 12 reasons I oppose the killing of the whales by the Makah...1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
597	Comment from Barb Schmidt (posted 7/20/15)	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to Frequent Comment # 8 regarding the Treaty of Neah Bay.
598	Comment from Barb Schmidt (posted 7/20/15)	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
599	Comment from Barb Schmidt (posted 7/20/15)	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
600	Comment from Barb Schmidt (posted 7/20/15)	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
601	Comment from Barb Schmidt (posted 7/20/15)	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
602	Comment from Barb Schmidt (posted 7/20/15)	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
603	Comment from Barb Schmidt (posted 7/20/15)	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
604	Comment from Barb Schmidt (posted 7/20/15)	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
605	Comment from Barb Schmidt (posted 7/20/15)	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
606	Comment from Barb Schmidt (posted 7/20/15)	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
607	Comment from Barb Schmidt (posted 7/20/15)	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
608	Comment from Barb Schmidt	12. Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. I think the picture I attached shows how much they respect	Comments noted.

Sort #	Commenter Code	Comment	Response
	(posted 7/20/15)	the whales. Shameful. How do I keep fighting the slaughter in other countries of whales when my own country might let people do the same thing. I will keep fighting them/us all, but it does not look like USA is any farther ahead than the other whale killing nations. Help us fight all the killing, and let the whales rebound and live.	
609	Comment from Bernice Curtis	please save these grey whales. this is outrageous. The whales must be saved!	Comments noted.
610	Comment from Brenda Robinson	I think it is disgusting that they are thinking of whaling all of a sudden; I am sure it is because they think they can make money like the Japanese do from killing whales. I hope these native respect the whales and do not start killing them. Respect the wishes of your dead elder who said you should respect the whales.	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
611	Comment from Calle Skidmore	The whales must be protected. It's that simple!	Comments noted.
612	Comment from Caroline Hobbs	To Whom it May Concern: The Makah people have utilized the seas as a significant aspect of their food and culture for thousands of years. The Treaty of Neah Bay, which was signed in 1855 gave the Makah the legal right to harvest whales in exchange for a portion of their land. It is clear that the Makah people respect the land and are sensitive to the scarcity of whales, they stopped hunting on their own for years. The revival of their tradition of hunting whale to be wholly utilized and treasured by their community has been very healing and an experience that has connected many Makah closely and tangibly back to their heritage. This connection is significant and unobtrusive. It is spiritual in a way that preserves their tribes culture and promotes connection and happiness. It is upsetting to me that the Makah Tribe has been forced to jump through so many loops when their Treaty rights clearly state that they have the right to take whales in exchange for land, land that was seized by the US government over 100 years ago. The Makah people have held up their end of the deal. It is unfair for the US Government to continuously wiggle around their end of this agreement by forcing the tribe to confront and resolve numerous legal obstacles. The scale of	Comments noted.

Sort #	Commenter Code	Comment	Response
		whaling proposed by the Makah tribe is insignificant in the larger context of whaling issues. Commercial whaling is immensely destructive and poses much more of threat to environmental safety and security than the Makah tribes proposed take. The Makah utilize every aspect of a whale in a rare and utterly sustainable way. In fact they hold this animal sacred and respect it and its needs in ways we cannot know. The NMFS should by all means waive the take moratorium of the Marine Mammal Protection Act and allow for treaty right hunting of eastern North Pacific gray whales. And furthermore, the Makah should be exempt from the legal battle that has zeroed in on them in an unjust way. The focus around whale protection should be centered on International commercial whaling issues, where there is more than enough room to add and improve regulations and protect animal rights. Sincerely, Caroline Hobbs	
613	Comment from Catherine Vade Bon Coeur	This is not 1815, it is 2015, and tradition is not a good reason to hunt and kill whales any more than it is a good reason to kill elephants and rhinos for their horns. It is time for all people to stop destroying our planet and it's inhabitants in the name of tradition.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
614	Comment from Cheryl Rorabeck	Dear NMFS, The fact that researchers have recently discovered that the severely endangered Western Gray Whales travel across the Pacific and utilize the area that the Makah claim are their huntings grounds, is enough to warrant the only choice of action as Alternative 1. Aside from the fact that a whale suffers a long and painful death at the hands of man, the Makah, if allowed to hunt, would be at risk of killing a race of whale that is nearly extinct. I encourage you to look at the research, and to consider the vast amount that we still do not know about these whales. Sincerely, Cheryl Rorabeck	Please see the response to frequent comment # 12 regarding risks to WNP whales.
615	Comment from Daniel Tham	Please do not allow the Makah Tribe to hunt whales.	Comments noted.
616	Comment from Denise Foster	Dear NOAA, Today I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines. In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	
617	Comment from Denise Foster	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today (and always, actually!) the goal should be to protect and celebrate their existence not harm.	Comments noted.
618	Comment from Denise Foster	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
619	Comment from Denise Foster	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason. It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely & Respectfully, Denise Foster	Comments noted.
620	Comment from Diana Marmorstein	It is possible to preserve a culture and a people without retaining its every tradition. Many cultures have had traditions that today are considered unethical, unjustifiable, or cruel. One example is the Mayan tradition of human sacrifice. Another anachronistic tradition that is also cruel and ecologically reckless is the killing of gray whales by the Makah.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
621	Comment from Diana Marmorstein	The Makah have not even maintained this tradition for nearly a century, so it is clear that they will not starve without whale meat.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
622	Comment from Diana Marmorstein	On the contrary, with all the persistent pollutants that marine mammals have absorbed in their bodies, the Makah would jeopardize their health by eating whale flesh.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
623	Comment from Diana	Some members of the Makah seek to kill whales again not for subsistence reasons; but only to revive this old tradition that has no place in modern society. There are many other elements of Makah tradition and society which can be	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
	Marmorstein	maintained without any controversy: language, architecture, crafts, boat building, etc. NOAA must put the welfare and survival of the gray whales ahead of an unnecessary, outdated tradition of a few people.	Tribe's desire to revive its whaling tradition.
624	Comment from Diane Loveless	Please dont let the Makah Tribes start hunting the grey whales ....they are still recovering their numbers ans its a tradition of these tribes that should belong in the past along with other outdated and unnecessary traditions and cultures that do not belong in our modern world , Humans are now educated and do not live in the stone age,	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
625	Comment from Diane Loveless	they do not need whale meat to live on, this is the thing of the past before they were modernised into western ways, they have other things they can eat that can provide enough protein to survive.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
626	Comment from Diane Loveless	To allow this to re start again is going against the World views and will only stir up hatred for these people let them join in with this new age and rejoice of the wonder and beauty of the whales, if its for money which I guess it is then whale watching is the way to go, perhaps help them get started in tourism along their shores thats where the money is and that is really what they want.... they are now modernised and their culture is long gone let the whales live in peace...Diane Loveless	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
627	Comment from Eva Kronen	To Whom it May Concern, I would like to comment against allowing the Makah Tribe to resume killing Grey Whales off the coast of Washington. I have been fortunate enough to visit the birthing grounds of these whales and have experienced the phenomenon of some of the whales coming up to the boat I was in and appearing quite curious about us and seemingly wanting to have contact. These whales exhibit an intelligence that can be compared to humans. These whales would be hunted.	Comments noted.
628	Comment from Eva Kronen	Whales, all whales, still risk an uncertain future: global warming, acidification of the oceans, human pollution, all take their toll. The recent oil spill is Santa Barbara Ca. is an example of the constant threats to these creatures.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
629	Comment from Eva Kronen	I respect the Makah's wish to resume their ancient tradition. However, cultures in order to continue to thrive need to be responsive to changing times.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
630	Comment from Eva Kronen	Although these whales may be off the threatened list, they are still threatened and there is no way to know which Gray whale is going to be harpooned and tortured until it dies.	NMFS has concluded that ENP gray whales no longer warrant designation as a threatened species under the ESA. There is a low likelihood (0.02%) of lethal take an ESA-listed WNP gray whale.
631	Comment from Eva Kronen	I believe that your organization can support the Makah to become stewards of these majestic creatures, teach their history and share it with the world. They can start whale watching businesses instead of killing them. They can be the stewards, not the slaughterer. Thank you for your consideration of my comment, Eva Kronen	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
632	Comment from Gayle Geren	Please do not allow this tribe to hunt Eastern North Pacific Gray Whales! The whales now trust humans, and tourism to see them is flourishing. It would be a travesty to turn on the whales now and allow them to be killed. There is no valid reason to allow them to be hunted, and every reason to protect them.	Comments noted.
633	Comment from James Duff	I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt as (1) the Makah do not have a nutritional and subsistence need for whales,	The introductory comments in # 632 through 635 are noted; specific responses are provided below.
634	Comment from James Duff	(2) the hunt could further imperil both the resident and Western North Pacific gray whale populations,	
635	Comment from James Duff	(3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and	
636	Comment from James Duff	(4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative.	
637	Comment from James Duff	I am also very opposed to this hunt because I believe in allowing animals to live on the planet they share with humans. It is my belief that no one knows how many whales existed before the whaling industry began exterminating to the point of extinction concerns. The worlds populations of whales has not ever recovered from 250 years of hunting them down in every ocean on Earth. Before man started killing animals with high-powered weapons there was a balance of nature on Earth, not this constant slaughtering we have been performing to the point of complete extinction of many species. Man's hunting of whales in these modern times makes no sense and shows nothing but total disregard and	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		contempt for nature. I am protesting the Makah whale hunting on principles of compassion for animal life on Earth and to show our children respect for animal life. Scientific analysis should incorporate factual data that shows a tangible value for Mercy, Compassion and Respect for Whales as living beings. I have an article link below that supports science value of Compassion and how it relates to the positive well being of human behavior. I have also included for review the 1980 United Nations World Charter For Nature below.	
638	Comment from James Duff	The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
639	Comment from James Duff	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
640	Comment from James Duff	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
641	Comment from James Duff	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of of these threats were adequately evaluated in the DEIS.	ENP gray whale population in the face of climate change and other threats.
642	Comment from James Duff	I believe the proposed hunt is inherently cruel, dangerous and unnessesarily shows others it is okay to harm injure and kill whales in modern civilized society. I disagree and think we should be world leaders in saving whales populations. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale.	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt, # 3 regarding the Makah Tribe's to revive its whaling tradition, and 4 regarding the precedential effect of waiver internationally and domestically.
643	Comment from James Duff	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
644	Comment from James Duff	We have enough food and do not ever need to eat whale products. Thank you for considering my views. Sincerely, James Duff 22498 Yerba Santa Rd Sonora, CA 95370-8251Compassion Article: http://www.psychologicalscience.org/index.php/publications/observer/2013/may-june-13/the-compassionate-mind.htmlThe United Nations 1980 World Charter For Nature; http://www.un.org/documents/ga/res/37/a37r007.htmUndersea Phosphorus mining in whales nursery grounds; http://www.bajainsider.com/environment/underwatermining.html#.VaQXn0V40fn	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
645	Comment from jean public	the makah tribe needs to stop killing whales. what existed in this world in l700 or some such previous time does not mean it can continue in 2012. we live in a world where such species are under extreme stress. they are killed by ships, by commercial fish profiteers who say they eat fish so they want them dead, etc. its time to stop the killing of whales by everybody in america. everybod. the makah tribe needs to move into 2012. the whales are gone for everybody. nobody should be killing them any more.	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
646	Comment from Kathy Carr	I am in opposition to the waiver of the marine mammal protection act for Makah whalers. Please do not pass this waiver. I just visited these same gray whales in Baja, CA, where the gray whale mothers were bringing their babies to the boats for people to touch and kiss. After whalers hunted these magnificent and	Comments noted.

Sort #	Commenter Code	Comment	Response
		intelligent creatures to near extinction, the whales are regaining trust in humans again. There is no reason to permit whaling in this day and age. We have done enough damage to these whales.Kathy	
647	Comment from Kirsten Massebeau	Dear NOAA, I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington, Oregon and California Coastlines. In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state. Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
648	Comment from Kirsten Massebeau	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon, Washington and California Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
649	Comment from Kirsten Massebeau	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale who have come to trust us, and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason protection from harm! It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Kirsten Massebeau	Comments noted.
650	Comment from Larry Heady	An honorable nation keeps its promises -- and that includes promises made to Indian Nations many years ago; promises made to secure the Euro-American land to settle on, to build on, to raise families and crops on. These promises were made both individually and collectively to Indian Tribes and their descendants for all time. They cannot be set aside for convenience or to assuage the conscience of the elect few.These treaties are not some old, antiquated documents relegated to history. They are living documents, as real as the deed to your	Comments noted.

Sort #	Commenter Code	Comment	Response
		house. In exchange for millions upon millions of acres of Indian lands and waters in North America, promises were made in treaties that must be honored so long as the United States and Indian Tribes exist here in North America. These treaties and the promises contained therein are payment on the mortgage of North America.There should be no further discussion about whether it is right or wrong to allow the Makah Nation the right to its own marine fisheries. These rights are inherent. These fisheries were not given to the Makah--they were retained by the Makah as their own, derived only from the Creator. These treaties stand as contracts that in exchange for Indian land, the marine fisheries would remain their own as they were from the beginning of time. There should be absolutely no interference with the Makah Nation's intent and ability to manage its own whaling. No agencies other than those of the Makah's own making should manage the harvest of Makah resources.Again, AN HONORABLE NATION KEEPS ITS PROMISES. Do not violate the terms of the Makah Treaty of 1855.	
651	Comment from Lisa Andrews	No whale hunting, ever, by anyone, period.	Comments noted.
652	Comment from Magnus Petersson	As a supporter of native rights I support this wholeheartedly. The Makah people has hunted and eaten whales for thousends of years and the whales are not endangered, so let them do it.	Comments noted.
653	Comment from Maris Sidenstecker	To Whom It May Concern: The Makah Tribe has no standing to ask for an exception to whale. First of all, it will not help the Indian tribe, they can find other and better ways of finding their way.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
654	Comment from Maris Sidenstecker	By machine gunning a whale who is friendly to the tribe the trust is broken and cannot be replaced. The gray whales have accepted humans and it is our duty to accept them. Can you imagine the shock a whale would feel to be peacefully swimming only to be hunted and killed. This is what they did previously and want to do again. It is not acceptable on any terms and the Makah have not shown any remorse over the unlawful killing of a gray whale.The killing of one whale, let alone five, must be denied.Maris Sidenstecker 478 Argos Circle Watsonville, CA 96076	Comments noted. The DEIS describes the NMFS investigation of the illegal hunt (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's

Sort #	Commenter Code	Comment	Response
			evaluation of the seriousness of their conduct.
655	Comment from Michael Ives	Dear Mr. Stelle,I am sending my disapproval of any change in status quo as it relates to the taking of north Pacific gray whales by the Makah tribe as being considered within the "Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales." My primary concern is the inability to satisfy the most basic of animal welfare requirements and regulations. The Humane Methods of Slaughter Act 7 U.S.C. 1901 requires all meat producers to render all farm animals insensible to pain prior to slaughter. There is simply no way that the killing of a large whale can consistently meet this most basic tenet of humane slaughtering. In fact, it would be a rarity that the gray whales killed in this proposed hunt would be killed in such a way that basic animal welfare requirements would be met. It is true that whales are wild animals and are not farm animals. However the intent of 7 U.S.C 1901 is to reduce animal suffering and your adoption of any alternative that results in whales (far more sentient and intelligent than farm animals) being needlessly slaughtered in a very inhumane way is both immoral and inconsistent with general animal welfare regulations.	Please see the response to frequent comment # 1 regarding humaneness of a whale hunt.
656	Comment from Michael Ives	It is also true that the Makah tribe has not demonstrated any genuine nutritional need to hunt and kill the gray whale.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
657	Comment from Michael Ives	A suitable alternative not explored by the U.S. government is the alternative of whale hunt re-enactment which would still provide a cultural experience to the tribe but would not result in the needless suffering of sentient animals nor risk the inadvertent killing of endangered west Pacific gray whales.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
658	Comment from Michael Ives	I am also deeply concerned of the precedent setting implications of accepting any of the action alternatives. At a time that the world is trying desperately to reign in rogue whaling countries like Japan, Norway and Iceland, you would inadvertently be sending the wrong message that whale hunting in the 21st century is a totally acceptable path forward. It is with a heavy heart that I see the Makah tribe lacks any vision or concern on this very point.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
659	Comment from Michael Ives	For these reasons I implore you to reject all action alternatives and to accept Alternative 1 as the only logical alternative in light of the issues I have raised.Regards, Michael Ives	Comments noted.
660	Comment from	This comment is in regards the proposed gray whale hunt. This tribe has needed this for years for survival. With world whale populations being low on every great whale species.	Comments noted.

Sort #	Commenter Code	Comment	Response
	Michael Vanderhorst		
661	Comment from Michael Vanderhorst	It is not right or Humane to let this tribe start a hunt once again. What message would be sending around the world if this is allowed. Please do what is right for the fellow Earthlings and respectfully deny this request.	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
662	Comment from Michele Jankelow	Please do not permit the application to go through for the Makah Tribe to hunt whales. This is opportunistic and tragic.	Comments noted.
663	Comment from Michelle Hayward	I am totally against the resuming of hunting grey whales by the Makah Tribe. Whilst the whale population may have recovered, this does not justify the killing of these magnificent animal for traditional reasons. Tradition is an excuse used by many nations; from Japan to Spain; to kill animals in barbaric ways for an unnecessary cause.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
664	Comment from Michelle Hayward	Whilst I am sure the Makah Tribe would use every scrap of the animal, they have managed for many years to survive without participating in such a brutal harvest. One look at the faroe Islands whale hunt shows the long drawn out deaths involved in such hunts. This should not be resumed under any circumstances.	Please see the responses to frequent comments # 1 regarding the humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
665	Comment from Mollie Baldwin	Dear NOAA, I am writing in opposition to your granting the Makah a waiver, and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington, Oregon, California Coastlines on their way to the birthing bays. Please do not allow this hunt to occur. I appreciate your attention. Mollie Baldwin	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
666	Comment from Nicholas Schomburg	I oppose the Makah Tribe's request to hunt Eastern North Pacific gray whales. Although the species has recovered well it still faces many threats such as entanglements, ship strikes and predation by orcas. Grey whales are also a valuable resource for whale watching.	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
667	Comment from Nicholas Schomburg	In addition allowing any whaling practice in the United States would be contradictory to its own policies. No whaling should be allowed at all within the United States or its territories. Other countries observe the actions of the United	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		States and allowance of whaling would make policies seem week and make it appear that whaling is okay.	
668	Comment from Nicholas Schomburg	This tribe has gone many years without the need to kill grey whales and has shown it can continue without using grey whales. The tribe has plenty of alternate food sources and killing grey whales would not significantly benefit their culture. Just because something is called culture it doesn't mean its okay or should be done. DENY the proposal to allow hunting of grey whales by the Makah tribe.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
669	Comment from Patrick Fowler	I am opposed to the Makah tribe's request because I feel that the eastern north pacific gray whales are very valuable and intelligent living creatures. They should no longer be killed by the Makah tribe.	Comments noted.
670	Comment from Patrick Fowler	I believe that the tribe can find better ways to sustain themselves that do not involve killing these highly intelligent animals.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
671	Comment from R Goodfellow	I am opposed to resumed whaling by the Makah Tribe for several reasons.First of all, the tribe fails to demonstrate a subsistence or nutritional need for whaling or whale products. Therefore, they do not qualify for an aboriginal subsistence whaling quota from the International Whaling Commission and should not be granted permission for this hunt by the United States government.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
672	Comment from R Goodfellow	The proposed hunt could potentially harm two populations of gray whales: the resident Pacific Coast Feeding Aggregation and the Western North Pacific, which number only 209 and 140 animals, respectively.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
673	Comment from R Goodfellow	While the main Eastern North Pacific gray whale population is much larger (nearly 21,000 animals), they and their habitat are subject to threats like climate change, contaminants, ocean noise, ship strikes, and net entanglement throughout their summering, wintering, and incredibly long migratory range and shouldn't be subject to a new threat posed by a hunt.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
674	Comment from R Goodfellow	Whaling is inherently cruel. In this case, given the inexperience of Makah whalers using harpoons or 50 mm shells, there is even less chance that any whale will be quickly or humanely killed.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
675	Comment from R Goodfellow	Allowing the Makah to resume whaling will effectively establish a new form of Aboriginal Subsistence Whaling with significant precedential impact to gray and other species of whales if other US Native American tribes or other aboriginal groups around the globe express interests in whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
676	Comment from R Goodfellow	The Makahs cultural need to whale is questionable since there is no evidence that a single whale needs to be killed in order for the Makah to continue to celebrate its historical connection to whales and whaling. Aboriginal people around the world continue to honor their past traditions without actually engaging in the practices which may no longer be socially acceptable, legal, or culturally appropriate. The Makah is a modern tribe by all appearances.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
677	Comment from R Goodfellow	I do favor a nonlethal use alternative such as the development of Makah-operated whale-watching tours would allow the Makah to humanely reconnect to the gray whale, bring revenue to the tribe, educate visitors about whales and marine conservation, and introduce visitors to the culture and traditions of the Makah Tribe. The Makah Tribes historic use of whales and the significance of whales to the tribes culture is important and should be acknowledged, but times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah Tribes relationship with gray whales should change to one of humane, nonlethal use.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's cultural and subsistence need for whale products and # 9 regarding non-lethal alternatives.
678	Comment from Roel Neijboer	Acknowledgments: For millions of years there have been living creatures on this Planet Earth, evolved out of the Oceans her hart and her veins. The twoleggeds, all fourleggeds, creatures of the waters, those that fly in the air, and those that crawl: I call you friends....."Everything as it moves, now and then, here and there makes stops. The bird as it flies stops in one place to make its nest, and in another to rest in its flights. A man when he goes forth stops when he wills. So the god has stopped. The sun which is so bright and beautiful, is one place where the god has stopped. The moon, the stars, the winds he has been with. The trees, the animals, are all where he has stopped, and the Indian thinks of these places and sends his prayers there to reach the place where the god has stopped and win help and a blessing", those are words from an old Lakota Wiseman (1890) and I thank him for them.Born shortly after World War-Two, April 18,1948, in the lands of the rivers in Holland, where the ebb- and flood tides of the sea still had their influences, I just had to reach out and nature was there. I made my first friends. To live on this planet is a mere blink of an eye in relation of the timescale but I'm grateful. If I were to list all who and what I would like to acknowledge it would be another book and I would regret overlooking or forgetting someone. For this reason I only mention my lovely daughter Tanja and my fine son Olivier, who from their birth have provided the inspiration of my life.My relatives and friends, please accept my love and gratitude for being a part of my life. April 18, 1998 roel neijboer.	Comments noted.

Sort #	Commenter Code	Comment	Response
		Preface: Going into the 21st century means to witness the last battle.The last battle in the war to conquer our mother Earth, which started in the 13th century. Nowadays there are excellent earth warriors against those forces which are responsible for the unprecedented genocide, ecocide and biocide. Captain Paul Watson, founder and president of Sea Shepherd Conservation Society, an all-volunteer society, is the most determined, most active and most effective defender of our Oceans and biodiversity. A pre-eminently Noble Man, he personifies nobility : a man able to resign his titles, his possessions and his rights, but never his duties, in the past 25 years of his life.His and our opponents are the pro-whaling forces, who managed to imprison him in Holland on false charges in 1997, Norway and Japan, in their battle to overturn the 11-year-old moratorium on commercial whaling, exploiting the base of our existence: the bio-mass in the Oceans.Ruining this bio-mass means ending 70% of the oxygen production. It means the end of Planet Earth.Worldwide there are 40,000 all-volunteer warriors under the flag of Sea Shepherd who are taking action. Worldwide there are millions who sympathize. Worldwide there are billions of people who are able and ready to join us.This essay is meant to be a contribution ; to our children and grand-grand children to let them know that it was a battle through the years in history.For me personally it is a response : I won't let it slide : J'accuse.Freedom is the right to be wrong, not to do wrong:In ancient times European people slowly came to act like an opportunistic virus: conquering, ruining, plowing up and pulling down, slaughtering anyone and everything. They had only one goal: to become a monoculture of one human species, or so it seems.Whatever this human species takes with one hand, he throws away with the other; eager to take the next mouthful. They became very successful changing their faces, their clothes and vocabulary as well. Their actions still are the same: in the name of freedom they do wrong! Biological Meltdown:"Gone forever are the European elephant, lion and tiger. The Labrador duck, giant auk, Carolina parakeet will never again grace this planet. Lost for all time are the Atlantic grey whales, the Biscayan right whales and the Stellar sea cow. Our children will never look upon the California condor in the wild or watch the Palos Verde blue butterfly dart from flower to flower.Each year, more than 20,000 unique species disappear from this planet forever. This represents more than two species per hour. More plant and animal species will go through extinction within our generation than have been lost thorough natural causes over the past two hundred million years. Our single human generation, that is, all people born between 1930 and 2010 will witness the complete obliteration of one third to	

Sort #	Commenter Code	Comment	Response
		one half of all the Earth's life forms, each and every one of them the product of more than two billion years of evolution. This is a biological meltdown, and what it really means is the end to vertebrate evaluation on planet Earth". (Sea Shepherd's Captain Paul Watson, essay 1995.) One-fourth of the world's species of Mammals are threatened with extinction and half of that number may be gone in a decade. (Report IUNC World Conservation Union, October 4th, 1996).Individual humans are for the most part insulated from the reality of species loss. Alienated from the natural world, wrapped in a cocoon of material pleasures, guided by anthropocentric attitudes, the average human being is unaware and non-caring about the biological holocaust that is transpiring each and every day. (Paul Watson, "The Politics of Extinction", essay, 1995.) Native Indian views: 1) A long time ago humans were vegetarians but once there was some point they had to take the life of a certain animal for food. After eating the humans started getting illnesses such as deer sickness and fish sickness.A council got together with all fourleggeds, creatures of the waters, and those that fly in the air. The natives gave them offerings and told them,"My relatives, we have great need for you in order to live.When we hunt, we'll try to kill you quickly so that you will not suffer. In time, our bodies will lie down inside this Mother Earth and something will grow there so that our animal relatives can sustain their own lives. A cycle will be formed, an exchange, for the continuation of all lives".....Children were not allowed to hunt until they became skilled with their weapons. They were taught the anatomical structure of each animal and exactly where to hit so it would die quickly and not suffer more than it had to. Offerings were made to honour the animal. Certain parts were buried at the base of a tree.So everything was based on generosity and respect. (lit.: The Wind is my Mother, Molly Larkin, Clarkson Potters, New York, 3/96, pp 21-23.)2) When we Indians kill meat, we eat it all up.When we dig roots we make little holes. When we built houses, we make little holes. When we burn grass for grasshoppers, we don't ruin things. We only use dead wood. But the White people plow up the ground, pull down trees, kill everything. (The old Wintu woman from Dorothy Lee, Freedom and Culture, Prenticr hall, Englewood Cliffs, 1959, pp. 163-164.)3) I can remember when the bison were so many that they could not be counted, but more and more Wasichus came to kill them until there were only heaps of bones scattered where they used to be. The Wasichus (White men) did not kill them to eat; they killed them for metal that makes them crazy, and they took only the hides to sell. Sometimes they did not even take the hides, only the tongues; and I have heard that fire-boats came down the Missouri River	

Sort #	Commenter Code	Comment	Response
		loaded with dried bison tongues. You can see that the men who did this were crazy. Sometimes they did not even take the tongues; they just killed and killed because they liked to do that. When we hunted bison, we killed only what we needed. (Black Elk Speaks, pp. 8, 9, 62, 217.). (note: Hehaka Sapa, or Black Elk, the great Sioux chief, over sixty and nearly blind, reflects upon the invasion, between 1863 and 1890 and sadly recounts the treatment of the buffalo).(T.C.McLuhan.)In only two years, between 1872 and 1874, the White invaders killed about 3.000.000 buffalos (3 millions). Ten years later the southern population was extincted and only 1000 bisons, from which two-third in Canada, were left.(Prariewolf en Raaf, Time-Life, Duncan Baird Publicers, p 10, 1997)4) Curly Chief, a Pawnee, relates one of the early contacts between his people and the Europeans, between 1800-1820: The Chief said, "Will not my arrow kill? I do not need your guns",.....(George Bird Grinnell, Pawnee Hero Stories and Folk Tales, Forest and Stream Publising Company, New York, 1889. New Edition: University of Nebraska Press, Lincoln, 1961, pp. 268-269.)5) "Yes - we know that when you come, we die."(Chiparorai, an old Yuma Indian, The Indian's Book, p. 569.)6)"The great sea has send me a drift. It moves me as the weed in a great river. Earth and the great weather move me; have carried me away. And move my inward parts with joy."(Uvavnuk, an Eskimo woman shaman, Knud Ramussen, Intellectual Culture of the Iglulik Eskimos, Report of the fifth Thule expedition, 1921-1924, vol. 7, nos. 1-3, Copenhagen, 1930, pp. 122-123)7)"We, the saami, have lived in our land - Sápmi - for thousands of years. In order to survive the artic climate we have made use of the gifts of nature; the reindeer has given us food and clothing, the birch has given us wood for our fire and material for our skis. We have always seen the unity of man and nature as obvious. How could we even think about conquering mother earth - our source of life?" (Talma Tourism, formed by the Talma saami village, Kattuvuoma, S-981 29 Kiruna 1996.)8)The Amazon - rain forrest - native tribe "The Invisibles" called the white invaders "The Ant People", because they were so many and became more and more and ruined everything.....About "deer sickness and fish sickness":Nowadays the bio-industry has nothing to do with generosity and respect for the animal. The exploitation of animals is unprecedented. When Japanese people want the spawn of a herring, tons and tons are slaughtered to take the spawn out and the herrings are buried under a 10 cm. layer of earth in Canada: the male-herrings intact and the females mutilated. Just thrown away, nothing more.When you visit one of the many "Seafood Companies"on the coasts of the Gulf of Mexico you see the results of the kill and harvest of "scallop"	

Sort #	Commenter Code	Comment	Response
		shells: two thirds of the bio-mass, dead animals, ends on the rubbish-dump. (St. Joe Bay, march 16,De Zee, Unieboek b.v., Houten, The Netherlands, 1990. p.96)On the port of Arecife, on the Isle of Lanzarote, we may learn that the catch of sardines before the African coast ends in a slimy, bloody, dripping transport of fish-pulp containing eyes, tailes, inward parts and scales which are within 24 hours transformed in fish-meal. The loss of nutrients is 90%. (de Zee, 1990, pp 25-26.) Animals are fed with recycled animals. No wonder that diseases come from animal upon humans: BSE disease from cows out of England did cost the lives of humans and millions of cows were slaughtered in revenge. In the Netherlands millions of pigs were destroyed due to "pigs-pestilence" and in Hong Kong millions of chickens were slaughtered because the poor animals transmitted a virus to humans. And this just happened in the year 1997! So an animal can infect humans, but after that the virus can't be transmitted from one person to another. However it only takes one mutation and billions of people will die.Pollution of our Oceans also plays a role. After hunting the most intelligent (fellow) creatures of this planet, the whales, to the edge of extinction, Norwegians and Japanese still want to eat them. PCB and DDT will get them in the end however. It's a boomerang.The Minamata disease, caused by eating mercury-poisoned fish, occurred between 1956 and 1970 from Minamata to the North of Japan. Innocent people have always paid the price: tremors, barking like dogs, eye-sight became concentric, not being able to speak and motoric disturbance. Babies were infected through the placenta.Even cats had the same symptoms after eating the fish. Their suffering however did end with the "Cat-Kamikaze": they jumped in the sea and drowned. (The drama of the oceans, Harry N. Abrams, Incorporated, New York, 1975, Dutch translation 1996, p. 217.)Right now, Norway wants to export up to 100 tons of mercury contaminated Whale blubber for human consumption. A gigantic environmental bomb, packed full of the poison PCB, with levels measured between 5 and 15 parts per million.("Letter to Hillary Clinton", Lisa Distefano, International Director SSCS, March 3, 1998, p.2.)1998-2004: SARS has been the reason for slaughtering millions of chickens if not billions. The pig pestilence did cost the lives again from millions of pigs And the bird pestilence gave reason for killing millions of birds, chickens, turkeys, gooses etc, etc. It is the only Human answer. There were bureaucrats saying the best thing to do should be killing off all migration birds. About "a cycle will be formed": When the salmons (salmonids) are going to their breeding grounds, high up the rivers, a cycle will be formed: Out of the sea where they have to endure pollution and the overkill by humans, they come to the	

Sort #	Commenter Code	Comment	Response
		mounding of a river. The first natural predator they have to overcome are the sea lions and seals (pennies). On the way up the grizzly bears are waiting and at last they have to swim for their lifes from the fishing eagles. After that they come in quiet waters to lay their eggs and to die. It is all a matter of survival of the fittest. Sick or wounded salmonids are taken out; the best will breed. The young grizzly have to practice and gain weight to overcome the winter and the weakened fall out. The same for the eagles.A common (human) question is: "Why don't the predators catch their fish at the place where they die? Calm waters, just taking them out?".The answer is simple: the cycle of survival of the fittest would be broken not only for the salmonids, but also the pinnipeds and grizzlies and eagles as well.The quality of food would be less, because a salmon with eggs gives far more than one without. But the main reason is that by giving their lives the rotten bodies of the salmonids attracts insects to feed their descendants: A cycle is completed.The United States National Marine Fisheries Service (what's in a name?), facing a decrease in the number of salmonids, (available for consumption of course), are planning to reduce the number of sea lions and harbor seals in Washington state. (Michael Kundu, Sea Shepherd Pacific Northwest Coordinator reports 26 june 1997.)In 1998 Newfoundland Fisheries Minister John Efford desires to kill several millions of Canada's harp seals in order to preserve commercial fish stocks.That is exactly what not is meant by "a cycle will be formed" between humans and the creatures of the waters. Pollution and the overkill have to be stopped .About our Oceans: In the sea there is a treasure bigger and richer than all the ships that have sunk to the bottom with gold, silver and what ever. It is a world on its own. Able to produce 70% of the oxygen we need, able to absorb the CO2. The treasure is called plankton. Without the oceans there is no life possible. The enormous biodiversity is almost beyond our capacity to comprehend. (The Sea, Rob Bijnsdorp,United Nautical Publishers, Basel 1990 pp 25 -33)We, the homo sapiens sapiens, evolved out of the sea and before being born we live in the placenta's fluids of our mother, which are exactly the same as the sea. We make a great mistake to think that evolution goes as far as human beings. Speaking about intelligence, we want to place ourselves at the hundred percent rate under the almighty God.(dogs 15%, a monkey 35% and we 100%). In our Oceans, however, the whales are estimated to be on an intelligence level from 200-2000%, having the biggest brains on earth (9 kg. for a sperm whale). Instead of two brain-lobs they have four. Able to sonar communicate from the north to the South Pole, probably able to visualize images from one to another and even able to speak the human language (dolphins can).Those fellow	

Sort #	Commenter Code	Comment	Response
		creatures became endangered because they were hunted so heavily that the populations were severely reduced and some of them were extinct forever. During the 19th century, whales were primarily hunted for oil and baleen. Before the advent of electricity, many American homes were lighted with whale oil. As recently as twenty years ago, products from whales were used for everything from machine oil to women's cosmetics. Because of the passage of the Marine Mammal Protection Act in 1972, it became illegal to import products containing materials from whales.(Office of Protected Resources Cetaceans, January 15, 1995.)Norway and Japan still are determined to drive the whales to extinction. Japan probably is the best example for what a virus can do. They are on the top of the hill in copying bad behaviour, as well as cars, computers chips etc. Able to use high-tech in order to mark the last whale and scientifically use the biggest animal on earth to explore and kill off one of the smallest: the krill. In 1990 they already did harvest 600 000 - 800 000 tons a year. (De Zee, 1990, pp. 100-101.) Like a virus, they are opportunistic and eat on both sides of the food-chain, drift-netting the middle part completely out. So far this is nothing new, except that they disregard the fact that a virus needs a host. Without our Oceans there will be none left.This Kamikaze behaviour has to be stopped .Pollution: A Dutch Government report (1987): Use of the North Sea: each year: 420 000 ship-movements 3 000 000 000 kg. fish-catch 165 000 000 tons oil production 85 000 million m3 gas By 160 drill-platforms and 8000 km. pipe-lines The North Sea as a dumping place for chemical waste Dumping total 67 million tons each year: In which heavy metals: zinc: 12 000 tons copper: 3100 tons nickel: 3 000 tons lead: 2 500 tons chrome:1 700 tons arsenic: 99 tons mercury: 68 tonsThe rest contains hundreds of non-specified chemicals.This measuring was done in 1985. Independent researches estimate the dumping is 1,5 to 3 times higher.(The Sea, Rob Bijnsdorp, 1990.)In the last months of 1997 16 Sperm whales landed on the beaches of Holland and Denmark. Only one survived.No one seems to know why -About pollution and Asian aphrodisiacs: Nowadays, after the 17th- and 18th-century premature exhaustion, the Artic continent and the Artic ecosystem are severely threatened by human chemical pollution. Especially the polychloricbiphenyls (PCBs) are dangerous. The atmosphere transports big amounts to the North Polar area which results in contamination of the Oceans and accumulation in the plankton. This bio-mass passes the PCBs on from ocean to animals resulting in an even bigger accumulation in the top of the food-chain. PCBs and other toxic agents accumulate in the fat-tissues of humans and animals. Species from the Polar area show big fluctuations in their fat-reserves. In times of	

Sort #	Commenter Code	Comment	Response
		shortages those fat-reserves are used and the accumulated toxic agents come in big amounts in the bloodstream. Toxic agents in the body may produce biologic effects in their original form or after to be transferred in other products (metabolics). The cyto-chromium-P450 enzymsystem (CYP), which exists out of tens specialized enzymes, is responsible for the metabolism from intrinsic- and extrinsic chemicals in the body. They change the PCBs mostly in even more toxic metabolics due to a very active CYP which is present in mammals as the seals. The enzyme composition from the CYP is very different in every species and so is the PCB-metabolism different in any creature. However it results in disorders of the female genital organs, the immune-system, the vitamin- and hormone management. Researches in laboratory on animals (another killing field) confirm this. Uterus occlusions are a sample of what pollution can do: From the two upper horns of the uterus one or both become blocked by a membrane. Sometimes there are tumours around the uterine tubes. Professor Helle from the Finlands Institute of Fisheries estimates that less than one-third of the adult female population of seals is still able to give birth anymore in the Baltic Sea. A recent investigation in Ny Alesund in Spitsbergen showed uterus occlusions in two out of thirty young seals. This is very uncommon as the pollution in Spitsbergen is not as much as in the Baltic Sea and the seals were young instead of adult. The effects of PCBs are not reserved for animals. Eskimo's have ten-times higher PCBs concentrations than non sea-mammals eating groups. Big amounts of PCBs are passed by to mother-milk drinking children, which explain their much higher infection incidence. The PCBs concentrations in Canada are not as high as in the Polar region, still the reproduction in polar bears is decreasing. Probably this has to do with their ability to metabolise most PCBs. (PCBs in the Polar Area, Hans Wolters, Arts en Auto, annual 64, March 1998, the Netherlands, pp. 25 -28.).Recently in Belgium there was found a high-incidence in young human female genital organ disorders which seems to be similar and also pollution related. As 50% of the produced PCBs are still in use we may expect higher PCBs concentrations in the future instead of less.It is believed that Canadians killed 500.000 seals in1997 and in 1998. The strongest case which can be made for the 500.000 figure was in 1996. This was when a DFO inspector leaked out that seal boats were bringing back all male pelts, with penises attached, though equal numbers of male and female seals were being killed. (SSCS, Andrew Christie, 1998).With a fleet of helicopters, two Canadian Coast Guard icebreakers and an army of Royal Mounted Police they tried to protect the 1998 holocaust of slaughtering innocent seals in the Gulf of St. Laurence. The	

Sort #	Commenter Code	Comment	Response
		primary economic incentive for the sealers is the demand in Asian markets for seal penises, used in "aphrodisiacs". From a medical standpoint this is absurd, now it is obvious that PCBs are responsible for severe disorders in the genital organs in mammals and humans as well. The Future will tell if this Asian aphrodisiac is a birth rate reducing agent .The Oceans are talking back: Poisoned marine wildlife is now teaching us, again and again, what had to be learned earlier. Sickened and dying animals have long been harbingers of the effects of toxics in the environment.At the time of the Minamata poisonings science held that the womb was a protected environment capable of screening out harmful substances. But in Japan, many women who ate contaminated fish without becoming obviously ill, gave birth to children with severe retardation and physical deformities. It all happened in the early 1950s.In the 1970s scientists did discover widespread mercury contamination throughout the Upper Midwest and in the fishing grounds of the Texas Gulf Coast.PCBs were already responsible for the "Yu-Cheng" or oil disease in Taiwan, 1979. PCB-contaminated cooking oil caused the first three years after the accident that many human newborns died outright, and others developed blotchy patches of dark skin and deformities of their fingernails and toenails. Later on they developed hyperactive and behavioural problems. Even kids born as late as 1985 were still affected as much as the kids born in 1979. This is due to the fact that toxics cumulate in the fat and women mobilize their fat-reserves during pregnancy.In milk from species from Beluga whales to diary cows scientists have measured concentrations of chemicals including dioxins, PCBs and various pesticides. Along the west coast of Florida, in stable populations of bottlenose dolphins near Sarasota, nearly all firstborn calves die before they separate from their mothers between the ages of three and six. In 1987, more than 700 bottlenose dolphins, half of the migrant Atlantic population, washed up on beaches from New Jersey to Florida. The scientist Grasman says, "We are finding the same pollutants in our birds--PCBs and organ chlorides that have been found in seals, dolphins, humans and other species with similar T-cell immune problems". (National Wildlife Federation, Children at risk, 1997.)These poisons creep up on you. Early effects of pollution initially occur at the lower levels: changes in your genes, cells, tissues, body chemical processes and basic body function.But when you give birth, your children are at risk. AndWhen your children give birth, your grand children will be .About politics and business: Children of whale meat eating mothers are exposed to mercury in the womb and later on will suffer from subtle impairment of their cognitive and motor skills and higher blood pressure to 14 points in systolic and	

Sort #	Commenter Code	Comment	Response
		diastolic pressures which are predispositions for cardiovascular diseases in their future. (New Scientist, June 12 –1999 , study P . Grandjean, Odense University , Denmark , study in the Farao Islands)Again prenatal exposure is responsible and again has been showed that the womb is not an all-round barrier against toxic agents The dangers of (dimethyl) mercury are known already fifty years . So is cadmium by the Itai Itai disease. About 4 years ago the Mainichi Daily Newspaper in Japan reported that there were mercury detections in whale product up to 1.600 times above the government-permitted level. Large amounts of cadmium also were found .Even when those poisons do not harm directly, years later when woman mobilize their fat-reserves during pregnancy, children will be damaged as the mercury and cadmium will be passed on by the blood-stream .Harbingers in this new century already have been found :Fire preventing materials produce a new generation polychlorics , more toxic and more quickly penetrating the deep of our oceans . The sperm-whales are already the first victims in accumulating those gifts of Human intelligence.Businessmen in Belgium are responsible for genital disorders in their children by putting used motor oils in animal food. Again and again .In the United Kingdom it did appear that business men dumped BSE infected product in baby food. Offal for babies. Norwegians, Japanese – and Faroese people deliberately are trading in whale meat, knowing the effects. Calculating their so called scientific investigations and offering their poisoned dishes to their wife and children.And the main reason is money; it makes them crazyThe biggest treasure of the Oceans: As mentioned before plankton is the biggest and most valuable biomass of the sea. Without it there are no life forms possible on our planet. Two-thirds of planet earth consist of the oceans. Plankton is responsible for 70% of the oxygen production and at the same time for absorbing CO2. Most of the plankton are too small to see. Plankton is the general term for all drifting animal- and vegetable organisms which independently go their own way.The vegetable segment is the biggest part. As plankton is both part of the food-(N-cycle)-chain and oxygen-(C-cycle)-chain, it has to be regarded both ways. Speaking about the food-chain, many want to take the short cut and harvest the krill as the whales do. However fishing all animals of the oceans, as is practiced to-day, will lead to there not being any plankton. There is nothing for them to eat, and in that way we end the production of oxygen. At the same time our knowledge of what would be the result of harvesting relatively small amounts krill, as the whales do, is inadequate to oversee; there is a difference if we, instead of the whales, take the krill out, where and how. We don't know the influence of UVB except that it shrinks the mass of phyloplankton. We are	

Sort #	Commenter Code	Comment	Response
		unaware what would be the influences when we fish an isolated krill stock out. A general stock collapse could follow. However, if it would turn out that krill, or krill related life forms, are the nutrients for phytoplankton, a collapse will mean a collapse of the plankton mass.And that would mean the end of human existence by the collapse of oxygen production.Moreover, the immediate danger from shrinkage of the plankton mass is to the krill, as phytoplankton are nutrient for krill. A collapse of the plankton mass would mean a collapse of krill.....and the rest of the food chain. So it works both ways .Recent studies show that the massive killing of marine vertebrates , including whales and other mammals, is responsible for functional changes in the coast ecosystems .Mostly a massive collapse of ecological communities is the result of that and it is happening worldwide. More over the absorbing ability of the Oceans are weakened. A recent study in Nature reviles that 90% of the big fishes of prey are lost in the world ocean since the industrialized fishing methods. The by catch of seabirds, sea turtles and sea mammals will ruin our oceans for ever. (Matthew Gianni , in depended ocean advisor , reports for the IFAW)In the name of traditional cultural arguments:In October 1997, a United States government delegation travelled to the International Whaling Commission meeting in Monaco to ask permission to kill Gray whales in the waters of Washington State. The request was made on behalf of the Makah Tribe of Neah Bay. The request was made on traditional-cultural grounds.That's how the pro-whaling forces are gearing up to overturn the 11-year-old moratorium on commercial whaling and try to have their hands free to bring the whole Ocean to the edge of extinction.A Gaspesian (now Micmac) Indian chief, in 1676, already criticizes a group of French captains in Nova Scotia:"And whilst feeling compassion for you in the sweetness of our repose, we wonder at the anxieties and cares you give yourself, night and day, in order to load your ships"."It is true that we have not always had the use of bread and of wine which your France produce; but, in fact, before the arrival of the French in these parts, did not the Gaspesian live much longer than now? And if we have not any longer among us of those old men of a hundred and thirty to forty years, it is only because we are gradually adopting your manner of living".(Father Chrestien LeClerq, New Relation of Gaspesia, with the Customs and Religion of the Gaspesians Indians, translated and edited by William F. Ganong, The Champlain Society, Totonto, 1910, pp. 104-106.)Lionel de Montigny (Métis) wrote:" Much of their (the Indians) present economy is based upon reaction and adjustment to racism". And that is exactly how it is today! When the IWC permits the Makah Tribe to hunt Gray whales on cultural grounds we ought	

Sort #	Commenter Code	Comment	Response
		to know exactly what the outcome will be, based on recent history:In the 13th century, when the climate became much colder and the little Ice Age began, the Inuit Indians left the farthest north or died out. All except the Inuits of the Thule region. For about 500 years they lived in total isolation.As a piece of wood even was rare to them they depended totally on the catch of narwhals. The tusk took the place of wood.The IWC permitted them to harvest 542 whales. A study in 1979 however, near Pond Inlet, reports the inefficient hunting and estimated a 50% lost of all killed whales. In another study the lost is much higher: at least 1500 or 2000 whales were killed each year. Many hunters shoot at long range. They kill or wound a lot of whales and only retrieve a few. One study shows that 42% of all narwhals in the Pond Inlet region are bullet scarred. The people do not keep the meat, they don't like it, and have no sled dogs to feed. The Canadian Inuit had chosen the modern way: They hunt the whales in summer with high-powered boats and shoot them with high-powered rifles. Whales are shot first and then, if possible, harpooned. Many sink and are lost or, severely wounded, escape and die later.(The Narwhal, Fred Breummer,First published in Canada by Key Porter Book Limited, pp 79-85, 129)	
679	Comment from Roel Neijboer	The Makah propose to use military .50 assault rifles.("... a .50-caliber, copper jacket-jacketed, lead-core, hollow-point round with a mass of 600-700 grains, fired at high velocity with a muzzle velocity of 3,000 feet-per-second and muzzle energy of 14,000 foot pounds"(Quote from a letter by Makah tribal Chairman Hubert Markinshtum, Sea Sheperd report, Juli 30, 1997)Now, the 14-member Nootka Alliance (6,000 members) of Canada's First National People on Vancouver Island have indicated that they will kill up to 25 Gray whales from the eastern Pacific if the Makah recieve their quota.(SSCS, 1997).	Comments noted. Please also see the response to frequent comment # 4 regarding precedential effect of a waiver internationally and domestically.
680	Comment from Roel Neijboer	Who´s next? “A good killer is a good man “ (quote Hans Hermansen in Faroe Islands , Guardian Newspaper , July 19/2000)The real Holocaust:Being "human-like" or "more intelligent" is considered a poor guide to whether an animal experiences suffering (Dawkins 1980). Even in recent history humans have proven to be able to make themselves guilty of genocide just by negation.In racism the only thing you have to do is to deny that someone is human.Behavioural and physiological evidence are more reliable otherwise suffering may be overlooked because it does not wear a human face.(Margaret Klinowska, Research Group in Mammalian Ecology and Reproduction, Physiological Laboratory, Cambridge University). From a medical standpoint we have to admit that in spite of our capacities in neurosurgery we don't know that much about even the human brain. From a psychiatric point of view we know	Comments noted.

Sort #	Commenter Code	Comment	Response
		that certain medicaments work but not how.We are able however, with our knowledge of the anatomical and histological structures, to assume that the billions of electrochemical interactions within the complex whale-brain define consciousness, awareness, emotion, personality and intelligence.(Paul Watson,The Paragnon of Animals, reflections on the human perception of intelligence, Autumn 1997 issue of Ocean Realm). More evidence of self-awareness in dolphins we may find in the studies of Dr. Ken. Marten and Suchi Psarakos.(Self-awareness in Animals and Humans: Developmental Perspectives,edited by Sue Taylor Parker, Robert W. Mitchell and Maria L. Boccia.,Chapter 24, pp. 361-379. New York: Cambridge University Press, 1995).Each year hundreds of thousands of dolphins die from human greed in drift netting, fishing, from shot as crab bait or from pollution. Each and every-one a member of the same exclusive club of humans and primates.That is the definition of a holocaust. The geno – biocide of self – consciousness "Heard from a Portuguese fisherman: Suddenly there was a knock at the side of the ship. It was a dolphin. He circled and pushed again and again. Every time he swimmed away in the same direction. My son said:"He wants something from us". So we followed him. After 15 minutes sailing we did see another dolphin in the water. It was a dying female, dying from severe injuries on her back. My son said: "We have to finish her off". "No" I said,"We can't. The other would not understand why we do that". There was nothing we could do, we couldn't sail away. It would be treason. So we waited there the rest of the day till late in the night. Than the female dolphin died and the other swimmed away".(Quote from The Sea, Rob Rijnsdorp, 1990.)	
681	Comment from Roel Neijboer	The last orchestra: The American biologist V.B.Scheffer wrote: From the moment of its birth every whale hears the endless orchestra of life around its massive frame, day and night, until his final hour.The scientist B.Mohl believes that the shrill and alien sounds of motor noises may block communications between whales "more than 100 m apart". He further suggests the noise levels may result in temporary or possible permanent hearing damage and in nausea induced by infra-sound.It is expected that soon great fleets of tankers will ply the famous Northwest Passage, the region of migration routes and breeding places of the whales.The great fleets of tankers will be led by even more than thirty 150,000 horsepower icebreakers, plowing ice 10 feet thick, creating noise levels unprecedented, a disturbance of domestic peace which would bring every creature to suicide.In world war-two American bomber-pilots used whales as practice targets. Now, March 1998, the U.S. Navy has commenced testing of its	Comments noted.

Sort #	Commenter Code	Comment	Response
		Low Frequency Active (LFA) sonar system near the newly designed Humpback Whale National Marine Sanctuary off Hawaii's Kona coast. The noise pulses at full deployment, a level not even tested in Hawaii, are 1.000 times louder than a 747 jet engine on takeoff, making whales and dolphins deaf miles from the sound source.And a deaf whale is a dead whale .It´s savage and uncompromising. Recent whale deaths and strandings associated with the use of high intensity sonar: Greece, Kyparissiakos Gulf (12-13-May 1996) Stranded : 12 beaked whales . Killed 8 Bahamas, Northwest Providence Channels (15-15 March 2000) Stranded: 17 of multiple species. Killed : at least 7There is evidence that the entire population of beaked whales in this area was killed or displaced Canary Islands, Fuerventura and Lanzarote (24th September 2002)Stranded : 14 beaked whales (various species) Killed 11At least six of eight previous cases of beaked whale strandings in the Canary Islands (since 1985) coincided with military exercises	
682	Comment from Roel Neijboer	Final questions:We suffer from a lack of insight by norm setting politicians as it goes for contaminating effects of radiation, mercury , cadmium, DDT, PCBs, and organo-chlorics .However we do know that years after contamination effects will be there . We do know that psychological, psychiatrical and physical deformities occur after prenatal contamination. We are aware that many now-a-days children have hyperactive and behavioural problems. We see that young male adults in France are committing suicide in a not common incidence. We have learned that schizophrenic diseases are occurring in Asia where it never did occur in history. We could have know that genital disorders are there for both men and women .In Japan is arising the highest suicide level in the world among young people. It is cause of death number six .Only the Japanese police did register 34.427 cases in the passed yearAn increase of 20% in humans under the age of 22 and an increase of 60% in children of basic and high schools .Those are scary figures .“ A good killer is a good man “ (quote Hans Hermansen , Farao Islands , Guardian newspaper , July 19/2000)	Comments noted.
683	Comment from Roel Neijboer	There are Oceans of hope: People talk about healing Mother Earth, but there is no one powerful enough on this planet to heal Mother Earth. We can help to preserve and replenish some of the good things on Earth, but to heal her, that's something else. She continues to heal us and give energy. (Quote from Bear Heart.)When you have a little garden, for example, just plant a tree and make a little pond or puddle. Someday a bird will rest in its flights in your tree. He may not sing a song for you but after drinking some water at least he will leave you some shit. Be grateful for that. In the shit may been hidden some seeds and a	Comments noted.

Sort #	Commenter Code	Comment	Response
		plant will grow on the border of your puddle. Don't call it a weed because it will flower and attract an insect and something that crawls. That will attract another bird and another plant will grow and before you know it the singing and nestling of birds will be around you. Even the dung alone will allow the growing of a depending specie of a plant. Smell the air of flowering; you will not be the only one. Of course, planting a tree in the circumpolar area will take about a hundred years or more to grow, so don't pull them down, but in other parts of the world it will only take some years.Take care of biodiversity and the first four legged will visit you.Your children will have the love of nature at their birth. Every child does. Cherish them and learn from them when you teach them the lessons of life and how to live.For our Oceans, the source of life, we can do so much to preserve and replenish. The main thing is to let her be. We all ought to have learned the lessons in history in conquering the Lands of Hope. Some want to conquer our oceans but when something goes wrong with your puddle it only costs a year to heal itself. Plundering our oceans will mean something else.So when I'm pleading for the Oceans it is an appeal for the whales to begin with. To stop drift netting. To make an end to the 20,000,000 tons of by-catch of fish. To end pollution.It is not that difficult for us to do.There are oceans of hope, don't forget that. It's worth fighting for.So join us, before we have to watch those “Virus People”scratch the slime of the rocks out of frustration. 2004 : The by-catch is estimated at 27,000,000 tons , excluded vertebrates as seabirds , different whale species , sea turtles and othersConcluding remarks:It is a disgrace of the worst kind that, after the genocide of native people world-wide, the descendants of those who were responsible for that want to speak about native traditional-cultural arguments in order to continue to conquer this planet earth in their last battle to destroy the Oceans, Her heart and Her veins.After Rousseau (Révenons a la Nature) and Voltaire (Man proposes but Nature disposes), we may use the sturdy piece of prose that seems to be of worldwide application:"Obviously there is a certain amount of "misconstruction" going on by lack of insight into biologic, climatic and topographic conditions which differ from the experiences of norm-setting bureaucrats". (Quote from the papers from the international symposium at Lulea, Sweden, June 28-30, 1971, Ecological Problems of the Circumpolar Area, Norbottums Museum,Lulea, 1974) Now we may call it a solid piece of prose. For The Oceans.	
684	Comment from Sandra Abels	I strongly encourage NOAA/NMFS to not allow the Makah a waiver to hunt whales at all. There is NO way to determine which gray whales are from the main Eastern Pacific population, the residents or the highly endangered Western	Please see the responses to frequent comments # 12 regarding risks to WNP

Sort #	Commenter Code	Comment	Response
		Pacific population. Killing a whale from the resident whale or Western Pacific population could prove catastrophc to those populations. They don't wear name tags. There is no way to tell them apart!!	whales and # 13 regarding risks to PCFG whales.
685	Comment from Sandra Abels	Climate change is having a huge impact in the Arctic. Since the grays "summer" in the Bering Sea to feed, it would be short sighted to allow whaling when the effects of climate change on the grays hasn't been reviewed.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
686	Comment from Sandra Abels	Whaling off the coast greatly impacts whale watching. I was on a trip in Puget Sound and I heard a woman ask the Captain to avoid Neah Bay because she didn't want to see a whale killed in front of her. Whale watching is a huge industry and allowing whaling off the coast of Washington destroys aesthetics visually and emotionally.	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
687	Comment from Sandra Abels	The Makah maintain this is about culture. NOAA knows as well as I do that this is a lie. We still have the documents that were sent to NOAA about the Makah's intent to open a whaling processing plant so they can sell whales to Japan.	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
688	Comment from Sandra Abels	The EIS needs to address the global impact of the U.S. allowing aboriginal coastal whaling. We all know Japan wants this and by the Makah doing so with the U.S.'s blessing opens pandora's box. NO WHALING ANYWHERE! EVER! FOR ANY REASON!!	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
689	Comment from Sandra Abels	The Makah have proven they can't be trusted! In 2007 the Makah killed a gray whale after their permit was revoked. Given the sensitive populations of grays involved, the Makah can not be trusted to follow regulations.	The DEIS describes the NMFS investigation of the illegal hunt (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.

Sort #	Commenter Code	Comment	Response
			Subsection 2.3.2.2.12, Other Environmental Protection Measures, describes enforcement measures that are common among the action alternatives. If a hunt is authorized, possible enforcement measures under the permit would include criminal sanctions (e.g., fines and imprisonment) and barring violators from exercising treaty fishing, hunting, and/or whaling rights for at least 3 years. The Makah have a whaling ordinance that, among other provisions, addresses enforcement, permits, violations, penalties, training/qualifications, monitoring and reporting, and whaling administration. Refer to Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2014, and Appendix B of the DEIS.
690	Comment from Sandra Abels	The benefits of evolving beyond whaling and the positive impacts to the tribe for finally walking away from such a barbaric practice needs to be studied. NOAA has never demonstrated or evaluated the benefits to the tribe for not going forward.NMFS needs to end their bias towards the Makah and deal with real science.	As required by NEPA, the DEIS does evaluate a No Action alternative that would result in no authorized hunting of gray whales by the Makah Tribe.
691	Comment from Sandra Bryce-Borthwick	This murder must stop now!	Comments noted.
692	Comment from Sarah Queener-Plourde	I fully support Makah traditional whaling practice, which is their 1855 treaty right. The benefits of tribal cultural healing will far outweigh the ecological impact of the whale population. As elder Mary McQuillen, Makah hereditary lineage told me, "whales come in response to our songs and ceremonies." Everything about the Makah Nation centers around the whale, its significance is measurable and demonstrates subsistence harvesting of the purest form.	Comments noted.

Sort #	Commenter Code	Comment	Response
693	Comment from Shari Farmer	We cannot allow this to happen again. This is a HUGE step backwards for man and mammals! This opens a whole new door for those rogue countries that still hunt whales against the moratorium. PLEASE stand up for the whales. This day and time, they do not need to be slaughtered!	Comments noted.
694	Comment from Shelia Jons	just because something has been going on in a society for a long time does not automatically validate its continuation.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
695	Comment from Susan Hicks	Please save the Gray whales from this!	Comments noted.
696	Comment from Susanna Minacheili	killing whales should be banned for everyone...whales are already in great danger with navy guns, big ships, noisy oceans ,japan's poachers, ocean's pollution ,plastic paches in the oceans,r adiation from fukushima..the dangers are too many....,no one should be allowed to kill an.. endangered species .with so many threats around to his life.....if we dont protect them now they will disappear for ever..please protect them	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
697	Comment from Suzanne Rulifson	Using Howitzers and 50 caliber weapons by commercial hunters to shoot at stressed, polluted and diseased whales struggling to survive in dramatically collapsing oceans, while abandoning the bodies when inconvenient to complete the kill (yes this happened, I saw it) is NOT subsistence hunting. Harassing the elders who dared to speak these words is not the path. You know this. If Makah feel they must eat bits of whale blubber to insist that this is cultural subsistence, then please be true to the culture. Shooting and maiming a whale whose entire carcass is riddled with pollution and plastic debris is not 'one with the whale.' This is a lie. You know this. You perpetrate a myth for gun happy fools, at best, commercial hunting at worst. Knowing and being at peace with these stressed oceans means cleaning your beaches of the tons of plastic flotsam (I have done this for you), and HELPING the creatures whose cultures collapse before your eyes. Look to the future. You are wrong to shoot up nature. She needs your help, not your lies.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
698	Comment from Suzanne Rulifson	This entire proposal only perpetrates this cultural subsistence myth, but the imported white hunters and your devices and ammunition purchased at stores on the freeway is a LIE. STOP. You are exposed. Your elders have told you this but you harassed and belittled them. STOP lying. Your lies are exposed for the world to see.	Comments noted.

Sort #	Commenter Code	Comment	Response
699	Comment from Veronica Slootsky	Dear NOAA, I am writing in opposition to your granting the Makah a waiver, and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington, Oregon, California Coastlines on their way to the birthing bays.In 2015 there is no need to kill whales. The Makah Tribe has access to food, clothing and traditional history. Tradition is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
700	Comment from Veronica Slootsky	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
701	Comment from Veronica Slootsky	If you allow the Makah whalers to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition that has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon, Washington and California Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
702	Comment from Veronica Slootsky	In closing I want to reiterate that I oppose any permit to allow the Makah whalers to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason.It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean.Sincerely, Dr. Veronica Slootsky, MD	Comments noted.
703	Comment from William Davis	There are some cases where no amount of money, politics, or even tradition can stand up to the fact that threatened species need to be protected. Nobody, including the Makah, should be able to hunt the gray whales.	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals. See

Sort #	Commenter Code	Comment	Response
			Subsection 1.1.3, Summary of Gray Whale Status.
704	Dennis_4-29-15	I'm against killing animals, no matter what, so I am against the whale hunt. Why should innocent animals suffer and die for no good reason. No whale killing. Thank you.	Comments noted.
705	e_Abbott_3-6-15	In my humble opinion, if this is a ceremonial tradition, to have a hope of having it be accepted by the general public, the Makah people need to use the original ceremonial traditional methods and tools/weapons only. This is the only way their hunting of the whales will be tolerated. I'm sure more than 1 aboriginal person was killed during these hunts in the past and unfortunately, that could be the consequence but that is part of the risk of this historical ceremony isn't it? I believe they should be licensed / controlled and they should carry out the deed exactly as their ancestors did using the same equipment and number of people as is outlined on their web page: h p://makah.com/makah-tribal- info/whaling/ and part of which quoted here: To get ready for the hunt, whalers went off by themselves to pray, fast and bathe ceremonially. Each man had his own place, followed his own ritual, and sought his own power. Weeks or months went into this special preparation beginning in winter and whalers devoted their whole lives to spiritual readiness.Men waited for favorable weather and ocean conditions and then paddled out, eight in a canoe. They timed their departure so that they would arrive on the whaling grounds at daybreak. Paddling silently, whalers studied the breathing pattern of their quarry. They knew from experience what to expect. As the whale finished spouting and returned underwater, the leader of the hunt directed the crew to where it would next surface. There the men waited. When the whale rose, the paddlers held the canoe just to its left, their speed matched to that of the animal. As the back broke the surface, the harpooner struck and the crew instantly paddled backward, putting all possible distance between the canoe and the wounded prey so as to avoid the thrashing tail flukes. A hit in the shoulder blade interfered with use of the flippers and slowed the whale. Floats of sealskin blown up like huge balloons were attached to the harpoon line to slow down the whale. Harpoons weren't intended to kill the whale, but to secure the sealskin floats to them until they tired themselves and could be fatally lanced. Shafts of yew wood measured 12 to 18 feet long. The heavy wood added to the harpooner's thrust to help the blade pierce deeply. Splices in the shaft deadened the springiness to permit for further penetration. They also let the shaft break rather than hit the canoe repeatedly if the whale rolled. Additionally, they allowed for a clean break	Please see the response to frequent comment # 15 regarding the use of modern weapons.

Sort #	Commenter Code	Comment	Response
		rather than splintering making them easy to repair. Shafts fell away once the harpoon head had been set. In a whale, the head of the harpoon turned partly sideways. Barbs of elk antler helped to keep it from pulling out. Each one made of mussel shell was placed on each side of the blade. Spruce pitch was used to smooth the head. This was confirmed when discoveries at Ozette revealed the pitch to be still pungent after 500 years within the earth. Whale sinew was plied into rope and bound with wild cherry bark to attach the harpoon head to as much as 40 fathoms of additional rope. This line, which consisted of twisted cedar boughs, was carried coiled within the baskets so that it would play out easily and wouldn't entangle the canoe's occupants. A telltale float at the end of the line acted as a marker so that the whalers could follow their prey, setting additional harpoons and staying out overnight if it was merited. Eventually the time came for the final kill which was done using a specialized lance. The next step was to tow the whale home. Hopefully, the distance would only be a few miles if its spirit had heeded prayers to swim for the beach. If not, the distance could be up to 10 miles or more. To prevent the whale from sinking, a diver would lace the mouth shut. This kept water from flooding into the stomach, weighing the carcass down and complicating the tow. Songs eased the paddling and welcomed the whale to the village. The songs welcomed the returning hunters and praised the power that made it all possible. Sincerely, Susan Abbott	
706	e_Abels_7-26-15	I firmly believe there should be no whaling at all. Climate Change: As you know phytoplankton is one of the first steps in the food chain of the ocean. As NOAA states there was a large die off in Antarctica due to the decrease in general health of oceans. Pelagic species depend on water temperatures and were profoundly affected by El Nino and La Nina which was characterized by increased water temperatures. During that time there was an "unusual mortality event" in gray whales. Most looked like it was due to "starvation related to climatically based decline in prey availability.." NOAA further states that "regional climate can have a dramatic affects on its flow (current). Currents affect productivity." El Nino with increased water temperatures and decreased productivity 1997-1998 "profoundly affected the productivity and marine ecology of the region". In an article Ocean Warming's effect on Phytoplankton/NASA satellite Data Show How Global Climate Change Hurts Marine Food Chain by Jane Kay, "Decrease phytoplankton consume less CO2, aggravating a cycle that can lead to even more warming." The EPA website shows NOAA data that ocean temperatures have steadily increased and "will continue". Temperatures have been highest in last 30 years than ever before. One graph shows temperatures increased 0.5-1 degrees	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		on the West Coast from 1901-2014. During the same time frame in the Bering Sea an increase of 1.5-2 degrees. National Geographic article by Christine Dell'Amore- "Since 1970's, the ice has retreated by 12% per decade worsening after 2007, according to NASA. May 2014 represented the third lowest extent of sea ice during that month in the satellite record, according to the National Snow and Ice Data Center." "Ice loss is accelerated in the Arctic because of a phenomenon known as the feedback loop: Thin ice is less reflective than thick ice, allowing more sunlight to be absorbed by the ocean, which in turn weakens the ice and warms the ocean even more, NASA says." National Snow and Ice Data Center states, "Arctic sea ice extent for June 2015 was third lowest in the satellite record. June snow cover for the Northern Hemisphere was the second lowest on record...." "Ice extent remains below average in the Barents Sea as well as in the Chukchi Sea continuing the pattern seen in May. Air temperatures were above average over much of the Arctic Ocean (2-3 degrees). June snow cover was especially low over Alaska and Western Canada due to changes in the jet stream." U.S. Geological Service Ice Projections: mid to late 21st century Chukchi Sea will be ice free 5 months of the year and the Bering Sea will be ice free 8.5 months of the year. The DEIS states that grays are opportunistic feeders, but with a decrease or elimination of one food source means more competition for remaining food resources for other species. The DEIS refers to the grays increase diet of small crustaceans. It also states, "the increase acidification cause changes in abundance and types of shell-forming organisms- important part of grays diet." In the DEIS, "Organisms will continue to live in the oceans wherever nutrients and light are available, even under conditions arising from ocean acidification. However, from the data available, it is not known if organisms at the various levels in the food web will be able to adapt or if one species will replace another. It is also not possible to predict what impacts this will have on the community structure and ultimately if it will affect the services that the ecosystems provide. Without significant action to reduce CO2 emissions into the atmosphere, this may mean that there will be no place in the future oceans for many of the species and ecosystems that we know today. This is especially likely for some calcifying organisms." The DEIS states that increased ocean acidification has an impact on ocean noise resulting in a decrease in sound absorption resulting in a "noisier" ocean. Decreasing sea ice will likely increase human activity in the arctic resulting in more noise in their feeding ground. As NOAA states grays are sensitive to sounds associated with oil and gas exploration. NOAA also states this increase in activity "means more oil spills and ship strikes" in their feeding	

Sort #	Commenter Code	Comment	Response
		grounds. Oil will also kill their prey species. The one thing that struck me repeatedly in reading the DEIS, other government websites and news articles was 4 little words “from the data available”. Warming oceans, shrinking ice and ocean acidification pose great and immediate threats to not only gray whales, but the ocean itself. You state in the DEIS the grays have changed their feeding ground from the Bering Sea to the Chukchi Sea. Where do they go when that area can’t support them? The DEIS also speculates that with the shrinking ice the grays could repopulate the Atlantic Ocean. If they do make that move what does that mean for the population in the Pacific? NOAA has to know with all the fires in the West and no change in human behavior these next few years will probably demonstrate an increase in ocean temperatures. Given the clear unknowns here that even NOAA demonstrates I think it would be short sighted and dangerous to allow the killing of any whales, but particularly the greys since their feeding grounds are in the Arctic. It also seems that much more research is needed on the health of the ocean and it’s food chain. A side note is, given the incredibly small population of bowhead whales, how can you possibly say it is ok to hunt them?? Whales can’t change their behaviors, diet or where they live. Humans can change their behaviors, adapt to a changing environment and evolve! Sometimes they just need a nudge in the right direction.	
707	e_Abels_7-26-15	Economic Impact: The DEIS quotes the Makah as stating their hotel bookings increased during the whale hunt. Clallam County also saw an increased activity during the whale hunt season. Also the DEIS states that it was due to reporters and protesters. IT WAS NOT TOURISM. People avoided the area due to the whaling. Webster defines tourism as: “the practice of traveling for recreation, the activity of traveling to a place for pleasure.” None of us were there for pleasure I can tell you that!!! You can’t use this “boost in tourism during the hunt” as your argument!! Especially, when NOAA themselves say the uptick was due to reporters and protesters. Delete this part of your argument. The DEIS states that there were a “few” people there to observe the hunt. When whale watching is a billion dollar industry, can you seriously use this as part of your argument???? People want to see live happy whales, not whales being repeatedly harpooned and shot.	While we do not define tourism per se in the DEIS, our analysis is not restricted to the recreation-based definition asserted in this comment but can include visitations based on interest (e.g., reporters and protesters) as evidenced by DEIS Subsection 3.6.3.2.4 (Contribution of Tourism to the Local Economy), which notes that "Persons visiting the Makah Reservation for tourism and recreational purposes generate revenues for businesses in Neah Bay...". The DEIS also notes that any tourism-related economic effects are likely to be short-term, minor, and may diminish as more hunts occur.

Sort #	Commenter Code	Comment	Response
708	e_Abels_7-26-15	The DEIS also stated that people were disgusted with the news stations for showing the footage on TV. Again, if people were complaining about seeing it on TV how can you argue that people would show up to see it in person????? The DEIS states that visiting and fishing permits in Neah Bay increased from 6405-10,678 from 2007-2011. Can I point out the fact that there was no sanctioned whaling then?? The DEIS states "Many people travel to the coast to watch the annual migration of California Gray Whales," Yes, at La Push where they have a welcoming ceremony for the whales and show the whales respect. The DEIS states the attractions in Neah Bay are: Makah Museum, Sport fishing and guided tours, vehicle sightseeing tours, beach activities, camping (attendance 2341 in 1999 7206 in 2011 again no whaling), hiking is popular for wildlife viewing (live happy wildlife not wildlife being tortured and killed).." Can you reasonably argue that these activities won't be affected by whaling? Whaling itself will be a deterrent, but the collateral effect of protesters will make people think again about going out to Neah Bay. The DEIS states that tourism accounts directly for 8% of the employment. What is the indirect employment from tourism? Sport fishing is a big part of the Makah tourism income. "Sport fishing mostly offshore in whale hunt zone." The DEIS states that it would be infrequent brief interruptions to the sports fishermen. These disruptions may be enough to encourage them to go elsewhere.	The DEIS does not assert that whaling would have no impacts on the activities identified in this comment but instead reports that all of the action alternatives are likely to have a mix of beneficial and adverse impacts on tourism and on-scene and media observers. Section 4 of the DEIS notes that "[g]iven the likely influx of visitors coming to Neah Bay to observe, protest, or report on the hunt, or to participate in tribal ceremonies and celebrations, it is reasonable to expect there would be a short-term increase in tourist-related business activity associated with these visitors. Any short-term effect is likely to be minor, and may diminish as more hunts occur" and that "[o]ver the long term, there is no information suggesting that the hunts in 1999 and 2000 had any lasting effect on tourism in Clallam County or Neah Bay. Thus, while a whale hunt might attract visitors to the Neah Bay area, it is likely that any positive effect would be short-term and minor."
709	e_Abels_7-26-15	The DEIS states that the cost of law enforcement was $91,670 PER DAY including the Coast Guard. Why are taxpayers being burdened with the cost of the Makah's hunt???? Where is the cost of NOAA going through litigation and doing this DEIS?? These tax dollars would be better spent elsewhere. These costs should be paid by the Makah. They want to kill whales, let them pay for it. No taxpayer funded whale hunts.	The purpose of the DEIS is to analyze potential impacts of alternatives, not the history of federal funding or conjecture about how those funds should be or could have been used.
710	e_Abels_7-26-15	The DEIS states "fluctuations in the reservation's natural resources, commercial fishing, tourism and sport fishing continue to present challenges to the Tribe's ability to ensure reliable incomes.." First this speaks to their inability to manage their resources. There are no deer on the reservation, because they killed them	Comments noted.

Sort #	Commenter Code	Comment	Response
		all without allowing the population to recover. They logged their land with reckless abandon. Whaling isn't going to improve any of these challenges and they can't be trusted to manage their whaling activities. They proved that when they had an unauthorized hunt that killed, likely, a resident whale since they killed it in the Strait. It would be interesting to compare tourism to La Push against tourism in Neah Bay. One pro whale the other pro whaling. I can say that all the people I know who go to the Olympic Peninsula I give them the same speech, "You will love the Hoh Rainforest and if you want ocean and whales go to La Push. Stay out of Neah Bay."	
711	e_Abels_7-26-15	False Claims and Inaccuracies: The DEIS quotes Keith Hunter (not a Makah tribal member), "all dissent regarding whaling was healed the day the whale was killed." Where do I begin? Alberta Thompson was a courageous and honorable Makah Elder. I will always have great respect for her. She frequently told us how she was threatened and bullied while on the reservation. The day the whale was killed there was "no opposition by tribal members" because Alberta was thrown off the reservation and forced to live elsewhere. Many other Makah members came to us and discussed their opposition to the hunt, but were intimidated into silence. One afternoon staying at Snow Creek, a Makah member stood on an overlook above the campground and fired their .22 over our campers. The police were called and the shell casings were found. At the public hearing in Port Angeles several activists were threatened. My impression is that the pro whaling faction can be pretty intimidating.	Comments noted.
712	e_Abels_7-26-15	The DEIS states that many tribes support the Makah. They support their "right" not whaling. Many tribes asked them to not go whaling.	Comments noted. Because of the lack of supporting information we cannot evaluate this claim.
713	e_Abels_7-26-15	The DEIS blames "antiwhaling activists for targeting Muckleshoot, Puyallup and Tulalip tribes for supporting the Makah hunt." Once and for all this was a protest about the action of whaling, not against the Makah. I was one of the many protesters who was in the area regularly and involved regularly. There was 1 person who suggested going after tribal casinos. It was immediately shot down because we were about stopping the action of whaling. Going after other tribes or their assets was inappropriate, unnecessary and counterproductive. This person was separated from the antiwhaling community. The DEIS also blames the antiwhaling activists for death threats to a tribal school?? This is news to me. The DEIS can't hold the antiwhaling activists accountable for all the wingnuts in society. So don't paint us with the same brush. This does speak to the "negative social affects" the hunt has had and will have. The antiwhaling protesters went to	The DEIS does not seek to assign blame but to present information. It cites a Seattle Times article by Janet Burkitt (1999) titled "Sound Tribes Feel the Impact of the Hunt" which states "Yesterday, the Puyallup Tribe's Chief Leschi School was evacuated after an unidentified caller claimed that a bomb had been planted there in retaliation for the tribe's support of the Makahs' whale hunt."

Sort #	Commenter Code	Comment	Response
		great lengths to monitor and censor words and actions on our side. To be respectful even in the face of some very harsh words and physical threats. We have no control over other members of society who do have inappropriate thoughts and decide to express them.	
714	e_Abels_7-26-15	International Impact: In the DEIS the only argument against the precedent setting effect of the Makah hunt to Japan's proposed coastal/cultural whaling was that if they haven't done it yet they aren't going to. Really?? Did it cross your minds at any point that maybe they are waiting for all the litigation to settle to see where it all shakes out? I found it interesting the day the Makah killed the whale that there were multiple cars heading to Neah Bay with Japanese passengers.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
715	e_Abels_7-26-15	Given the Makah were offered money by Japan to kill whales and FOIA documents showing they wanted a processing plant to sell the whale meet, there is more to this than NOAA appears ready to disclose (or admit to).	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
716	e_Abels_7-26-15	NOAA/NMFS bias: There is an inherent bias by NOAA/NMFS towards the Makah. FOIA documents demonstrated that NOAA gave the EA to the Makah first to edit, change the science and then put out for public comment. This bias was a pivotal argument in our lawsuit. I look at NMFS in Neah Bay as having Stockholm Syndrome. They only hear one side of the argument repeatedly over a protracted period of time and they start to believe it and accept it as fact. It's human nature, you can't avoid it. I look at NOAA as the Republican Party. If you tell a lie often enough it starts to sound true. NOAA repeatedly goes to the IWC and argues on behalf of the Makah to obtain a quota. So if NOAA/NMFS argue on behalf of the Makah and change the science for the Makah then you believe it and agree with it. So any outside argument against it will be automatically dismissed. It was interesting that the Makah (and non-Makah) who favor whaling are quoted in the DEIS, but no quotes from the antiwhaling community and sadly Alberta passed away so her voice is silent. You will probably argue that this whole DEIS was because of the antiwhaling activists. Our perspective was never put in the DEIS, especially, with regards to the criticisms and accusations against the antiwhaling activists. We weren't given equal time. We were also misrepresented in the DEIS and accused of things we didn't do. Again, demonstrates bias.	The DEIS notes that many people beyond the reservation do not support whaling, and protests were common during the 1999 and 2000 hunting periods (Subsection 1.4.2, Summary of Recent Makah Whaling – 1998 through 2007, and Subsection 3.15.3.4, Behavior of People Associated with the Hunt). The DEIS seeks to present factual information, relying on available sources, such as news reports.

Sort #	Commenter Code	Comment	Response
717	e_Abels_7-26-15	Some final thoughts: In 2000 I had several Congressmen and Senators, local and federal, who were willing to cede Makah traditional land back to the Makah in exchange for not whaling. There would have been no amendments to their Treaty, just an agreement to not whale. The Makah just had to say yes and the deal would have gone to the appropriate committees to be finalized. Assistance was offered to the Makah repeatedly to start ecotourism and to start a whale watching operation which, as stated in the DEIS, is a $2 billion industry. We offered many ideas to promote the Makah and increase tourism. If the Makah had offered a whale watching trip that incorporated a "mock" whale hunt and ceremony, I would be all over that. Take the canoe out and throw a non-lethal harpoon at the whale then wish it well on its journey, I would pay good money to see that!! The DEIS speaks to the Makah's continued challenges for reliable income. First, welcome to our crappy economy. Second, whaling isn't going to help that. Third, the antiwhaling activists stand at the ready to help the Makah if they abandon whaling.	Comments noted. Please also see the response to frequent comment # 9 regarding non-lethal action alternatives.
718	e_Abels_7-26-15	In 1979 Congress found, "marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic." Congressional Record, V. 147, Pt. 9, June 26, 2001 to July 16 2001 refers to whales as "among the most intelligent animals on Earth, and they play an important role in the marine ecosystem...The right policy is to protect whales around the globe...." The link below is a great example of the intellect of whales: http://www.goodhousekeeping.com/life/a33456/beluga-whale-boy-funny-video/	Comments noted.
719	e_Abels_7-26-15	I've been to the breeding lagoons in San Ignacio. We were in a small boat, shut off the engine to float and watch whales. It wasn't long that we were approached by a mother and calf. The calf wanted to stay away, but the mother nudged the whale towards the humans. Of course, we were quite animated in our excitement. The mother rolled on her side and watched the goofy humans go nuts over the calf. The calf seemed to enjoy being rubbed by the humans. A little while later the mother nudged the calf away from us and moved off. Kind of struck me like the Mom was saying, "Ok junior, we have things to do. Time to go." Another adult spy hopped next to the boat. She was so huge and was leaning over our boat. She started to drop down back into the water. I was terrified that she was going to take us out. However, she gently moved over, glided down and missed us. She had an awareness of us. Another juvenile came over and gently pushed our boat then spy hopped next to us. Then nudged us and spy hopped. Again, she seemed to have an awareness of how fragile we were and seemed to respond to our squeals of delight. What other animals in the wild "play" with	Comments noted.

Sort #	Commenter Code	Comment	Response
		humans? What other animal in the wild “encourage” their young to interact with humans?? For all we are doing to the whales, they continue to show us a humanity humans don’t deserve! Sandra Abels Please do not publish my contact information.	
720	e_Ahern_5-5-15	Dear NOAA, I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines. In 2015 there is no “need” to kill whales. The Makah Tribe has access to food, clothing and traditional history. “Tradition” is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
721	e_Ahern_5-5-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
722	e_Ahern_5-5-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
723	e_Ahern_5-5-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason.It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Deborah Ahern	Comments noted.
724	e_Ahern_7-20-15	Dear NOAA, It is not right to approve the Makah tradition of hunting whales. This will surely open up a can of worms.	Comments noted.
725	e_Ahern_7-20-15	We can not base tradition as a reason to hunt them. As an American citizen I whole heartedly disapprove this request. I respect the first people; indigineous. They have a respect for the environment and their culture is rich with insight,	Comments noted.

Sort #	Commenter Code	Comment	Response
726	e_Ahern_7-20-15	but it is not necessary to kill whales who's intelligence is well documented.	Comments noted.
727	e_Ahern_7-20-15	This tradition is old as many barbaric traditions. Whales deserve protection and to respect them is to keep them free to travel the oceans unharmed.Sincerely, Deborah Ahern 3 Kendall Park Norton Ma 02766	Comments noted.
728	e_Alba_3-10-15	Dear Representatives of the NOAA, As tax-paying Americans, we are asking that you continue to protect whales and other marine mammals in our U.S. waters. Please DO NOT allow the Makah to hunt whales. The whales are having a hard enough time with pollution, climate change, and shrinking food sources. Sincerely, Lindsay Autio and Victoria Alba	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats..
729	e_Alfaro_7-19-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
730	e_Alfaro_7-19-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
731	e_Alfaro_7-19-15	Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. Thank you! Marietta W. Alfaro	Comments noted.
732	e_Amiri_3-13-15	To whom it may concern; I am writing to ask that the you deny the request by the Makah to hunt whales. The IWC specifically allows aboriginal whaling only where there is an unbroken tradition and when it's necessary for subsistence purposes. The Makah do not qualify because not only did they voluntarily break tradition, they have no need for whale meat for food.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
733	e_Amiri_3-13-15	The treaty that is often referenced by the Makah's was, in fact, effectively abrogated in 1946 when the USA joined the IWC. Whaling law, therefore, falls under international law and permission cannot be granted by the USA.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
734	e_Amiri_3-13-15	If the Makah establish a quota of gray whales, they will seek to establish a quota for other whales including humpbacks, minkes, and orcas in the future. This is a certainty because gray whale meat is not considered to be palatable as food. The Makah's have previously admitted to having this objective in seeking additional quotas. The Makah's are using the Gray Whale to open the door for whale hunting in general.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
735	e_Amiri_3-13-15	If the Makah determine a quota and are given permission to kill whales by the USA, it will encourage tribes on Vancouver Island, Canada to seek whaling plans of their own. Thirteen native communities on Vancouver Island have expressed interest in whaling if the Makah's are given permission. We cannot afford to kill more of our oceans and its in habitants.If the Makah determine a quota, it will strengthen the positions of Japan, Norway, and Iceland to continue and even escalate their illegal whaling activities and will weaken the USA's international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
736	e_Amiri_3-13-15	Finally, tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity to justify these killings in modern times.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
737	e_Amiri_3-13-15	The treaty that the Makah use to make the argument that they have the right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. Therefore, when whaling was outlawed for all Americans, it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. To grant the Makah a privilege denied to all other citizens of the United States is tantamount to special rights for a group based on race and /or culture and is contrary to the guarantee of equality under the law as guaranteed by the United States Constitution.For all of these reasons, I am asking the NOAA to deny the Makah permission to hunt Gray Whales.Thank you,Shab Amiri Phoenix, Arizona	The purpose of the DEIS is to analyze potential impacts of alternatives to inform decision making under the MMPA and WCA, not to explore or resolve legal debates.
738	e_Ammdouglas_3-6-15	Please, leave the whales alone, you are the Environments last Protectors!	Comments noted.
739	e_Andersen_6-4-15	This discussion is so missing the point. So called native americans are immigrants too. They immigrated to America just as the rest of us did. They only arrived in America a little sooner than we. So what? Now the rest of us are here, so get over it. Indians should not be allowed to hunt whales. If they are allowed to hunt	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		a whale then so should I. Giving special consideration to people based on the color of their skin is blatant discrimination.	
740	e_Anderson_4-24-15	Dear NOAA-I am writing to oppose the hunting of whales off our coast by the Makah Indians. Whales are killed too frequently by our freight ships and other accidents at sea. There are still too many countries that allow whaling, and we should be doing everything we can to protect our marine mammals.	Comments noted.
741	e_Anderson_4-24-15	Allowing the Makah Tribe to hunt whales re-opens the argument for others to do the same. I respect the intent behind the International Convention for the Regulation of Whaling and the 89 countries that have signed on to it. I want to see more countries sign on, rather than losing ground in this fight to protect our oceans and the species that live there.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
742	e_Anderson_4-24-15	I formerly lived in Davenport, California and saw far too many bloody whale photos. I stood along the cliff where whalers tied off the dead whales on the beach below. The cement pad and huge metal hoop where they tied off the whales is still mounted on the edge of the cliff. It was, and still is, a very sobering spot to stand. Whaling was a way of life on the California coast 100 years ago. I saw a lot of that history in photos as I grew up. It was very sad. I was comforted, however, in knowing that those days were a thing of the past. In the decade before I was born, the United States decided it was wrong to hunt whales and signed on to the Convention. Now, when you visit the California coast, the whaling you see is very different. It's all about whale watching tourists—respecting the huge animals that live in our oceans, being humbled by their enormity and grace. These tourists stimulate the economy by admiring nature, not killing it. Allowing the hunting and killing of whales by any of our citizens is reprehensible, period. Since 1946, we've been a leader by example in regulating whaling. We've followed our conscience, and we've become a better society for it. Whaling is not a legacy we want to pass on to our children. In fact, how could we even justify it? Respectfully submitted, Barbara Anderson	Comments noted.
743	e_Anderson_5-11-15	Dear Sir/Madam, I am writing to protest the Makah killing whales and ask you to please stop this senseless destruction of a species already besieged by human activity. The following twelve points counter arguments put forth by the Makah. 1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
744	e_Anderson_5-11-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
745	e_Anderson_5-11-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
746	e_Anderson_5-11-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
747	e_Anderson_5-11-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
748	e_Anderson_5-11-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
749	e_Anderson_5-11-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
750	e_Anderson_5-11-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.

Sort #	Commenter Code	Comment	Response
751	e_Anderson_5-11-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
752	e_Anderson_5-11-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
753	e_Anderson_5-11-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing. Thank you for taking the time to read this. Sheila Anderson, Chatham, Ontario, Canada.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
754	e_Andrews_4-29-15	To whom it may concern, I reject all arguments rationalizing the unnecessarily cruel, and altogether unnecessary killing of any and all whales of any type in perpetuity.	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
755	e_Andrews_4-29-15	All cultures can look to their own histories for previously rationalized killing that are no longer committed for myriad reasons. Tradition does not justify unnecessary killing. Population does not justify unnecessary killing. Unnecessary killing cannot be justified in this era among peoples who do not require it for survival. Veneration of any creature through its murder is nonsense. I cannot believe that 40 years after I first uttered "Save the whales" that I must still implore anyone in this nation to do so. We have matured beyond this. Please stop this institutionalized cruelty now. Respectfully, Lisa Andrews 1 6825 SE 3rd Pl Bellevue, WA 98008	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
756	e_Andries_4-11-15	Dear Sir, Whales are facing major threats. Due to the increase in the population the Makah Tribe in Washington State would soon re-visit their efforts to resume whaling, claiming their Treaty rights gave them the authority to kill Gray Whales.Literally, the day after the Coalition returned from Guerrero Negro to San Diego, a new request was applied by the Makah for a waiver under the Marine Mammal Protection Act. The DEIS acknowledges that if the Makah hunt is	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
		authorized, it may lead to future regulatory changes that would in turn lead to increased hunts of whales or other marine mammals.	
757	e_Andries_4-11-15	The DEIS is unable to ensure that the highly endangered Western Gray Whale will not be killed. Only genetic analysis would allow identification of a whale as either Eastern North Pacific, Western Pacific Whale or a member of the Pacific Coast Feeding Group. It is impossible to ID these whales as they all look alike.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
758	e_Andries_4-11-15	The DEIS lacks important published research on the extent of Orca predation which has been estimated at 35% of calves. Given the increase in numbers, and the ability of transient Orcas to move deeper into Gray whale habitat in the Arctic as the ice melts, the rate of predation is likely to be as high or higher than 35%. No current Russian figures or current research have been included in the DEIS.	The commenter does not identify the published research allegedly lacking from the DEIS. The DEIS includes updated and relevant material in the following Subsections: 3.4.3.1.2, Global Distribution and Population Structure; 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.1.6, Natural Mortality; 3.5.3.1.1, ESA-listed Marine Mammal Species (Killer Whale); 4.5.2.2, Prey Availability; 5.1.3.8, Natural Mortality.
759	e_Andries_4-11-15	The precedent set by granting a waiver will : - Set an unholy precedent at IWC, particularly as Japan is attempting to have its coastal communities given the same rights as the US is seeking for the Makah Tribe. - Set the wheels in motion for the killing of Humpback Whales as efforts are being made to delist the Northern Humpback Whale from the Endangered Species List. The Tribe has indicated its desire to kill Humpbacks. - Set a precedent for a significant number of Native American Indian Tribes to claim discrimination and seek the same whaling rights as the Makah.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
760	e_Andries_4-11-15	The Bowhead whale quota for Alaskan Inuits is a source of great controversy at IWC and within the conservation community. If a waiver is granted to the Makah, the US will have cemented its position as a whaling nation. A total reversal of a proud record of whale conservation.The Tribe proposes killing a maximum of five Gray whales per year on average and up to 24 whales in a 6 year period. The number of whales struck (and not killed) would be no more than 42 over the six year period.	Comments noted.
761	e_Andries_4-11-15	The Makah Tribe claims hunting gray whales is a treaty right. The Tribe says the exercise of its treaty whaling rights will provide a traditional subsistence resource to the community and sustain and revitalise the ceremonial, cultural, and social aspects of its whaling traditions. An Indian magazine carries an article which	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe, # 3 regarding the Makah Tribe's desire to

Sort #	Commenter Code	Comment	Response
		demonstrates the battle those of us who want to protect whales are facing. Killing whales in the 21st Century has no place in any culture. A dead whale is a dead whale. If a waiver is granted by the Federal government, then the IWC will have to accept a new whale killing category – healing over 200 years of cultural disruption. Sincerely: Anna Brewer-Andries, Tina Beurtels; John Summers; Henry T.; Vickey Osborn; Teddy Miller Texas Amanda Fields; Jurgen Sorens; Rita Suffolk; Mary Dalton; Joseph Pritchard; Kimberley Fields; Simon Sears; Beverly Woods; Anita Brewer; Daniel Russel; Petra Stafford; Kim Wright; Daphne Harlington, New Mexico; Kathy Stafford, Joan Bu erfield, Kenneth Lawson, Myrthe Low, Diane Bremer, US	revive its whaling tradition, and # 4 regarding the precedential effect of waiver internationally and domestically.
762	e_Andy_7-15-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales for survival. There is no survival necesssity today to justify such a slaughter Please let these beings alone. Isnt it enough that man is slaughtering all animals at an unprecedented rate. They are not ours to take when we want to. Please stop I would love for my son to see these creatures when he gets older not just read about them in books. Margaret Andy	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
763	e_Angel_7-30-15	Please do not allow the so called "tradition" of whaling in our lovely United States .. We love and value all our cetaceans and please do not do this. It is barbaric and cruel.. Mammals have feelings live in families feel (proven) .. Please do not do this Thank You,, J'aime Angel	Comments noted. Please also see the responses to frequent comments # 1 regarding the humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
764	e_Anonymous1_6-2-15	Dear Mr. Stone: After reviewing the Draft Environmental Impact Statement concerning the Makah Tribe's request to resume their tradition of harvesting gray whales, I am concerned by the alternatives proposed in the document that allow for the continuation of whaling practices. I recommend that NOAA should proceed with Alternative One, which is the NoAction Alternative and would not allow for a Makah gray whale hunt. My concerns stem from the following	Comments noted.
765	e_Anonymous1_6-2-15	Humanitarian issues regarding the slaughter of North Pacific gray whales in the northwest region of the United States, as the methods used during a hunt can result in a drawnout and painful death to these highly intelligent marine mammals.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
766	e_Anonymous1_6-2-15	The numbers allowed for strike and loss, as requested by the Makah tribe, make it possible for great harm to be inflicted upon the whales at no benefit to the subsistence of the tribe.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
767	e_Anonymous1_6-2-15	The uncertain affiliation of groups of gray whales, as the Western North Pacific gray whale population would not be able to suffer many losses from whaling while their numbers remain close to extinction. Although the Makah tribe places great cultural value on the whale hunts by the Makah tribe, the risks to recognized and putative stocks of gray whales near extinction must take precedence over unsustainable human traditions.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
768	e_Anonymous1_6-2-15	Whaling has evolved to greatly favor humans through the use of speedboats and mechanized harpoons, so the argument for such customs is marred by modern techniques.	Please see the response to frequent comment # 15 regarding the use of modern weapons.
769	e_Anonymous1_6-2-15	The moratorium set by the International Whaling Commission recognizes the differences between commercial and subsistence whaling, but harvesting gray whales is no longer necessary to provide food for the Makah people.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
770	e_Anonymous1_6-2-15	Along with other countries that value the protection of endangered species, those with the power to establish and enforce protective measures must set a conservation precedent. The various alternatives proposed in the DEIS do not address some concerns surrounding the uncertain affiliation of groups of gray whales, as the Western North Pacific gray whale population would not be able to suffer losses from whaling while their numbers remain close to extinction. Based on these concerns, I conclude that NOAA should not grant an exception for the Makah tribe to practice whaling for subsistence or cultural reasons, as it puts the endangered western stock of gray whales at further risk and cannot be completed in a humane way.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
771	e_Anonymous1_6-2-15	Barring a group of people from a tradition that holds spiritual value does not come without ethical dilemmas, as the decision is being made by those from a different culture who may not understand the full scope of the practices. As outlined in the DEIS, the Makah tribe appears to have been a whaling community for about 1,500 years. The 1855 Treaty of Neah Bay, which signed away most of the land previously occupied by the Makah people, allowed for the hunting of whales and seals. Clearly, however, the whales taken for subsistence purposes did not have the same detrimental effects as the whaling practices seen in the early 1900s. The settlers of the Pacific Northwest used whales for subsistence as well, but in unprecedented numbers that decimated the population to the extent that it warranted a place on the list of endangered species. It is the fault of the people immigrating to the west coast that the gray whales were driven to near extinction, but it is also through human interaction that they were able to make a recovery and at least the Eastern North Pacific stock has been delisted. The	Comments noted.

Sort #	Commenter Code	Comment	Response
		Makah tribe should not be unfairly punished for the mistakes of my predecessors, but with the current scientific data available I do not think that the alternative should be that the whales suffer the consequences either. With other moral questions surrounding current environmental issues, I think we should take cultural value into account if it does not come at the price of that which we are trying to protect. In South America, the destruction of the rainforest benefits local economies and provides an opportunity for developing countries to compete in world markets. Due to the fact that we did not fully understand the consequences of harvesting large swaths of old growth forests, such as disrupting fragile ecosystems and processes that still need to be further studied, there is demand for stricter controls on these practices. Rainforests also act as carbon sinks, becoming increasingly vital in our modern battle against excessive greenhouse gas emissions. We must therefore ask ourselves if it is acceptable to curb the degradation and removal of these rainforests, as the poor countries that will benefit the most from widespread forestry practices are being held to different standards than the developed nations that benefitted in the past. In moving forward with legislation involving ecological protection, however, I believe it is necessary to establish policies that take into account the most uptodate research and to learn from the misguided actions of our ancestors. In regards to the atrocities committed by the United States Federal government upon Native Americans, including settling the land formerly occupied by the Makah Tribe, I do not believe we should try to make amends by allowing for another kind of devastating act.	
772	e_Anonymous1_6-2-15	I concede that I am trying to put constraints on a culture that I do not fully appreciate or understand, but the controversy here can be simplified into conflicting values. It is evident that the Makah tribe has a spiritual and an economic interest in whaling, as the ceremonial process surrounding a whale hunt provides a traditional experience that allows for members of the tribe to identify with their quickly "westernizing" culture. In the past few centuries, incoming settlers have tried to diminish tribal rights and force integration of foreign beliefs through unjust methods and a pattern of breaking treaty agreements. The ban on whaling practices does not fall under these past wrongs for several reasons, and I do not feel that expecting compliance with antiwhaling laws diminishes the Makah tribe's cultural traditions enough to warrant the killing of gray whales at the requested numbers. The ban on killing gray whales comes from a place of respect for a species negatively impacted by human intervention. As a society, we have deemed it necessary to conserve this marine	Comments noted. The Makah Tribe is pursuing a waiver of the MMPA take moratorium through legal means, pursuant to the Court's decision in *Anderson v. Evans*, and as allowed for in Section 101(a)(3)(A) of the MMPA. For more information, see Subsections 1.2.3.3 and 3.17.3.1 of the DEIS.

Sort #	Commenter Code	Comment	Response
		mammal to the point that they are able to fully recover from previous detriments, a move that I think was necessary and commendable. The Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) force compliance not only by tribes along the west coast, but also by fishermen and other profiting industries. The Boldt Decision of 1974, concerning fishing rights in Washington State, saw the return of traditions that had been impeded by outside policies. In this case, treaty rights were being violated to give precedence to other fishermen. With whaling, however, there are no rights being taken away from the Makah tribe only to be given to an undeserving party, as the regulations established by the MMPA and the ESA must be followed by everyone who interacts with the gray whales. We place enough value on the preservation of this species to warrant strict protection, and I believe that this value is just as relevant in the decision as the value derived from killing the whales. Although their practices have been established for thousands of years, is it now more important to look to the future and determine if those methods are sustainable for another thousand years. It is unfair to assume that the benefit the Makah people receive from continuing their whaling practices is more important than the enjoyment others get from protecting the gray whale.	
773	e_Anonymous1_6-2-15	The intelligence of large marine mammals such as the gray whale may not be reason enough for some people to denounce whaling practices, but I do not think it is inherently permissible for the Makah Tribe to claim sovereignty in whaling practices for the sole reason of tradition. Our laws frequently denounce the traditions of our past and of other cultures, as we have determined that they no longer represent our current society. There are many other legal impositions placed on tribes that have influenced their culture, and it is clear that unnecessary whaling is not a practice that we will tolerate by any group. Since my values are rooted in appreciating whales that are alive, I can see that these moral standards clearly oppose one another. I know that comes from my individual experiences and not an omniscient determination of what is moral or not.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
774	e_Anonymous1_6-2-15	I still do not think there should be exceptions made for the Makah tribe, however, due to the importance of conservation of the endangered populations of gray whales that could be harmed by whaling practices off of Washington's coast. If this were merely a humanitarian issue involving the act of slaughtering a gray whale, then I would accept that the Makah culture is allowed to have a different set of beliefs and may support their request for subsistence whaling. The proposed whaling is not for such purposes, as the tribe has successfully survived without such practices and will continue to do so if NOAA were to	Comments noted. Please also see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
		choose Alternative 1. We should not allow the destructive practices of the past dictate our present and future relationship with these intelligent creatures, but instead we should foster value in the appreciation of their protection and continued existence.	
775	e_Anonymous1_6-4-15	Dear Mr. Stone: After reviewing the draft Environmental Impact Statement of the Makah Tribe's request to hunt gray whales, I recommend that NOAA issue the Makah Tribe permits to hunt the eastern North Pacific (ENP) gray whales. Of the alternatives included in the existing draft, I recommend that NOAA select alternative 5 as the preferred alternative for the issuance of permits. While I think that alternative 5 is the current best available option, I also think that it should be modified. I recommend the following requirements be included in the issued permit: ‣ Increase protections for Pacific Coast Feeding Group (PCFG) and western North Pacific (WNP) gray whales ‣ Define “take” using the Marine Mammal Protection Act (MMPA) definition ‣ Increase protections for sensitive age/sex classes of the populations ‣ Increase hunt observer coverage and authority ‣ Decrease the total number of whales that can be approached ‣ Implement restrictions if the “take” quota is met or exceeded ‣ Require research and development of whaling methods ‣ Minimize the impact on surrounding environments ‣ Minimize the impact on the non-target whale populations The Makah Tribe deserves the appropriate gray whale hunting permits due to significant cultural and historical precedence established by the 1885 Treaty of Neah Bay. The International Whaling Commission (IWC) and by the National Oceanic and Atmospheric Administration (NOAA) have recognized the importance and granted the same opportunity to other tribal entities. It is not appropriate to entirely limit the Makah's ability to hunt whales in a population that is not threatened or endangered when other groups are allowed to hunt from similar populations.	Opinion noted. We will consider the suggested refinements to hunt provisions in future decision-making.
776	e_Anonymous1_6-4-15	‣ Increase protections for PCFG and WNP gray whales I do not support any permitted action that includes an allowable bycatch limit for the PCFG whales. This is a case where the cumulative impact of all human actions on the population should be considered. The total population of PCFG whales is quite small, so the human caused mortality of a single animal has a greater impact than it would on a different, more populous stock. Ship strikes and fishing activities are existing types of human-cased mortality; these activities already remove or harm enough individuals and there is no additional tolerance for additional mortality from whaling activities. Any whale that is taken, under the definition	Comments noted.

Sort #	Commenter Code	Comment	Response
		from the MMPA, and cannot be identified definitively as a part of the ENP or WNP stocks should be assumed to be a PCFG whale. Such take would cause the Makah to exceed their annual limit for take of PCFG whales and should halt the hunt for the year. This would provide the Makah the time needed to reassess their hunting practices and modify them accordingly to avoid this happening again. I also do not support the allowance of carry over of unused portions of the WNP bycatch limit into a subsequent year.	
777	e_Anonymous1_6-4-15	‣ Define “take” using the MMPA definition I recommend that all hunt-related take, as defined by the MMPA and not the IWC, count towards the total limit on bycatch. Dividing the impact of hunting activities into smaller categories, such as struck versus struck and lost, does not properly account for the impact that these activities have on the whale populations in question. If a whale is injured from an attempted strike or strike and loss, it makes no real difference to the whale exactly how it was injured, just that it was injured. I believe that any hunting activities will have impacts and to subdivide these impacts ignores the fact that the overall impact is quite similar. As such, I think the definition of “take” from the MMPA is a much more accurate representation of the true impacts and should be used in the Makah's permit. I prefer that a “take” quota be established for each type of whale that the Makah could potentially impact in their hunt rather than the current subdivided set up.	Our decision regarding the tribe's request for a waiver of the MMPA take moratorium would rely on that statute's definition of 'take,' and any regulations associated with such a waiver would define terms needed to clarify elements of a hunt, including strikes. We disagree that all hunting activities have similar impacts, e.g., harpooning and killing a whale would have a much greater impact - at both the individual and the population scale - than merely approaching one in a canoe.
778	e_Anonymous1_6-4-15	‣Increase protections for sensitive age/sex classes of the populations I recommend that the striking or striking and loss of a mother or calf, of any of the populations in questions, immediately halt the hunt for the current year and result in a penalty of no hunt allowed for two additional years or until the end of the permit, which ever is longer.	Comments noted.
779	e_Anonymous1_6-4-15	‣ Increase hunt observer coverage and authority I support the requirement in alternative 4 that would only allow the approach of a whale that had been identified as an ENP male by a trained observer on board. This requirement is essential to ensure that the WNP gray whales and PCFG gray whales are not negatively impacted by the activities of the Makah. Limiting the allowable hunt to male whales should decrease the impact that hunting activities would have on to the ENP, including the possibility that the stock would fall below its optimum sustainable population.	Comments noted.
780	e_Anonymous1_6-4-15	I recommend that the Makah's permit require that all public safety measures be solidified as conditions of hunt and the year's hunt be suspended if they are not	Comments noted.

Sort #	Commenter Code	Comment	Response
		upheld. I also want this to be a condition that, if not met, would justify postponement all future hunt activities.	
781	e_Anonymous1_6-4-15	I request that additional data be gathered by the Makah about how they use the whales and how much of each whale that they land is used. If, over the course of the six-year permit, NOAA finds that the whales being landed are not being used for subsistence purposes, NOAA should deny any future permits to hunt. If the whales that are hunted are wasted and this problem is identified during the course of the current permit, I recommend that the hunt for the remaining duration of the permit be halted so that the true value of the hunt to the Makah can be reevaluated.	Comments noted.
782	e_Anonymous1_6-4-15	As a stipulation of the Makah's permit, I recommend requiring that the National Marine Fisheries Service (NMFS) assess the overall impacts of hunting activities halfway through the permit. This assessment would allow for the more frequent NMFS reviews that are a part of alternative 6 but in a less binding way, so that this lengthy environmental review process does not need to be undertaken as frequently.	Comments noted.
783	e_Anonymous1_6-4-15	‣ Decrease the total number of whales that can be approached According to the Makah's self reported data from the 1999 and 2000 hunts, the ratio of unsuccessful attempts to capture a whale and successful attempts is 6:1. This means that for each of the 4 ENP gray whales that the Makah are currently allowed to hunt annually, up to an additional 24 whales will be in some way pursued. That means that roughly six times as many whales would be taken, under the MMPA definition, than are currently allowed for in alternative 5 for the total duration of the permit. Bearing these facts, the total number of whales allowed to be taken should be lowered to ensure that all populations are able to grow to or remain above their optimum sustainable population.	Comments noted.
784	e_Anonymous1_6-4-15	‣ Implement restrictions if the “take” quota is met or exceeded I recommend requiring that if the annual “take” quota, which would include all whales successfully hunted and also those whales struck and lost, is met or exceeded, the Tribe must stop hunting and reevaluate techniques and address the identified problems. If during the six years of the permit, the Tribe meets their struck and lost quota twice or if in consecutive years the quota is met, NOAA should not allow the Makah to hunt for the remaining duration of the permit. Such an occurrence should also be grounds for withholding a new permit until the problems with their process are identified and corrected.	We note the recommendation of a regulatory limit on non-lethal forms of take and will consider it in future decision-making.

Sort #	Commenter Code	Comment	Response
785	e_Anonymous1_6-4-15	‣Require research and development of whaling methods I believe a part of the permit should require the Makah Tribe to conduct research and development (either alone or in partnership with a state/federal agency, such as NMFS, or local university) to refine and update the equipment and methods of whaling with the goal of improving safety, effectiveness, and humanness of the hunt process. I would then request that any future permits be based on this research, and if the research is not at least begun by the end of the current six-year permit, no future permit be issued.	Comments noted. The United States also participates in the IWC workgroup on whale killing methods.
786	e_Anonymous1_6-4-15	To gather the best data for said research, NOAA should require a NMFS (or other, non- tribal) observer on the chase boat for all hunt attempts. This observer would act in multiple capacities. During the hunt, they should fulfill an advisory role and help the Makah in the hunting boats avoid targeting WNP, PCFG or sensitive sex/age classes of whales. This observer should attempt to identify, in whatever method is determined to be the most useful by the research team, every whale that is not landed that the boats come in contact with during the hunt. These observations should be added to the data gathered from the successfully hunted whales. At the completion of the hunt, the observer would be responsible for reporting back to the enforcement agency about the hunt and whether or not any infractions had taken place.	All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.
787	e_Anonymous1_6-4-15	‣ Minimize the impact on surrounding environments I recommend initially requiring a buffer of a meaningful distance be established around Tatoosh Island and White Rock during any month as in alternative 4. This would be a condition that could be renegotiated halfway through the permit timeframe if the Makah Tribe can prove that it is preventing them from hunting successfully. If renegotiated, NOAA should require that the buffer be observed during the May hunt but hunt activities would be allowed closer to these islands during the December hunt. I do not think that the geographic limit on hunting area should necessarily be required and would elect to rather have the Makah make their own decisions about where to hunt so long as there was no allowance for the populations of concern (PCFG, WNP, and sensitive age/classes of whales) to be taken.	Comments noted regarding buffers around Tatoosh Island and White Rock. This comment appears to support hunting in the Strait of Juan de Fuca. The Makah Tribe did not propose the Strait as a hunt area and none of the alternatives examine it.
788	e_Anonymous1_6-4-15	‣ Minimize the impact on the non-target whale populations I support a modified schedule for hunts to decrease the likelihood of killing WNP or PCFC whales. Of the options proposed in the various alternatives in the draft environmental impact statement, alternative 5 offers the best solution. I think it is reasonable to limit the hunt seasons to prevent the accidental take of whales that are not a	Comments noted. Please also see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
		part of the ENP target stock. It is important to me that tribal hunt is managed to avoid PCFG whales and also minimizes the chance of taking a WNP whale.	
789	e_Anonymous1_6-4-15	I do not support the requirement that a 0.577 caliber rifle be used. I think this could potentially increase the probability of an unsuccessful attempt and would prefer to minimize those as much as possible. To reiterate, I support that issuance of a permit to the Makah Tribe to hunt gray whales specifically from the ENP population. I do so under the condition that my above recommendations are considered and as many as possible are integrated into the final permit. Thank you for your consideration.	Comments noted.
790	e_Anonymous2_6-2-15	Dear Mr. Stone: After evaluation the draft EIS for the Makah tribe wanting to continue whale hunting I would recommend no action. The main things to consider for using this alternative is: ● Culture vs. Conservation vs. Humanitarian ● Struck and Lost ● Uncertain Affiliation My rationale for this alternative is following.	Comments noted.
791	e_Anonymous2_6-2-15	Culture vs. Conservation vs. Humanitarian Clearly the biggest dispute causing the necessity of the EIS is the culture vs. conservation conflict. Historically, Native Americans are some of the most culturally repressed people in the United States, if not the most. Whaling, especially in the Pacific Northwest by the Makah tribe is an integral part to the culture. However, since the environmental movement of the 1970s there has been a massive paradigm shift in our country towards conservation, especially when it comes to species. The Makah tribe historically have used the gray whale for everything. From cultural rituals to food, they have always made the most of this resource. However, during the 19th and 20th centuries, extreme whaling practices by the United States pushed the gray whale to the brink of extinction and forced the Makah tribe to take a hiatus from their whaling practices. For nearly 100 years the Makah did not hunt a single whale. Because of the recent rebound of the whales, the Makah wish to begin hunting again. I think that it is also important to realize that cultures change throughout time. With the Makah taking a 100 year hiatus on hunting gray whales, their culture has largely shifted away from requiring the need to hunt gray whales. This is also where the humanitarian aspect of the argument comes in. Do the Makah really need to hunt the whales now? Can't they perform rituals and honor the still living whales? These are important questions that we need to consider. In my eyes, the Makah do not actually need to hunt whales for cultural reasons. This was fairly apparent when the last whale was illegally hunted and most rituals of the practice of whale hunting were largely ignored. It was also suspect that much of	Please see the response to frequent comments # 1 regarding the humaneness of the hunt, # 2 regarding the ASW status of the Makah Tribe, # 3 regarding the Makah Tribe's desire to revive its whaling tradition, and # 9 regarding non-lethal action.

Sort #	Commenter Code	Comment	Response
		the whale that was hunted was not actually used. This brings much doubt into the claims of importance of actually killing these whales for cultural reasons.	
792	e_Anonymous2_6-2-15	It is also important to realise the power that these whales have in the movement towards conservation. The nation as a whole is largely divided when it comes to the environment, however more and more we seem to be trending back towards an environmentally focused populace. Setting conservation standards for these whales is hugely important in this revitalized movement because they are what would be considered a charismatic megafauna. Just as elephants and rhinos inspire people towards conservation, so do whales. This idea of them being charismatic megafauna has much power over the media and population as a whole. Just as past environmentalist used species such as the spotted owl to protect our forests, we can do the same with the gray whale to help protect the ocean. Setting a precedent that we have moved on from needless killing of this animals and instead towards conserving our planet as naturally as we are able to would protect far more species than just the gray whale.	Comments noted.
793	e_Anonymous2_6-2-15	These flaws, largely our lack of understanding of the migration patterns of the Pacific Coast Feeding Group, specifically the Western population. While the Eastern population has been discovered to be stable, the Western still remains at extreme risk. With the new found information that some whales of the Western feeding group have been found to migrate all the way to North America, the tribe can not hunt with certainty that they are not impacting the Western population. While cultural preservation is important, culture has the ability to not only change and adapt, but also to be rebirthed. Species do not have this luxury. It takes thousands if not millions of years to adapt, and once they are gone there is no chance of ever bringing them back. Because of the uncertainty of what whales the Makah would be hunting, there should be no whaling taking place. Struck and Lost The second point to my reasoning is determined by struck and lost. Alternative 2 proposes that five whales can be hunted, and another three can be struck and lost. The fact that you can lose nearly 40% of whales that you target does not only bring in a conservation argument but also a humanitarian one. From a conservation standpoint, using this alternative you could potentially kill 8 whales in a year. If these whales all were to be from the Western population, which is estimated to be only around 150, you would be losing nearly 5% of the population, which is hardly sustainable for a marine mammal population. While other alternatives propose hunting during different seasons to combat hunting the Western population, there is still so little known about migration patterns that it is too risky to hunt the whales.	This comment mentions PCFG whales but appears to be largely about WNP whales. The commenter incorrectly asserts that under Alternative 2, 8 whales could be struck each year and all 8 could be WNP whales. The tribe's proposal, captured in Alternative 2, would limit a hunt to 7 strikes per year (not 8). More significantly, it is extremely unlikely a tribal hunt would result in the strike of a WNP whale even if all 7 strikes were made per year. The DEIS reports that under Alternative 2 there is a 7 percent chance of tribal hunters striking a WNP whale over a 6-year period if all 7 strikes are made every year (Subsection 4.4.3.2.2, Change in Abundance and Viability of the WNP Gray Whale stock..

Sort #	Commenter Code	Comment	Response
794	e_Anonymous2_6-2-15	The struck and lost also brings a humanitarian aspect to it. The fact that you can kill 3 whales and get absolutely nothing from them brings to question the humanity of whaling. When the argument for culturally hunting these whales largely hinges on actually successfully capturing the whale and using every single usable piece of it, having such high struck and lost counts is unacceptable. This is because in essence you are killing these whales for no reason. There are many risks that people would not take if the chances are at 40% failure, and most of those risks have little to no impact in terms of the scale that we are dealing with. But in this case, you are gambling with not only the lives of individual whales, but also populations of a species that we could never bring back.	Comments noted.
795	e_Anonymous2_6-2-15	Uncertain Affiliation As I have touched on before, the third and one of the more important reasons why we shouldn't hunt these whales is the uncertainty of affiliation. We do not know for certain what whales are being hunted in alternatives 2-6 and anyone of these whales killed could be a reproductive female from the Western population. There should never be any reasoning in valuing money or culture over the preservation of a species.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
796	e_Anonymous2_6-2-15	Not only do we not understand the impacts fully of hunting the whales on their own population, but we do not understand what other species would be affected. We are already affecting the ocean ecosystem in ways we will never fully understand and be able to control. From ocean acidification, plastic waste, over-fishing, and many more impacts, we largely cannot fix or change these problems. However in this case, we have the opportunity to practice a precautionary principle and protect the whales. This is important because then we will not have to deal the the uncertainty and impacts of the whales being removed from the ecosystem as a whole. Just as one of the environmental trail blazers, Aldo Leopold, pointed out in short; ecosystems are so intricate and reliant on every species that we will never fully understand the impact that we have when we remove a population from an ecosystem.	Comments noted. Subsection 4.3, Marine Habitat and Species, analyzes the impact of the alternatives and Subsection 5.3, Marine Habitat and Species analyzes the cumulative effects of the alternatives on the resources mentioned in this comment.
797	e_Anonymous2_6-4-15	Dear Mr. Stone: After reviewing the draft environmental impact statement (DEIS) concerning the Makah tribe's request for resumed whaling I recommend the following: Adhere to the listed alternative number five, with the modification of only allowing the take of one to two whales, with a struck and loss allowance of two whales total. Considering the health of the grey whale species beyond a human (cultural) context, the whales should not be put under further pressure. o Ideally, an EIS has the purpose of being focused on environmental issues, that purpose should remain in tact and focused on. Consider if the subsistence hunting of grey whales is even still relevant in this current era. o Is the need of	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		whales still present for the Makah and others who wish to hunt them, or have they successfully moved on from the time when they relied on them so heavily. And finally/ subsequently Consider, given the point above, if the cultural claims of the Makah even make for a valid argument to resume whalingo In the current global setting, which choice would have the most impact, protecting the whales and thinking environmentally, or supporting the Makah and supporting our treaty and their culture?Each of these points has been made as they are of personal interest to me and I believe them to be of significance in the creation of the Environmental Impact Statement (EIS). Shortly I will address my rational for making each of them, however before I do so, a note. In making these points, I attempt to be as objective as possible. My personal history and persuasion leads me to be a supporter of alternative one, where the Makah are denied the right to hunt whales. However, in this letter I made as complete an effort as possible to be open minded to both sides of this issue. All of that being said, I believe my points to be without bias and worthy of consideration both individually and as a whole. Additionally, as an overall recommendation, my points lead me to supporting the listed alternative number five. With, however, the modification of limiting the take rate to one or two whales ceremonially.	
798	e_Anonymous2_6-4-15	**The health of the affected gray whale population** As it stands, the status of the affected grey whale population is doing much better than it was a few decades ago. I am aware of this, however my point is that there are more stressors than ever before on them now, so they may not be able to recover as they have in the past. For that reason I am lead to support alternative #5, as it protects the status of the population in a thorough fashion. My rational for my point above follows. As I'm sure you're aware, the collective population of grey whales in the pacific is split up into three groups, the eastern North Pacific group (ENP), the western North Pacific group (WNP), and the Pacific Coast feeding group (PCFG) (Calambokidis). As I stated above, the status of these whales is better than it used to be. Whereas the grey whales were once considered an endangered species, they have made a remarkable recovery; ENP group has nearly reached its carrying capacity in some models (Punt). The migrating PCFG however, is not nearly as large. It is estimated to have only around thirty potential mothers (Punt). This means that the populations potential for reproduction, and consequently resilience is extremely low. Furthermore, the migration pattern of this group, from California to Alaska, runs very near to where the ENP group resides. This is also where the Makah plan to resume whaling. For this reason, I recommend a lower take allowance and strict regulations on hunting seasons.	As described in the DEIS, we recognize two stocks of North Pacific gray whales – the ENP and the WNP. We do not recognize the PCFG as a stock but rather consider it to be a feeding aggregation (Carretta et al. 2019). Please also see the responses to frequent comments # 5 regarding the stock status of the PCFG, # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales. The recommendation to adopt Alternative 5 is noted.

Sort #	Commenter Code	Comment	Response
		Whales of the PCFG are found to frequently visit the area of the proposed Makah hunt ground. In fact, a good amount of the whales viewed in the northwest area were seen in or near the Makah's usual and accustomed hunting ground after June 1st (Punt). That being said, I support alternative five as I believe it adequately sets up hunting seasons in which this more endangered group of whales is less likely to be affected. Makah hunters are not likely to know which group the whale they are taking belongs to. Therefore it makes the most sense to only enable limited hunting when the whales most at risk are least likely to be present.	
799	e_Anonymous2_6-4-15	Essentially, the issue that is most prevalently at hand here is determining whether or not resuming subsistence hunting of the affected species would pose a threat to affected populations. As I stated earlier, this is an environmental impact statement. I understand how the Makah make claims of cultural needs, but due to the nature of this document I think those are secondary. It is quite possible that if the Makah follow the guidelines and limitations for hunting the whales, or in other words, if everything goes as planned, then the whale population would not face a major threat. However. I believe alternative five would be the best option to achieve this outcome. However the very real question remains; what if things do not go as planned. As much as it is a possibility that the hunting could go on without endangering the population of the grey whales, it is also very possible that something could go wrong. It is worth considering, especially due to the critical situation of the PCFG group, what could happen to this whale population. If one of the whales from either the WNP or PCFG group is stuck and dies, that is another whale out of an already small population. If that whale is a female, then that is a loss in reproduction capacity for that group. Hunting comes with an inherent amount of risk and uncertainty. One of these said uncertainties and risks is the possibility that the Makah will hunt and kill something they would not have intended to. Therefore, if hunting of the grey whale population is to be allowed again, I believe it would be important to, at the very least, put up stringent regulations to avoid the accidental killing of a member of the western grey whale population. I doubt whether that population possesses the resiliency to survive if they encounter any hunters whatsoever.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
800	e_Anonymous2_6-4-15	Furthermore, since this is an environmental impact statement, and the general health of the whales is being considered, I believe it would be pertinent to take into account the overall environment of the whales. Humans are contaminating the oceans more than ever. Increased levels of atmospheric carbon dioxide has	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		lead to a rise in the oceans acidity near 8ph (Orr). We're putting more pollutants into the ocean than ever, including heavy metals, untreated wastewater, and nitrogen runoff (GRID-Arendal."). In addition to these known risks, there are other factors making the state of the oceans less sound. Oil drilling has remained a threat to the health of the oceans, even with new methods being developed. Sonar testing by the navy and boat usage should also be taken into consideration of the overall global marine environment. Both have likely either increased or remained constant, and overall contribute to a cumulative supposed cumulative negative affect on marine life such as cetaceans (Calambokidis). Overall, I think it is clear that the environment of the whale populations has changed since the whales first had to make their recovery. In fact, it is still changing, with more oil drilling platforms, sonar technology, and cruise ships than have been seen in the past. This negative impact could all have the potential to harm the whale species. Individually, these increases in threats may not seem to pose a risk. However, together these combined factors have a cumulative affect that presents a harsher environment for the whales. It is not certain that allowing hunting to resurface after its long hiatus would put the grey whale population back at risk. However, it would be another stressor to the species to add on to the overall affect. As a species, the whales recovered once. However, that was under different conditions than are currently in play. I urge that resiliency needs to be considered. Simply put, it is not a question of whether or not the whales would again be put at risk, but whether or not they can survive being pushed back to that point. In this new harsher environment, I think the ability to recover, as a population in this environment has been severely addled.	ENP gray whale population in the face of climate change and other threats.
801	e_Anonymous2_6-4-15	**Legitimacy of subsistence hunting.** It is true that the Makah tribe hunted grey whales for generations to survive. However, it is my belief that this is no longer necessary. Other objects and substances have been found to replace what used to be supplied by grey whales. Therefore, if whaling were to be resumed by the tribe, it would no longer be in the nature of subsistence. However, the Makah have a legitimate concern towards their culture. Whaling became and is a major part of it. That is why I recommend the allowance of one to two whales to be hunted, for ceremonial purposes. No more than that should be necessary for their needs. My rational for the point above follows. I am well aware of the Makah's previous reliance on whales. Parts from grey whale used to provide up to 80% of the Makah diet (Miller). In addition to this, the oils, bones, and skins of the whales were used in everything from construction, to crafts and games. It is clear that the whale was once of great importance to the Makah people,	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		however it is worth it to ask if it still is. The fact remains that the Makah stopped whaling nearly a century ago (Miller). Elders who can still remember the taste of whale are gone, and none of the current youth know anything of the whale and its uses despite what they have heard in stories. All previous uses of the whale have also been replaced. It is obvious in some cases, where oils were once used to make butters, now modern mixes exist. Likewise has fish replaced whale meat in the Makah diet, along with other things.	
802	e_Anonymous2_6-4-15	So, the question is worth asking, "Do the Makah really need the whale for subsistence purposes"? Makah make claims that the whale meat and seafood protein is necessary and its lack has been a cause of worsening diets within the tribe (Jasanoff). However, I would argue that a good deal of the world enjoys fair health well without seafood protein, thus, so can the Makah. Potentially they could use the parts of the whale commercially, and gain from it that way. However, this is forbidden from them except in the form of selling cultural craft made from parts of the whale. I am not aware of the kind of profit that can be made from such an endeavor, but it is likely not as large as simply selling the whale commercially. It is also worth considering if anyone alive in the Makah tribe is still able to make such craft while whale parts. In a sense, if the Makah were to revert back to their whaling culture and practices, they could very easily come to rely on the whale again as they once did. But do they really have to? Considering the current conditions of the earths ecosystems and environment, is such a subsistence culture really still relevant? Personally, I do not believe it is.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
803	e_Anonymous2_6-4-15	Additionally, I would hope that decision making powers do not believe that what the Makah plan to do is subsistence hunting either. Simply because I believe that there is the potential that if that Makah are allowed to carry out their whaling under the claim of subsistence hunting, then that would aid in broadening the term 'subsistence'. This, in tern, could make it easier for larger whaling groups to get away with excessive whaling under the newly broadened claim of subsistence. The Makah people have moved on from the whale, and because of that, I believe that whaling has become obsolete to them. This is speaking in a subsistence sense, the terms of culture is a different situation.	Please see the response to frequent comment # 4 regarding the precedential effect of waiver internationally and domestically.
804	e_Anonymous2_6-4-15	**Makah whaling and its cultural significance** As I mentioned previously, due to its long held history and significance, both the whale and the act of whaling hold cultural significance to the Makah. This is the root of their claim to require the reallowance of whaling, to revitalize a dimming culture. I argue that this is a legitimate request, but should not be taken too far. As it is accepted that the Makah are hold whaling to be culturally significant, they must accept that act	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		may no longer be culturally relevant in a broader sense. That is why I argue that along with adhering to alternative number five, only one to two whales be allowed to be taken a year. This would allow for the Makah to satisfy an old cultural practice, without expunging a now relevant and emerging global value. I am aware that the culture surrounding whaling was very strong for the Makah. In fact, whaling used to permeate nearly every aspect of Makah life. On one level, they had numerous traditions, songs, rituals, etc. surrounding both the whales and the act of hunting them. There were traditions for the first whale of the season, casting off to go get a whale, coming back with a whale, preparing the whale meat, and many others (Robert J. Miller). Hunters who went out to bring in the whales were of course some of the most important people in the tribe, and the art of whale hunting was a very important, if not sacred practice (Robert J. Miller). Parts of the whales brought back would decorate longhouses, and gifts of whalebone would be common at potlatches with the Makah (jester self). With all this, it is extremely clear that the whales were spiritually, culturally, and practically significant to the tribe. All that being said, it is understandable how the Makah look onto those past days with envy. Today, the Makah are nothing like they once were. For one there numbers have dropped significantly (Miller). Poverty runs commonly among the tribe, and as the old grow more incapable of taking care of themselves, the youth are stricken with drug and alcohol abuse (Robert J. Miller). With this in mind it could be very fair to say that the Makah tribe is gradually dissipating. Logically however, the tribe could save itself by investing into strongly into its collective culture. A strong unifying cause is just what might save the tribe from disappearing altogether. It makes sense then why the Makah would request to be allowed to resume whaling. Bringing back something that used to be so key to their culture is an obvious choice for quickly injecting some life back. The elders of the tribe could have purpose as advisors, and the youth could be steered back towards the earnest effort of learning to hunt whales.All this is true and has already likely been considered. What I would then urge for an additional consideration is if this claim of whaling as a culture for the Makah is even still legitimate. It is very true that the Makah used to be whalers. Therefore the mindset likely exists that they should be allowed to return to that culture. However, problems with the public arise when they see that the Makah are using rifles to kill the whales instead of their traditional spears (Miller). Here arises the challenge of are the Makah actually reviving their [INCOMPLETE SENTENCE IN LETTER] Global issues around whaling are without a doubt dynamic. As those hoping to start or continue whaling find arguments for	

Sort #	Commenter Code	Comment	Response
		their cause, anti-whaling campaigns become more vocal. It is my assertion that in this equilibrium, whaling is become less and less popular a practice. In this way, I would say that the global, westernized culture is shifting towards disapproving of whaling in general. This same westernized culture has already begun to be accepted by the Makah in other terms. They utilize its technology; the language it uses, and many other aspects of it. In this way, the Makah are letting their isolated culture start to participate in a larger, surrounding culture. By doing this, they aren't becoming any less Makah. They are doing what they need to do to survive in this modern world. However, I argue that the Makah need to accept that this larger culture that they are letting themselves be a part of views whaling as an obsolete and unnecessary practice. If they are choosing to accept westernized culture, they must adhere to some parts of it that they may not necessarily agree with as well.	
805	e_Anonymous2_6-4-15	To further drive this point, there is also a very obvious global culture surrounding whaling. Many other countries and nations participate in whaling. Some of these whalers do so in an extremely wasteful manner and have the potential to cause great harm to various cetacean populations. With this in mind, it stands to reason that if a small group like the Makah are allowed to resume whaling, then it will only be harder to not allow other parties to as well. Letting the Makah resume whaling to an excessive amount would then essentially weaken all anti-whaling arguments in the future.	Please see the response to frequent comment # 4 regarding precedential effect of a waiver internationally and domestically.
806	e_Anonymous2_6-4-15	Considering all these factors, I would recommend a compromise be made. The Makah should be allowed to ceremonially hunt a maximum of two whales a year. This would make progress for them culturally, as they would be allowed to resume whaling, but would also send the message that whaling is only acceptable in very limited quantities. By taking this action, and allowing whaling to resume to a limited degree the culture of the Makah would be assisted. However, the Makah culture would also be further integrated into its surrounding westernized culture (through the strict limit on the number of whales allowed to be taken and the allowance of modern weaponry in the hunting process). This way, conflict around cultural stereotyping would be minimized. Thus, I again recommend an emphasis on alternative number five with the alterations of only allowing the take of up to two whales a year (with a maximum struck and loss of two whales total).This ends my recommendations for the Environmental Impact Statement of the Makah tribe's request to resume hunting of the grey whale.Thank you for your consideration.CitationsCalambokidis, Joh, and Jeffrey L Laake. "Abundance and Population Structure of Seasonal Gray Whale Populations in the Pacific	Recommendation noted.

Sort #	Commenter Code	Comment	Response
		Northwest, 1998-2008." 1-14. Web. 2 June 2015. https://swfsc.noaa.gov/uploadedFIles/Divisions/PRD/Programs/Photogrammetry/SC-62-BRG32.pdf?n=2361."GRID-Arendal." What Is Marine Pollution and How Does It Affect Marine Life. Web. 2 June 2015.Jasanoff, Shelia. Earthly Politics: Local and Global in Environmental Governance. Illustrated ed. MIT, 2004. 256-281. Print. Miller Beatric D. The Pacific Northwest Quarterly, Neah Bay: The Makah in Transition Vol. 43, No. 4 (Oct., 1952), pp 262-272 Published by: University of Washington http://www.jstor.org/stable/40487845http://www.jstor.org/stable/40487845Miller Robert J. American Indian Law Review, Exercising Cultural Self-Determination: The Makah Indian Tribe Goes Whaling Vol. 25, No. 2 (2000/2001), pp 165-273 Published by: University of Oklahoma College of Law http://www.jstor.org/stable/20070661http://www.jstor.org/stable/20070661Orr, James C. "Anthropogenic Ocean Acidification over the Twenty-first Century and It's Impact on Calcifying Organisms." Nature 437 (2005): 681-86. Nature. Web. 2 June 2015.http://www.nature.com/nature/journal/v437/n7059/full/nature04095.html.Punt, A. E. "Population Status of the Eastern North Pacific Stock of Gray Whales in 2009." NOAA Technical Memorandum NMFS-AFSC-207 (2010): 1-16. U.S. Department of Commerce. Web. 2 June 2015. <https:/swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Programs/Photogrammetry/NOAA-TM-AFSC-207.pdf?n=6349https://swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Programs/Photogrammetry/NOAA-TM-AFSC-207.pdf?n=6349>.	
807	e_Anonymous_3-13-15	I do not believe they should be allowed to hunt any whales. Traditions aside... It is cruel & It is not necessary!	Opinion noted.
808	e_Anonymous3_6-2-15	Dear Mr. Stone, After reading the draft environmental impact statement (DEIS) regarding the Makah Tribe Request to Hunt Gray Whales, I recommend that the National Marine Fisheries Service (NMFS): - Acknowledge the importance of humane whaling techniqueo Diligently research the most humane and efficient whale hunting techniques and establish requirements for humane and efficient hunting practices - Be precautionary by imposing strict limits that deter the taking of whales of uncertain affiliation - Require strict measures to avoid wasteful take and struck and lost whales - Adopt Alternative 5 with the following elements: o Hunting season May 1- June 30, November 1- December 30o Assume all stuck and lost are from the Pacific Coast Feeding Group (PCFG) ▪ Limit the taking of PCFG whales to 10% of that group's potential biological removal level	Recommendations noted. A number of the commenter's suggestions are included in various DEIS action alternatives. Please also see the response to frequent comment # 1 regarding humaneness of the hunt.

Sort #	Commenter Code	Comment	Response
		(PBR) which is 0.277 whales ▪ Impose a PBR-based limit for taking of PCFG females at 0.1385 whaleso Require the presence of a third party observer for all huntso Require the use of floats and other devices which reduce likelihood of losing a struck whaleo Require the use of marked harpoon and other weaponry to track liability o Provide tissues for scientific sampling and research Humane whaling techniques For over 70 years the Makah have been barred from hunting grey whales for a variety of reasons, including the banning of the pelagic fur seal hunt, governmental interference and federal legislation such as the 1934 Indian Reorganization Act. There is a vast amount of evidence showing the importance of hunting gray whales in the Makah culture. That said, NMFS must ensure that if it reinstates this right for the Makah that it will be carried out correctly in the most humane and efficient way possible. Traditionally the pre-contact Makah whalers had two methods of obtaining whales: hunt them or use whales which have died and drifted ashore (3-297). When the Chief chose to hunt the whales the eight man hunting crews would use a 30-foot cedar canoe and mussel-tipped harpoons. The DEIS explains that a whale would take several hours to die using only pre-contact methods, which is inhumane and could lead to higher counts of struck and lost and thus wasted whales. As mentioned in the DEIS, a public comment suggested that if the Makah are given the right to hunt grey whales, they must use 'traditional' hunting practices. However, I feel this is not only highly inefficient for the Tribe it is also highly inhumane and the MMPA has set regulations against this. As quoted in the DEIS, "The agency [NMFS] may only issue a permit to take a marine mammal upon a determination that the manner of taking that which the Marine Mammals Protection Act (MMPA) describes as "the least possible degree of pain and suffering practicable" (16 USC 1362(4)). Another, more realistic option presented in the DEIS is the use of a traditional wood canoe, with harpooner and crew, accompanied by a motorized chase boat, which a rifleman and observer, with one of the vessels carrying the whaling captain. The whalers would use a hand-thrown toggle point harpoon, meaning it has barbs that aid in keeping the harpoon in the whale's flesh, attached to a line and floats. The rifleman in the chase vessel would kill the whale by using a .50 caliber or larger rifle aimed at the central nervous system (3-164). If NMFS agrees to grant the Makah hunting rights they must establish a requirement for mandatory use of no smaller than a .50 or .577 caliber rifle and should research the humanity of using explosive projectiles.	
809	e_Anonymous3_6-2-15	The Whaling Convention Act (WCA) regulations also require that hunting not be conducted in a wasteful manner, which "means a method of whaling that is not	If hunting is permitted, the tribe would be subject to the requirements

Sort #	Commenter Code	Comment	Response
		likely to result in the landing of a struck whale or that does not include all reasonable efforts to retrieve the whale" (50 CFR 230.2) (2-29). Under this WCA regulation NMFS should establish mandatory use of floats, to reduce the number of stuck and lost whales. Before NMFS makes its decision it must ensure that the best available science is leading to the development of the most humane and efficient whale hunting equipment and that these techniques and technologies are being used and used correctly, or the hunt should not be reestablished.	of the MMPA and the WCA regarding the issues raised in these comments. Please also see the response to frequent comment # 1 regarding humaneness of the hunt.
810	e_Anonymous3_6-2-15	I am also concerned about the findings presented by the United Kingdom at the 2003 International Whaling Commission (IWC) Workshop on Killing Methods, which suggested that whales experience stress as a result of being pursued and can exhibit stress related symptoms such as impaired immune defense, reduced fecundity, failure to grow, and a disease called exertional myopathy (3-166). Although, this has not been documented with gray whales, there has not been any research into this subject. It would be ignorant to assume they would not experience stress from being pursued, as any animal does while being hunted; and that this stress would adverse effects on the whales in their critical habitat. Before a decision is made on the Makah right to hunt, we should research all adverse effects whaling may have, including emotional, reproductive, and the potential cumulative effects of all of these.	Recommendation noted.
811	e_Anonymous3_6-2-15	**Uncertain Affiliation WNP, ENP, PCFG** NMFS must be able to ensure that it can determine the gray whale stock to be affected by Makah hunting and their conservation status. According to the best scientific data available there are currently two, potentially three, different groups of whales which migrate through the Makah Tribe's usual and accustomed fishing areas (U&A). However NMFS only recognizes two of these groups as stocks: the eastern North Pacific (ENP) gray whale stock and the western North Pacific (WNP) stock. As stated in the DEIS, commercial whaling drove the population of the ENP stock nearly to extinction by the early 1900s. After being placed on the endangered species list it rebounded to a population totaling over 18,000 individuals. I see no need to ban the Makah from hunting gray whales from the ENP because even taking the highest proposed limit 24 over a 6-year period will have an almost negligible impact. However, the WNP stock also occurs within the same area. The distribution and migration patterns of the WNP are not well understood. According to recently collected scientific data, some WNP individuals may transit the Makah U&A during feeding season. This is a concern because there are currently an estimated 140 individuals in the WNP group (excluding calves), which is why this group is currently listed as critically endangered under the ESA	Commenter asserts there is "a high likelihood of the Makah whalers striking a WNP animal." According to the analysis in the DEIS, under the tribe's proposal, Alternative 2, there is a 7 percent chance of a WNP whale being struck over 6 years of hunting if all 7 strikes occur per year. Please see the response to frequent comment # 12 regarding risks to WNP gray whales.

Sort #	Commenter Code	Comment	Response
		and depleted under the MMPA (p.3-92 DEIS). As stated in section 3.4.3.2.2 of the DEIS, scientists have identified 27 cases of whales from the WNP within the ENP population's range, this is equivalent to 19 percent of the total WNP population. All precautions should be taken when there is the potential for harming an endangered population; as stated in section 7 of the ESA. The analysis by Moore and Weller (2013) as described in the DEIS calculated the potential biological removal limit for the WNP to range from 0.07 whales (with a recovery factor of 0.1) to 0.33 whales (with a recovery factor of 0.5). With the currently limited amount of data on this WNP group, there appears to be a high likelihood of the Makah whalers striking a WNP animal, and any loss to this population would greatly reduce their chance of recovering to a pristine level. The DEIS states that the probability of an attempted strike on at least one WNP individual within a 6-year period is fairly high and that 'the loss of even one whale, particularly a mature reproductive female, would be a conservation concern (3-93) (Consultations FAQs 2013).'	
812	e_Anonymous3_6-2-15	Along with the endangered WNP group there is an additional group of gray whales within the Makah U&A that warrants further research before any action is decided upon. The DEIS states that there is at present an estimated minimum population size of 173 animals in the Pacific Coast Feeding Group (PCFG) (1-6). This is not considered a population stock (3-129). The IWC states it is 'plausible' that the PCFG population is a separate feeding group, but the DEIS cites considerable evidence of cohabitation or intermingling with ENP whales, including during a proposed hunting season of December 1 to May 31. After reviewing section 3.4.3.4.2 on seasonal distribution, migration and movements of the PCFG, it appears that much more research is required before we will have enough information to decide if these whales are in danger because their range overlaps with that of the ENP. NMFS has an obligation to adhere to the precautionary principle while making their decision on the Makah's request to hunt grey whales and the data we have currently on the PCFG is not sufficient enough to rely on. Once NMFS has adequate research on the PCFG migration patterns, critical habitat and their interactions with the WNP and ENP whale groups, will they be able to make an informed decision regarding Makah whale hunting.	Please see the response to frequent comment # 13 regarding risks to PCFG whales.
813	e_Anonymous3_6-2-15	**Wasteful Take/Struck and Lost** Considering the scientific uncertainty regarding overlapping critical habitat between the ENP, WNP and PCFG whale groups, and the fragility of the WNP and PCFG groups; NNFS must pay special attention to regulations involving wasteful take, and stuck and lost. As stated in the DEIS in	Comments noted.

Sort #	Commenter Code	Comment	Response
		regards to the WNP population 'the loss of even one whale, particularly a mature reproductive female, would be a conservation concern'. This should extend to the PCFG group as well until research data indicates otherwise. The DEIS suggests that there is ample evidence showing there is a high chance of the Makah striking an individual from the WNP or the PCFG; thus, NMFS must take all precautions to ensure that the Makah whaling will not affect either of the smaller populations. Any whale that is struck and lost is a complete waste and would serve as a huge negative impact to either of the smaller populations. As indicated in the WCA regulations against wasteful take, the whalers must take all steps against hunting in a wasteful manner and since the Makah hunting may affect a critically endangered group of gray whales this rule must be stressed.	
814	e_Anonymous3_6-2-15	Alternative 5 Alternative 5 suggests a split hunting season, including two 3-week seasons occurring in May and December, would minimize the chance of the Makah striking an individual from WNP or PCFG. I suggest, however, that instead of the first 3-week hunting seasons lasting from May 10 to May 31, that it is held from early May to late June, and the second lasting from early November to late December. This approach would extend each of the hunting seasons, giving the Makah more time to hunt for ENP members while reducing the likelihood of striking a member from the WNP stock or the PCFG. This alternative would keep the annual PCFG mortality limit at 10% of the PBR (0.27 PCFG whales), and	Recommendations noted.
815	e_Anonymous3_6-2-15	would count any whale struck but not landed as a PCFG whale in proportion to the observed presence of PCFG whales in the Makah U&A during that season. In addition the PBR for PCFG in general, there should be a more conservative limit for PCFG females, similar to the limit set in alternative 3.	Recommendations noted.
816	e_Anonymous3_6-2-15	With a lower allowable take limit and stuck and lost limit comes the risk of undocumented struck and lost whales. To reduce the chances of undocumented struck and lost NMFS must require a third party observer to accompany all hunts for accountability purposes. Along with a third party observer, the whale hunters should be required to adhere to strict regulations regarding markings on harpoons and equipment used to hunt gray whales. By marking an individual's whaling gear with a unique marking, it will be easier to identify and track how many whales have been struck and by whom. In the case of a struck and lost whale which washes ashore it will be easier to identify who killed it and if it part of the allowable take limit. Along with a third party observer, marked whaling gear, whaling groups must make use of floats to avoid losing a struck whale. Any action which can be taken to reduce the amount of struck and lost whales must be taken. I hope that as NMFS deliberates on whether or not it will reinstitute the	Recommendations noted. All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.

Sort #	Commenter Code	Comment	Response
		hunting of grey whales by the Makah tribe, it will take into account the items discussed above. It is of the utmost importance to abide by ESA and MMPA regulations when dealing with threatened and endangered species populations. We have fought to bring the ENP population to a recovered level, but this should not drive the WNP population and PCFG to extinction. NMFS must consider the threat that permitting whale hunting places on the critically endangered WNP whale group and the vastly unstudied PCFG stock. Thank you for considering my comments regarding the Makah request to hunt gray whales. Works Cited - "DEIS on Makah Tribe Request to Hunt Gray Whales." (2015): n. pag. National Oceanic Atmospheric Administration. NOAA, Feb. 2015. Web. Mar. 2015. <http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/cetaceans/gray_whales/makah_deis_feb_2015.pdf>.- "Consultations FAQs." Endangered Species Program. U.S. Fish and Wildlife Service, 15 July 2013. Web. 3 Apr. 2015. <http://www.fws.gov/endangered/what-we-do/faq.html#4>.- Krogstad, Jens M. "One in Four Native Americans and Alaska Natives Are Living in Poverty." Pew Research Center. Pew Research Center, 13 June 2014. Web. 15 Mar. 2015. <http://www.pewresearch.org/fact-tank/2014/06/13/1-in-4-native-americans-and-alaska- natives-are-living-in-poverty/>.	
817	e_Anonymous3_6-4-15	Dear Mr. Stone: After reviewing the 2015 Draft Environmental Impact Statement of the Makah Tribe's request to hunt gray whales (Eschrichtius robustus) I'd like to express my concerns regarding The significance of preserving cultural traditions, and The importance of understanding the status of the Pacific Coast Feeding Group and determining the best approach to protection. Preserving Culture It can be difficult to understand the significance of cultural traditions from the perspective of an outsider looking in. I am no expert on the Makah Tribe and their culture. However, I strongly believe in culture as an expression of the relationship a community has with its surrounding environment and an important resource to consider. The Makah Tribe's argument for resuming gray whale hunting is based on reviving cultural practices rather than a necessity for subsistence. Other indigenous groups that exercise rights to hunt whales live in remote areas and rely on whales as a food source. The traditions involved with preparing for, carrying out and celebrating a whale hunt positively impact the Makah Tribe and keep alive valuable indigenous knowledge. This proposal provides an opportunity to examine the value of culture and how it's perceived. Regardless of the outcome, it will set a precedent and influence the protection of cultural diversity going forward. The Makah people rely mainly on oral and	Comments and recommendation noted.

Sort #	Commenter Code	Comment	Response
		experiential learning to share knowledge with one another. This type of knowledge system is common among many indigenous cultures, but differs from the reading and writing based system that dominates most of the western world. In a culture with such deep ties to the surrounding environment there is a unique understanding of local ecology built into Makah traditions and language. Whale hunting would provide the opportunity for tribe members to practice skills, apply ecological knowledge, tell stories, teach younger generations, use the native language, and participate in the spiritual and ceremonial aspects of the hunt. These learning experiences are invaluable and without them, the traditions become irrelevant and the knowledge is lost. Studies done on the 1999 and 2001 Makah whale hunts show overwhelming support for and participation in the hunts and resulting activities. There were a variety of opportunities for people to partake in the action. Most of the meat and blubber was consumed at the community feast following the hunt and the remains were distributed amongst households. Although many members of the tribe expressed an interest in using the whalebones for traditional crafts, the entire skeleton was given to the nearby public school. Approximately sixty students participated in preparing the bones and reassembling the skeleton for display in the Makah Cultural and Research Center. It is my opinion that opportunities for learning, particularly environmental education, justify the take of a whale. Indigenous groups often have a much different approach to environmental education because of their spiritual and cultural interaction with the environment. Whale hunting would provide a huge opportunity for the Makah Cultural and Research Center to expand their efforts in preserving the language and ecological knowledge of the Makah people for educational purposes. Turning down the Makah Tribe's request to hunt whales could certainly be an easier way to ensure the conservation of all groups of gray whales. However, promoting environmental education through cultural traditions could have more positive and long-term effects for environmental conservation on all fronts. After a long recovery, delisting the eastern North Pacific (ENP) gray whale under the Endangered Species Act in 1994 was cause for celebration. Today, the stock is managed for aboriginal hunting with a catch limit that is allocated between Russia and the United States. I believe the Makah people deserve the opportunity to hunt some of these whales. If the Makah Tribe's request is turned down, their portion of the catch will likely be reallocated to Russia. This means that the same number of ENP gray whales could be taken from the stock regardless of the outcome. Denying the Makah people the opportunity to practice their culture's traditions will not necessarily	

Sort #	Commenter Code	Comment	Response
		save any gray whales. However, there is potential for whale hunting to impact the unique ecology of this region.	
818	e_Anonymous3_6-4-15	Protecting the Pacific Coast Feeding Group My main concern is how to ensure protection for the smaller populations of gray whales that may not be purposely targeted by the Makah Tribe, but are a significant part of the local environment and at risk. A solid definition and understanding of these whales is critical for determining the necessary and appropriate conservation measures to take. Recently, there has been much debate over whether to consider the Pacific Coast Feeding Group (PCFG) gray whales as its own separate stock, as opposed to a subset of the ENP stock. There is sufficient evidence for both sides of the argument and plenty of uncertainty in between. My concern is that choosing not to recognize the PCFG as a stock could put the population at risk in the future. Research shows that characteristics of behavior, population dynamics and ecological interactions of the PCFG differ significantly from the ENP gray whales. Designation as a stock would guarantee regularly conducted, in depth research and analysis of the population, which might provide a more comprehensive understanding of how to manage impacts on the PCFG. The Makah Tribe's proposal and action alternatives offer different methods of restricting the take of PCFG gray whales, including bycatch or mortality limits. These limits are most effective when calculated with data and a formula based on current dynamics of the population. Using data from the ENP stock assessment may not be accurate. The PCFG gray whale population has unique characteristics like a constantly fluctuating abundance as whales immigrate and emigrate. Researchers are still learning about how gray whales are recruited to the population. One cannot expect accurate data calculations to come from such vague knowledge of the PCFG population status to begin with. A stock assessment focused on PCFG gray whales alone could contribute to a more informed decision on how to calculate a bycatch or mortality limit. As of now, the lack of understanding of the PCFG population status compels me to encourage more conservative limitations on allowable PCFG gray whale take. If the scientific evidence alone cannot prove the PCFG gray whales as a separate stock, perhaps the added risk factor associated with the Makah whale hunt should be taken into account.	Please see the responses to frequent comments # 5 regarding the stock status of the PCFG and # 13 regarding risks to PCFG whales.
819	e_Anonymous4_6-2-15	Dear Mr. Stone: Based on my review of the subject draft environmental impact statement (DEIS) I recommend that NOAA grant whaling rights as set forth in Alternative 2, with the modification of total allowed struck and lost whales lowered to two annually, the limit on struck summer feeding group individuals set at one annually, and a provision established for continued monitoring of the	Comments and recommendations noted.

Sort #	Commenter Code	Comment	Response
		Western North Pacific (WNP) gray whale population. 1. Treaty Rights The Makah Tribe holds expressed rights to hunt gray whales based on the 1855 Treaty of Neah Bay. I believe that the U.S. government must uphold their trust responsibilities and recognize those rights. If the treaty actions undermine the conservation efforts of the U.S. government, or fail to satisfy cultural needs, U.S. Supreme court precedence allows for the regulation and restriction of treaty rights. However, based on the information available, the Makah's request to hunt Eastern North Pacific (ENP) gray whales appears to meet both conservation and cultural requirements. That being the case, the Makah should be granted their right to hunt ENP gray whales. 2. Conservation The Makah Tribe's request to hunt includes only the ENP gray whale stock. The International Whaling Commission's (IWC) schedule – approved by all signatory states, the U.S. included – has approved a five-year harvest quota of 640 ENP gray whales, and an annual harvest quota of 140. At present the entire approved harvest quota goes to the Chukotka Natives of the Russian Federation. Therefore, regardless of whether or not the Makah Tribe is granted their treaty right to whale, the ENP gray whale population will be hunted, and impacted, based on the ICW quota limits. The only difference is who will hunt the whales and thereby benefit. Therefore, the question is whether Makah whale hunting is more detrimental to the conservation of the ENP gray whale than hunting by Chukotka Natives. If carried out responsibly, I see no reason that hunting by the Makah will have a more detrimental effect on the ENP gray whale population. Number of Harvested Whales: Alternative 2 - Proposed The ENP stock of gray whales was delisted as an endangered species in 1994, and now numbers about 18,000 individuals. Populations of this size can withstand the loss of some minimum number of individuals. The National Marine Fisheries Service (NMFS) uses the Potential Biological Removal (PBR) level defined in the Marine Mammal Protection Act to indicate the number of tolerable human- caused losses. Given the ENP gray whale's current abundance, its PBR is calculated to be 417 individuals annually. To properly evaluate the possible threat to the ENP gray whales the cumulative impact of all human-caused risk factors must be considered. If the Makah and the Chukotka Tribes both take gray whales for subsistence purposes, the total number taken under the IWC allocation would be an annual average of 124 individuals. The DEIS identifies additional threats to ENP gray whales to be ship strikes, incidental fishing operations, and whales successfully hunted or stuck and lost by Chukotka hunting activities. The total number of takes from these activities is 141 gray whales per year. This number is only one whale over the	

Sort #	Commenter Code	Comment	Response
		approved total annual harvest of whales and is about 33% of the annual PBR. Based on the cumulative impact and the PBR set forth in the EIA it is evident that the Makah's hunting activities will have an insignificant impact on the status of the ENP gray whale stock.	
820	e_Anonymous4_6-2-15	**Number of Stuck, Struck and Lost: Alternative 2, 2/year** A shortcoming in the above line of reasoning is that it does not account for the number of whales that may be struck and lost by the Makah hunters. Struck and lost whales represent a considerable waste and a humanitarian concern because these whales may die for no reason or with no benefit realized by the hunters. Furthermore, hunting likely will entail the harassment of a number of whales. For all these reasons, I believe it is necessary to limit the number of whales that are struck and lost to two per year. For humanitarian reasons, the maximum annual struck number should be set equal to Alternative 2, but the number of struck and lost whales should be limited to two. This reduces the number of needlessly impacted whales by 10 fewer approaches and four fewer harpoon attempts. This reduction in struck and lost ENP gray whales should help appease the concerns of those who oppose the hunting of gray whales for humanitarian reasons. Yet, it also offers the Makah tribe more than one chance to land an ENP gray whale (as set forth in alternative 5).	Recommendation noted.
821	e_Anonymous4_6-2-15	**Number of Identified Whale Takes: 1/Year** Hunting of gray whales in this region does present a conservation challenge with regard to whales identified as part of the Pacific Coast Feeding Aggregate (PCFA), and whales occurring in the Oregon Southern Vancouver Island (ORSVI) area. The PCFA and the ORSVI are summer feeding groups, and the Makah Tribe's proposal seeks to avoid the intentional and incidental harvest of these individuals by adjusting the timing of the hunt. These feeding groups have significantly smaller numbers than the greater ENP gray whale population. The PCFA is estimated to be about 170 individuals and the ORSVI population is an even smaller subset of the PCFA. These groups are being studied and identified using photographs and the best available science does not reveal any significant difference between the summer feeding groups and the ENP gray whale stock other than feeding locations. Some evidence indicates that whales in these groups may mix with ENP whales. Therefore, a small number of whales removed from these groups may be replenished naturally in subsequent years. However, to ensure that these populations are maintained, a specified limit on identified individuals struck should be set at one per year. Although this is a stringent limit, the small size of these groups justifies a low impact allowance, as these groups are more vulnerable to decline from human impacts. Hunting in	Recommendation noted.

Sort #	Commenter Code	Comment	Response
		the spring and winter is less likely to involve whales from the summer feeding groups and therefore is unlikely to hinder the success of the Makah hunts.	
822	e_Anonymous4_6-2-15	Western North Pacific Gray Whale Population – Conditional ENP hunt approval: The final conservation concern is the Western North Pacific (WNP) gray whale population. This is a critically endangered group with a population of only 140 individuals. It is a unique population with distinct genetics and demographics. Any harvesting or taking of this group would have significant negative consequences. Whales from the WNP population do mix with whales from the ENP population, which makes them vulnerable to hunting. However, given the small area in which the Makah will hunt and the temporal limitations on hunting under this alternative (i.e., December 1 to May 31), it seems unlikely that their hunt will impact the WNP gray whale population. Although scientists are only recently exploring the mixture of these two groups, the best available science distinguishes the WNP and ENP groups as geographically and genetically separate. Consequently, without new results proving an overlap of migration, breeding, or feeding areas between the two groups, it does not appear that the WNP population will be in added danger with the approval of the Makah hunt. In a precautionary effort to protect the WNP gray whale population, the approval of the Makah hunt should include a mandate for continued monitoring by NOAA and NMFS of the WNP population and a provision to revisit conditions of the Makah hunt if the best available science indicates that Makah hunting does pose a substantial threat to the WNP population.	Recommendation noted. In response to the discovery of WNP gray whales in U.S. waters, NMFS initiated a SAR process specifically to monitor and report on the status of the WNP (Carretta et al. 2019).
823	e_Anonymous4_6-2-15	**3. Cultural Significance** The Makah people have a long history of whaling and maintain a deep connection to their whaling traditions. Until 1999, the Makah Tribe had not hunted for many decades and some argue that they have moved past that aspect of the tribe's culture. However, the gray whale has retained its symbolic significance and its image is used and seen through the tribe's land, educational centers, homes, and sacred places. Although the Makah may not have hunted the whale for some time, hunting still appears to be an important tradition. Cultural Benefit – Social Although the whale symbol is still revered, the social connection with the whale has been diminished in the years without whaling. Prior to a hunt the whalers go through extensive and intensive training. As a result the whalers create a special bond between each other and a connection to their culture. Additionally, the Makah describe an increased sense of cultural identity and connection as a community when they have an actual hunt. Younger generations are interested in the whaling tradition and their interest increases when hunts take place and they are able to see, participate in,	Comments and recommendation noted.

Sort #	Commenter Code	Comment	Response
		and benefit from them. In contrast, the more removed from the actual hunt tribe members become the less important or significant the whales and hunting become for them. Clearly, to regain a strong bond between tribe members and generations within the tribe, and to promote a stronger connection to the past and future, the Makah people need to hunt and harvest gray whales. Cultural Benefit – Subsistence Use and Economic Role A landed gray whale is not only culturally significant but is used as a resource as well. The whale is harvested and processed. After the processing, the blubber, meat and bone are distributed freely to the tribe members. The uses of the whale parts vary; they are mostly used for the creation of traditional crafts and goods, and consumed as food. When available, the Makah people are able to consume whale meat and blubber instead of food they would have to purchase. This allows many who do not have large incomes to maintain a healthy diet with less cost. Furthermore crafted bone products can be shared with family and friends and sold to those with economic ties to the Makah. Without the ability to hunt and harvest gray whales, the Makah have no means of obtaining these important whale products, which play a role in their basic health and wellbeing. Cultural Benefit – Traditional Ecological Knowledge The whaling practice of the Makah is not a written tradition. Rather it is a tradition passed down orally from generation to generation. The knowledge and skill of whaling is held in the minds of the men who learned from their fathers, who also learned from their fathers. As mentioned in the DEIS everything from training for the hunt and the harvesting and creation of craft goods is passed down orally from one generation to the next. Many components of the Makah language are used only in the oral teachings, techniques, rituals, etc. Such oral traditions become very difficult to maintain if the basis of that knowledge — the harvesting of the whale—no longer exists. The very language of the Makah people may lose significant elements if they are denied the right to hunt. To keep the deep knowledge of whaling alive, hunts must take place. It is only then that there is reason for the younger Makah members to listen and for the older experienced members to teach. To save the Makah's centuries-old skill and knowledge, they must be able to hunt gray whales.Cultural Benefit – Spiritual Connection The whale is not only a subsistence product, or a cornerstone of Makah knowledge and understanding. For the Makah people the gray whale is also deeply spiritual. Tribe members and whaling families participate in pre-hunt rituals. They believe that if the hunt is done properly, the whale will give itself to the hunters. Through physical training and the actual hunt the hunters experience an enhanced spirituality. Their culture includes dancing, singing, and	

Sort #	Commenter Code	Comment	Response
		ceremonial activities, all of which have been well documented, and have deep spiritual roots. Some may argue that these rituals can be completed without actually killing a whale. However, as mentioned, the Makah believe a successful hunt comes from the proper implementation of spiritual rituals. Therefore, without the hunt, there is no real measure or value to the spiritual rituals since there is no successful or failed whale landing to reveal if the spiritual rituals were completed properly. Furthermore, not all rituals occur prior to the hunt; some take place after the hunt and harvest of the whale. The right to hunt is necessary for the Makah people to enact their religious traditions. Cultural Benefit – Environmental Justice The EIA sites Executive Order 12898, which establishes guidance for actions concerning environmental justice. The executive order restricts any action of the government to disproportionally effect minority communities. Neah Bay is an already fairly isolated community and consists mostly of Native peoples, the Makah being the largest single group of those people. Unemployment is higher within native communities than nonnative communities, and among native communities unemployment is the greatest among the Makah Tribe. As discussed in previous sections the Makah use the whale for subsistence, culture, and economic benefit. Those outside the Makah Tribe value the gray whale mostly for its existence value and possibly for whale watching, economic value, and scientific value. However, if the Makah people were barred from enacting their treaty right to whale, the burden would be significantly greater on the Makah people than would be the benefit to those outside the tribe. Considered in an alternative light, the harm created for those outside the Makah Tribe is smaller than the benefit the Makah people would experience if given their right to hunt. Consequently I believe it to be a violation of Executive Order 12898 to completely prohibit the hunting of the ENP gray whale by the Makah people. As mentioned earlier, precedence allows the denial of treaty rights only if conservation efforts are inhibited, or if the action of the treaty right does not meet cultural need. It is upon these two criteria that a decision about the Makah Tribe's treaty rights to whale should be based. I believe that the information I have presented summarizes the significance of whaling in Makah culture, and the threat to the survival of their culture if they are denied the right to whale. Additionally, I believe, with the suggested modifications, Makah hunting of the ENP gray whale population does not impose a threat to the conservation efforts of the United States government. Both conservation and cultural standards are clearly satisfied. As a result the precedence to prohibit treaty rights does not hold and the Makah Tribe should	

Sort #	Commenter Code	Comment	Response
		be granted their expressed right to whale. Thank you for considering my comments.	
824	e_Anonymous4_6-4-15	Dear Mr. Stone: After reading the DEIS on the proposed authorization of the Makah Tribe's whale hunting, and considering the complex nature of this issue, I recommend that NOAA: · Limit the number of gray whales that the Makah will be allowed to harvest each year, with four being the maximum · Limit harvest to a strict location and time frame that will not significantly impact the mating and feeding patterns of gray whales, as well as restrict the hunting of calves and whales accompanied by calves. · Require strict monitoring of incidental take of other marine mammals, as well as impacts to other marine species · Require continual monitoring of the use of gray whales in the Makah Tribe so that it is consistent with traditional subsistence levels of whaling and with the definition of subsistence use set forth by the IWC · Monitor water and air quality changes that may occur due to whaling vessels, protest vessels, media vessels and aircraft, and modify existing requirements to ensure adequate response to spills · Keeping all previous points in mind, I recommend proposed action alternative 2 Limitations on the number of gray whales that the Makah will be allowed to harvest each year, with four being the maximum Limitations on the number of gray whales that the Makah will be allowed to harvest each year, with four being the maximum This topic is discussed at length in the DEIS and I believe it is a critical point to keep in every alternative, and ultimately the action itself. None of those whales must be from the western North Pacific (WNP) gray whale population. NOAA Fisheries has listed the WNP gray whale population as endangered under the U.S Endangered Species Act. This means that the removal of any individuals from this population may have drastic impacts.	Comments and recommendation noted.
825	e_Anonymous4_6-4-15	The DEIS states that under the proposed action as many as 43 percent of the four whales could be struck and lost. This highlights the fact that whales struck and lost must be included in the same category as a successful harvest. A cap on whales struck and lost would be important to limit the number of whales killed but not harvested. Although the Makah will be using a mix of modern and traditional equipment, there is still high chance that whales will be struck and lost. Such outcomes must be tracked and controlled. Strict limits on gray whale takes are important as these animals have been driven to extinction in the North Atlantic, and nearly driven to extinction in the North Pacific by ill-managed whaling. It is also important to acknowledge that the Chukotkan people (Russian Federation) hunt 124 gray whales annually on average, meaning the no-action alternative only restricts the small number that would be assigned to the Makah	Comments noted. The Makah Tribe's proposal, reflected in Alternative 2, does set a limit on struck and lost whales, as do the other action alternatives. The DEIS does report on the struck and lost record in the Chukotkan hunt.

Sort #	Commenter Code	Comment	Response
		tribe. Under the Chukotkan hunts, only 5 percent of whales are struck and lost, compared to the 43 percent that is predicted under the Makah hunt.	
826	e_Anonymous4_6-4-15	Limit harvest to a strict location and time frame that will not significantly impact the mating and feeding patterns of WNP gray whales, and prohibit the hunting of calves and whales accompanied by calves Gray whales reach sexual maturity around eight years of age. Females undergo oestrus from November to early December, which is believed to be the major breeding season. Much like other mammals, gray whales have a long gestation period. For gray whales it is approximately 13.5 months, with a large number of calves being born during a six-week period in January. Births typically occur in warm, shallow lagoon waters. I believe it is key to the health of the gray whale population that special attention is paid to the reproductive habits of gray whales and that these mating grounds be designated as off limits to the Makah hunters. Although it is uncommon to see late in pregnancy females near the hunting grounds of the Makah, it is still important to take into account the reproductive patterns to avoid depleting any of the populations. A further concern is that the Makah must not hunt individuals that are accompanied by calves. This is an important concern that must be addressed as it can often be difficult to identify if an individual is indeed pregnant or accompanied by a calf. Careful attention and regulations by both the Makah tribe and the action agencies will be needed to circumvent this issue. This could be done with the requirement that an expert in the field that could better identify pregnant whales and whales accompanied by calves be present during the hunts. The time restriction for hunting gray whales being from December 1st to May 31st seems to contradict the mating patterns, but birth and mating tends to happen outside of the hunting grounds of the Makah. Having a time restriction on hunting seems to be the best course of action as it allows the whales to safely migrate, yet may still cause some issues with hunting pregnant mothers. I recommend that marine ecologists and biologists from either the Makah tribe or the action agencies be present during the hunt to further avoid these issues. These experts could further identify pregnant individuals, and would serve as a last safeguard during the hunt for protecting calves and pregnant whales.	None of the action alternatives would allow the tribe to hunt calves or animals accompanying a calf. While pregnant females could be hunted, in DEIS Subsection 4.1.2.1 (Potential Timing of a Hunt and Number of Hunting Days) we note that most hunting would likely occur during the spring months after females have given birth, i.e., there are very few suitable hunting days in the November through January timeframe.
827	e_Anonymous4_6-4-15	I also believe that protection of the most common feeding grounds is key to the health of the species. Gray whales tend to feed in fairly shallow waters, although offshore feeding has been observed as well. As the whales migrate they tend to feed when they can rather than seeking out specific grounds. I believe that the buffer zone around the rocks and islands would be a helpful safeguard in protecting the feedings grounds. Along with the already specified buffer zones,	Recommendation noted. It could be impractical to protect feeding areas as these tend to be dynamic and change over time. See Subsection 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem

Sort #	Commenter Code	Comment	Response
		the most used feedings grounds should be identified and included in the protected lands as well. This will allow the whales a safe area to feed and will not put unneeded stress on the population. On a less significant scale these buffers will allow for the protection of the whales primary food stock, which tends to be amphipods and crustaceans. Not allowing any hunting vessel to disturb the habitat of the whales' food source is a small but needed step to protect the feeding patterns of the gray whales.	
828	e_Anonymous4_6-4-15	**Strict monitoring of incidental takes of other marine mammals as well as impacts to other marine species** Although this was addressed in the summary of effects of the various alternatives table, I feel that this issue is an important one to consider further. The risk to shellfish beds is thought to negligibly increase due to the risk of landed whale carcasses, as well as possible spills from all vessels associated with the Makah hunt. Although this risk may be negligible, it is important to protect these beds as they are an important part of the ecosystem. Similarly the effects on pelagic species due to the Makah hunting is thought to be short lived and small, but these may have greater impacts on both the whale and other species populations. This should be closely observed, along with the benthic population levels. The DEIS also goes into the effects on other marine mammals and determined that these would be short-lived and temporary. This project will increase the number of disturbances for all marine mammals which can have long-lasting effects. I think it is important that these populations are closely monitored and observed to determine if any long term effects may occur. Although the proposed area is small, it will be an important step for other species of marine mammals. All incidental take rates of marine mammals should be closely observed, and the plan should be tweaked if this becomes an issue. This would be accomplished by an expert in the field accompanying the Makah on the hunts.	Recommendations noted. NMFS does monitor all marine mammal populations through the SAR process, as described in Subsection 3.4.2.1.6 Stock Assessment Reports.
829	e_Anonymous4_6-4-15	Continual monitoring of the use of gray whales in the Makah Tribe so that it is consistent with traditional subsistence levels of whaling and with the definition of subsistence use set forth by the 2004 meeting of the IWC The Makah tribe has a unique status under the MMPA, as it can claim treaty rights that would not be considered for other individuals or groups. This however does not and should not allow for sweeping disregard of the law and regulations we have set recently. This relates to the proposed action as they have a right to their culture which involves subsistence whaling as set in the treaty of Neah Bay. Although this treaty and right must be respected, so must the integrity of the gray whale species as a whole. I believe it is important that this whaling be solely for subsistence	Recommendation noted. We will consider in future decision-making the appropriateness of monitoring the tribe's use of harvested whales.

Sort #	Commenter Code	Comment	Response
		purposes, and that this must be strictly regulated and monitored. Although this is a very controversial and difficult subject to pin down, these issues must be worked out before the action takes place. This could be accomplished by the presence of an observer after a successful hunt to ensure the proper use is occurring. Again, this is a very complicated issue, but this is my recommendation. As we have seen in the past, some tribes have abused the idea of traditional subsistence use to make large profits. This goes against both the cultural and scientific standards of the tribe, and humans as a whole. The IWC reviewed in depth aboriginal and native subsistence whaling in their 2004 annual meeting. This included different analyses on North Pacific gray whales, although they did not specifically address the Makah request. Subsistence use is a very difficult idea to pin down, but it must be in line with traditional use, and must not seriously increase risks to the species in question.	
830	e_Anonymous4_6-4-15	Monitor water and air quality changes that may occur due to whaling vessels, protest vessels, media vessels and aircraft, and modify existing spill response to compensate Although the DEIS goes into the issue of water and air quality and deemed it insignificant, I think it is an important issue to consider fully. The influx of both marine vessels and aircraft will have an impact on both air and water quality, however small or insignificant, and I think it is important to monitor these effects over a long period of time. The proposed action also increases the risk of spills from vessels, meaning the spill response needs to be modified to fit the increased risk. This could include educating hunting vessels on first response to spills caused by an increased presence in the hunting area.	Recommendation noted.
831	e_Anonymous4_6-4-15	**Conclusion** I agree with much of the proposed action alternative (Do you mean alternative 2. If so, you should say so.), but I am hopeful that a large amount of monitoring will be done when and if the action is implemented. I respect the fact that the Makah tribe has deep cultural roots in the area and that it is wrong to prevent them from activities they have been doing for much longer than our government has even existed. I also recognize that we have a duty to protect gray whales in every way possible. I believe that the DEIS does a good job at analyzing every impact and comes to a fair conclusion. Taking all of my previous points and recommendations into account, I recommend that alternative 2 with my previous recommendations be followed. This is because it respects the rights of both the Makah and gray whales as a species. Although it is not perfect, with my recommendations and those of others, I prefer alternative 2. Thank you for your time, and for considering my recommendations on this issue. It is a very important issue, and I await the final decision on the matter.	Comments noted.

Sort #	Commenter Code	Comment	Response
832	e_Anonymous5_6-2-15	Upon reviewing the EIS draft on the Makah Tribe Request to Hunt Gray Whales, I recommend NOAA examine the following before proceeding: -Use of new technology versus preserving traditions-No accommodation for changes in whale behavior -Unclear rule enforcement strategies-Is there even a need to hunt the whales? -Will the tribe actually use enough to justify the kill? These topics and questions, along with many others, I find to be shrouded in uncertainty. Although the alternatives may present reasonable options regarding the tribe's right to hunt, many concerns need to be more fully addressed before any sort of permission is granted. I focus my comments on the above points. One of the differences among many of the alternatives involves the specific types of tools used to hunt the whales and the hunting process. If you allow any hunting at all, it makes sense to require the safest technology. Nonetheless, the safest technology is inconsistent with the Makah Tribe's hunting traditions. Aside from safety, new technology could help make the hunt more precise, which in turn would decrease the number of whales struck and lost.	These introductory comment are noted; specific responses are provided below. Please see the response to frequent comment # 15 regarding the use of modern weapons.
833	e_Anonymous5_6-2-15	On the other hand, only one whale has actually been hunted and harvested by the Makah tribe in about 100 years. The culture today, while still based on the same traditions, surely has also evolved to incorporate other means of maintaining culture besides the killing of whales. Due to this, I see the potential burdens of a whale hunt heavily outweighing any benefit it may present for the tribe. Although preserving traditions is arguably an important duty, we have to weigh it in this instance with the health and viability of the Pacific Coast Feeding Group whales. Will the number of struck and lost whales stay low enough to ever justify the hunting? Especially considering that the PCFG population is small and vulnerable and the Western North Pacific population is struggling to survive.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 13 regarding risks to PCFG whales.
834	e_Anonymous5_6-2-15	Moreover, how much of the whales will be used? It is important to identify an amount in order to justify any hunt.	Comments noted. The DEIS summarizes the amount of whale meat and blubber consumed from the gray whale taken during the 1999 hunt (see Subsection 3.10.3.5.1, Makah Whaling).
835	e_Anonymous5_6-2-15	One of the suggested strategies had the tribe perform all the aspects associated with the hunt, except for the actual killing of a whale. Why isn't this seriously considered further? Although the tribes do have treaty rights to hunt the whales, the viability of the whale population needs to be discussed more in full before decisions are made. As the EIS points out on page 117, "... the right of fishing and whaling or sealing was secured by the Makah through the 1855 Treaty of Neah	Please see the responses to frequent comments # 8 regarding the Treaty of Neah Bay and # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		Bay, which was written when fishing and whaling or sealing conveyed the opportunity to take animals lethally from each of these categories". While I do not wish to invalidate the Makah's traditions or rights under the treaty, it is important to note that what is considered appropriate in terms of hunting/whaling has changed significantly since 1855. Such allowances should be re-evaluated to fit current values and understandings of environmental impacts.	
836	e_Anonymous5_6-2-15	I am also skeptical about gray whale hunting because the future is so unknown. As climate change continues to impact oceans, marine animals are forced to adjust to their surroundings. This could mean that feeding/breeding patterns change, or that the population suffers in numbers significantly more than first thought. This document does not give sufficient attention to the potential for such changes, given the uncertainty. Regarding future conditions, and decisions made should include buffers against unanticipated change. Those buffers should include collections of better information regarding many of the uncertainties surrounding this controversial request.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
837	e_Anonymous5_6-2-15	Another important aspect to consider is regulation of the hunts and effective rule enforcement strategies. The enforcement section on page 112 of the EIS describes repercussions for hunting outside of the restrictions, but includes little information on the actual enforcement strategy. Besides those involved in the actual hunting, who will make sure that the rules are followed? The enforcement approach simply put is unclear.	Various DEIS subsections (e.g., 3.14.3.1, Coast Guard; 3.14.3.2, Police; 3.15.2.2, Weapons Safety Regulations and Authorities) describe the various enforcement entities and costs involved in enforcing a Makah hunt. We agree that if a hunt is authorized it will be important for enforcement agencies to have an effective enforcement strategy as the agency and federal family implemented during the last authorized hunt(s). The Tribe has also enacted an Ordinance to ensure appropriate Tribal enforcement.
838	e_Anonymous5_6-2-15	I also believe that a clearer distinction needs to be made among the different groups of whales before any hunting is considered. Regarding alternative 4 on page 115, the EIS states, "any whale struck would be presumed to be a PCFG whale, even if it were landed and did not match a known PCFG whale. Although some portion of the whales sighted in the west coast feeding areas during this period never return and are not considered PCFG whales, the majority of whales present during this period are PCFG whales." Better steps need to be addressed	The quoted passage from the DEIS describes a precautionary measure included in Alternative 4. There is no uncertainty about the fact that some whales identified feeding in the PCFG survey areas are never observed again (Subsection 3.4.3.4.2, PCFG Seasonal

Sort #	Commenter Code	Comment	Response
		to avoid killing whales from the WNP population. Otherwise the efforts to regulate which population can be hunted will be rendered useless. Not only does this quote show the uncertainty in the hunt, but more generally the current uncertainty in the gray whale's migration patterns and in the North Pacific. With the EIS conceding that other gray whales sometimes swim through the area where hunting would occur, not enough research has been done to determine how to avoid them during hunting.	Distribution, Migration, and Movements. Please also see response to frequent comment # 12 regarding risks to WNP whales.
839	e_Anonymous5_6-2-15	I do not believe enough information has been documented to allow for the killing of any whales. However, if hunting is authorized I would suggest requiring whale researchers and experts to accompany the hunts to collect vital information about the whales and their interactions with the hunters.	Comments and recommendation noted. All of the action alternatives include provisions for observers to accompany hunts.
840	e_Anonymous5_6-2-15	I also would support shorter permit lengths. Due to the nature of the hunts and struggles in whale populations, permits should start off to be re-evaluated each year. If the behavioral patterns of the whales are, in fact, found to be different and the hunting to put more pressure on the populations than first expected, a shorter permit period would lead to quicker management adjustment. The shorter permit time would allow for the government, scientists and tribe to sit down more often to discuss the effects of hunting and adapt the management strategy accordingly.	Recommendation noted. We will consider whether shorter permit times are appropriate in future decision-making.
841	e_Anonymous5_6-2-15	Aside from basic concerns I have about the actual hunting methods and effect that the hunt will have on the gray whale populations, I would also like to bring up the issue of health and safety for the Makah community. If the tribe were required to use as much of the carcass as possible, the community members would potentially be eating a lot of whale. Because whales are near the top of the food chain and contain startling amounts of pollutants within their bodies, I am concerned about the health implications that eating the whales will have on community members. Although the request in question does not pertain to tribal health, it is an important topic to address, especially if it means the community members in the future will not in fact, be actually eating the whale. If the Makah tribe were to avoid eating the whale, then it would appear that the actual killing is not necessary. For the past century, the Makah tribe has continued to practice their traditions revolving around the gray whales with almost no whale hunting involved. Despite the tribe's legal right under the treaty to hunt, does it justify unnecessary killing, particularly if it should involve a member of the endangered WNP population?	Please see the responses to frequent comments # 11 regarding health risks of consuming gray whale products and # 12 regarding risks to WNP whales.
842	e_Anonymous5_6-2-15	In my opinion, cultural equality is of utmost importance. However, I do not believe that cultural traditions should override specific laws that protect species	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
		on the brink of extinction. The Makah tribe has successfully maintained their culture and whale-focused traditions throughout history, even when prohibited from actually hunting gray whales. While cultural preservation is certainly important, I question whether the Makah tribe's culture is significantly suppressed if they are unable to hunt the whales. Moreover, as we progress into the future where hunting is less and less accepted and species protection is of ever-growing importance, I argue that both the Makah's right to hunt gray whales and to maintain their culture do not outweigh the importance of maintaining the health of gray whale populations.	Tribe's desire to revive its whaling tradition.
843	e_Anonymous5_6-2-15	By reading these points, I wish for you to assess the current alternatives and if nothing else, to add stricter regulations and enforcement during the hunt to mitigate the potential extinction of WNP gray whales. The killing of gray whales, while an old tradition for the Makah Tribe, is not necessary for them to maintain all their cultural values as proven for the past century in which whaling was forbidden. Therefore, I suggest that either killing be prohibited or, if any, have the hunt use new technology to reduce the risk of excess killing and whales lost while increasing the safety of the hunt. Thank you for considering my recommendations.	Please see the responses to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 15 regarding use of modern weapons.
844	e_Anonymous_6-3-15	Dear Mr. Stone: My review of the Draft Environmental Impact Statement (DEIS) on the Makah Tribe's appeal to hunt gray whales has led me to recommend that the Makah Tribe be granted a conditional permit to resume their practice of whaling for ceremonial and subsistence reasons. The Makah Tribe deserves at a minimum the opportunity for some degree of whaling for two main reasons: The Makah Tribe is uniquely guaranteed whaling rights by treaty, for which exceptions can be made in national and international law. The Makah Tribe have proved their ability to moderate their whaling practices, with a long history of sustainable whaling before colonial interference. I recommend that the Makah whaling permit be approved with the inclusion of the following stipulations: The Makah Tribe must incorporate the permit restrictions into their tribal law and take responsibility for preventing any illegal whaling from within the Tribe. The cultural interests and values of all Makah Tribe members must be protected through an anonymous vote among Tribe members on whether or not the whaling will take place each year. The definitions of key terms must be clarified and uniformly adopted to reduce the number of gray whales in at-risk groups or populations that can be struck and lost, or wasted. Alternative 5 is the option that should be used as the model for the aforementioned whaling permit. I recommend that these stipulations be applied as amendments to Alternative 5 as	Recommendation noted.

Sort #	Commenter Code	Comment	Response
		described in the current DEIS. The following alterations address areas of concern that have not been properly addressed in the DEIS and in Alternative 5 as they currently stand.	
845	e_Anonymous_6-3-15	The following text outlines my reasoning and specific recommendations corresponding to each of the above point's letter or number: A) The Makah Tribe must be granted some sort of whaling permit. The current text of the DEIS states that the 1855 Treaty of Neah Bay made between the Makah Tribe and the United States (U.S.) federal government "expressly secures the Makah Tribe's right to hunt whales." For this right, the Makah forfeited much of their inland territory to the U.S. government and were relocated to a coastal reservation. This was the only treaty the U.S. government ever made with a native tribe that specifically protects whaling rights, adding to the "historic importance" of this agreement, as stated in Anderson v. Evans (2004)1. For the government to deprive the Makah of the legally agreed-upon right of whaling on a national level would be nothing short of breach of contract and land robbery. Beyond the U.S., the International Whaling Commission (IWC) and international regulations govern the whaling industry. The IWC grants exceptions to the international whaling moratorium for aboriginal peoples who have a history of whaling, like the Makah. This exception is for the purpose of "regulated aboriginal subsistence" whaling of certain whaling stocks, such as the eastern North Pacific (ENP) gray whale population that the Makah wish to hunt. With these clearly defined legal provisions in support of the Makah's native whaling rights, it would be culturally offensive and arguably illegal to deny the Makah some degree of regulated whaling rights.	Comments noted.
846	e_Anonymous_6-3-15	B) Beyond their legal right to whale, the Makah have proved that their people can whale in a sustainable, long-term, non-deleterious fashion. The Tribe practiced sustainable whaling for centuries before European colonizers arrived. These colonial powers were the ones that depleted the whale stocks so heavily in the 1800s. The Makah have proved that they can whale responsibly, and the origin of the conservation issues afflicting the specific whale populations now are not the fault of the Makah, but the fault of the nation now attempting to regulate the Makah whaling practices. This ironic situation should not be perpetuated, and the Makah must be allowed to whale in compliance with international law and conservation efforts.	Comments noted.
847	e_Anonymous_6-3-15	In my assessment, it is imperative that the Makah have some sort of permit to legally whale. This renders Alternative 1 unacceptable, and leaves Alternatives 2-6 as options on which to build conditions for regulating Makah whaling. While the Makah whalers are pushing for Alternative 2, Alternative 5 presents the most	Comments noted.

Sort #	Commenter Code	Comment	Response
		realistic compromise in terms of legality and conservation concerns. Alternative 5 is similar to Alternative 2, but it varies from Alternative 2 in in crucial ways. Alternative 5 bolsters conservation efforts by establishing two three-week hunting seasons at times that minimize the chance of taking a western North Pacific (WNP) or Pacific Coast Feeding Group (PCFG) gray whale, both of which have miniscule population numbers (estimated at under 170 whales each) compared to the targeted ENP population, which is estimated to be around 18,000 in number, as noted in the DEIS text. Furthermore, Alternative 5 counts, in relation to confirmed population numbers, PCFG whales that are struck and lost (in relation to the group's confirmed numbers) against the Makah's allotted quota. To further safeguard the small PCFG whale numbers, Alternative 5 sets a mortality limit of 10% of the annual potential biological removal (PBR) of the species. This PBR limit includes all whales killed that year by any industry or manner, and would set a mortality limit of about 0.27 PCFG whales per year. Alternative 5's provisions for safeguarding the PCFG whales make it attractive in conservation terms, as the Makah's small-scale whaling poses no threat to the ENP stocks of gray whales, which would be targeted. These regulations frame the plan more in accordance with Whaling Convention Act (WCA), Marine Mammal Protection Act (MMPA), and IWC.	
848	e_Anonymous_6-3-15	However, as mentioned in the introduction, Alternative 5 leaves some problematic gaps in regulation. Here are my explanations for the aforementioned amendments to Alternative 5 to fill those gaps. 1) I strongly recommend that the Makah Tribe be held accountable for the actions of their tribal members. In 2007, five rogue Makah Tribe members took part in an illegal whale hunt not sanctioned by the tribe or the U.S. government. Illegal hunts by tribal members render any permit agreements effectively pointless, can cause undue harm to whales, and detract legitimacy from the Makah's whaling practices. This past behavior is cause for concern that isn't fully addressed in the DEIS as it is. That is why I suggest requiring the Makah Tribe to incorporate into tribal law the permit restrictions outlined in the modified version of Alternative 5 proposed in this commentary. This should include revocation of tribal membership from any individual that participates in an illegal whale hunt, stripping these individuals of any title that allowed them to claim a right to whale. If the tribal council and law enforcement agency fail to keep the rogue illegal whalers in line, the whaling permit should be revoked from the Tribe for a minimum of one year, or until the Tribe officials can provide adequate reassurance that a similar breach of conduct won't be allowed to happen, or if it does, won't go unpunished.	The DEIS describes the current tribal enforcement and judicial system (Subsection 3.1.2, Makah Management of Reservation and U&A Areas). Regardless of the efficacy of that system, the convictions of Makah tribal members involved in the unauthorized hunt demonstrate that the United States has mechanisms in place that are effective in enforcing the MMPA.

Sort #	Commenter Code	Comment	Response
849	e_Anonymous_6-3-15	2) One fundamental mistake in the general approach to the issue of allowing the Makah Tribe to whale is assuming that the Makah are uniform in their desire to whale and in their support of tribal whaling practices. In reality, there have been reports that a core group supports the whaling, but that dissenting tribal members have been intimidated into silence with accusations of disloyalty and undermining the tribe, even culminating in threats of banishment of the dissenting individuals from the tribe. Cultural identity of the Makah Tribe is listed as an explicit concern in the current DEIS. While failing to grant any sort of whaling permit could likely erode the cultural identity of the Makah Tribe, approving the Tribe's request or any of the actionable Alternatives also risks the cultural interests and influence of dissenting individuals. While it isn't possible to entirely satisfy the concerns of every tribal member, the prevailing attitudes of the people who constitute the Makah Tribe should be what determine the cultural identity of the Tribe, rather than having whaling be automatically and legally assumed as part of the tribal identity. I recommend that the renewal of the Makah Tribe's modified Alternative 5-based whaling permit be contingent on the outcome of a vote taken anonymously by all Makah tribal members. I suggest that if more than one third of the Tribe votes against whaling any given year, the Tribe will not be permitted to conduct their whale hunt that year. This method grants tribal members control over the path of their culture's identity and allows dissenting tribal members to safely express their views in an actionable way. In summary, my recommendation for the voting system removes the current inherent conflation of the Makah people with pro-whaling values. While many Makah do seek to exercise their unique tribal right to whale, it must be recognized that there is not unanimity within the tribe, and this must be respected in the process.	The Makah Tribal Council, which is the elected government of the Makah Tribe, submitted a waiver request on behalf of tribal members. The purpose of the DEIS is to analyze the potential impacts of the tribal government's request, and a reasonable range of alternatives, not to evaluate individual tribal members' level of support for whaling. The DEIS describes the household surveys of Makah Tribe members and reports that not all tribal members support a resumption of whaling (Subsection 3.8.3.1, Makah Tribal Members). If the Makah Tribe is granted a waiver to hunt gray whales, it will be up to the tribe, as a sovereign nation, to decide whether to exercise its treaty rights.
850	e_Anonymous_6-3-15	3) If whaling is allowed, there is little disagreement of the fact that it should be done in an efficient, respectful, and humane manner. Among the biggest concerns are wasted whales and struck but lost whales. How both of these factors count towards hunting limitations, quotas, and permit renewal must be addressed more comprehensively in the amendment of Alternative 5. Inconsistencies in definitions of key terms make the enforcement of restrictions difficult. The IWC has a more permissive view of what "strikes" and "takes" are than does the MMPA. These key terms need to have concrete, universal definitions that account for the true impact of an attempted hunt or killing of a whale. While the IWC constitutes a "taking " with a requirement of physical contact with the whale2, the MMPA definition of a "taking" counts and attempt	The commenter notes distinctions between IWC legal authority and the MMPA. These legal authorities are described in the DEIS Subsection 3.4.2, Regulatory Overview. Future decision-making will comply with applicable laws. We disagree that all hunting activities have similar impacts, for example, harpooning and killing a whale would have a greater impact – at both the individual and the

Sort #	Commenter Code	Comment	Response
		to “harass, hunt capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal” (16 U.S.C. 1362). The MMPA definition goes so far as to include “the negligent or intentional operation of an aircraft or vessel” and “the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal”3. The MMPA definition addresses the full range of impacts that a whale hunt can have on the whale, even if the whalers never officially strike the whale. I recommend adopting the MMPA definition of “taking as the universal definition in the case of the Makah permit in order to make a more uniform body of regulation and further protect the whales from undue harm that could go uncounted in quotas otherwise. In summary, I encourage the deliberating parties first to acknowledge the Makah Tribe’s right to whale for the legal and historical reasons I presented. Once in agreement on allowing some degree of Makah whaling, I ask that you consider my proposal of using Alternative 5 on as a starting point for further regulating the permitting of Makah whaling. Finally, I encourage you to examine my outlined critiques of what I see as problems not adequately addressed in the DEIS as it currently stands, and ultimately to amend Alternative 5 based on these critiques and their accompanying recommendations. I thank you for your work on the Makah Whaling DEIS and for taking the time to consider my commentary. Works Cited (Other than the DEIS) 1) "ANDERSON v. EVANS." Findlaw. N.p., n.d. Web. 31 May 2015. <http://caselaw.findlaw.com/us-9th-circuit/1054441.html>. 2) "International Whaling Convention." Fishery Management McHugh/Fishery Management Lecture Notes on Coastal and Estuarine Studies (1984): 94-112. Congressional Research Service. Web. 30 May 2015. <https://www.fas.org/sgp/crs/row/R40571.pdf>. 3) "Protected Resources Glossary." NOAA Fisheries. NOAA, n.d. Web. 1 June 2015.	population scale – than merely approaching one in a canoe.
851	e_Anonymous6_6-2-15	Dear Mr. Stone, After reading and reviewing the draft EIS, I recommend choice alternatives in the following order... Alternative 1: No Action AlternativeAlternative 7: Combination (Alternatives 4&5) Alternative 5: Split SeasonConservation In choosing alternatives 1, 7, or 5 NOAA fisheries would be successfully reducing if not eliminating the risks involved to the Pacific Coast Feeding Group (PCFG) and the Western North Pacific (WNP) population. Although only the WNP population is considered highly endangered, it is part of the precautionary principle to reduce the risk towards the PCFG seeing as the status of the population is uncertain. It was written in the DEIS that, “In 1994, ENP gray whales were delisted under the U.S. Endangered Species Act (ESA) (59 Fed. Reg. 31094, June 16, 1994). The current estimated minimum population size is 18,017	Comments noted.

Sort #	Commenter Code	Comment	Response
		animals (Carretta et al. 2014).” Considering that the ENP population is well established, conservation should not be an issue for this population.	
852	e_Anonymous6_6-2-15	The Makah tribe proposes to take to no more than 24 whales over a six year period. Although this is a relatively small number, the risks on the breeding individuals of the WNP population would be significant should one be struck or harvested. The population itself consists of only 140 individuals, which means that taking even one reproducing female could be detrimental to population recovery. If half of the individuals are likely to be female, it is likely that less than half are likely to be capable of breeding. It is also important to consider that the Pacific Coast Feeding Group only consists of 170 individuals, which is not a large difference numerically. The statement includes that NOAA fisheries’ new law will, “avoid the intentional harvest of gray whales identified as part of the Pacific Coast Feeding Group,” which I know to be only guaranteed by the no action alternative.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
853	e_Anonymous6_6-2-15	Alternative 2 proposes that 3.0 PCFG whales could be “landed and identified” before the hunt is ceased. This is not good enough protection of the PCFG or the WNP population as it does not qualify as avoiding intentional harvest of gray whales as it does not account for struck and lost individuals.	Comments noted. Alternatives 3 through 6 evaluate methods of accounting for struck and lost whales. Please also see the response to frequent comment # 12 regarding risks to WNP whales.
854	e_Anonymous6_6-2-15	Seeing as alternative 5 allows for the smallest number of PCFG individuals to be harvested, it would be the closest to satisfying the stakeholders involved. However, alternative 5 does not protect the WNP population.	As noted in the DEIS, Alternative 5 was designed "...to avoid killing a WNP whale and to minimize the chance of killing a PCFG whale."
855	e_Anonymous6_6-2-15	Proposed alternative 7 includes a mix of alternative 4 and alternative 5. Alternative 4 reduces the risk associated with the harvesting of the WNP population by limiting the hunt based the migration patterns of this particular gray whale population. As mentioned in the DEIS, the WNP population is absent from June to November. Alternative 7 proposes that the Makah Tribe be allowed to hunt for a split season from June 27th-30th and November 1st-4th. In the last successful hunt of the Makah tribe in 1999 landed a gray whale in only four days with constant interference from protestors as mentioned by the statement. Seeing as it has already been proven that a whale could be harvested in this time, this alternative should meet requirements if the intent for harvest is for cultural and traditional subsistence purposes. The rest would be the same as alternative 5, especially the part about counting each struck but not landed as a PCFG whale. From a conservation standpoint, this alternative would be the most effective.	Recommendation noted. We will consider combining elements of different alternatives in future decision-making.

Sort #	Commenter Code	Comment	Response
856	e_Anonymous6_6-2-15	Humanitarianism Alternative 1 results in the least amount of injury and/or death of gray whales. If this alternative were to be chosen than there would be 42 less gray whales swimming around in the ocean with harpoons sticking out of their backs. Alternative 2 stipulates that four whales would be harvested in a one year period on average, and no more than five per year. In the statement it is written, "Alternative 2 (under which up to 7 whales may be struck annually, 42 exposed to unsuccessful harpoon attempts, and 353 approached)." Approaching 353 individuals with the intent to harvest is an excessive amount, and is unacceptable from a humanitarian standpoint. The National Marine Fisheries Service (NMFS) defined wasteful manner at 50 CFR 216.3. as "Any taking or method of taking which is likely to result in the killing of marine mammals beyond those needed for subsistence, subsistence uses, or for the making of authentic native articles of handicrafts and clothing, or which results in the waste of a substantial portion of the marine mammal and includes, without limitation, the employment of a method of taking which is not likely to assure the capture or killing of a marine mammal, or which is not immediately followed by a reasonable effort to retrieve the marine mammal." Approaching 353 gray whales and exposing 42 to unsuccessful harpoon attempts to successfully harvest 7 whales is counterintuitive according to this definition. If the population of the PCFG is about 170, and the WNP population is 140 then the risks to these populations should be mitigated to all possible extent under the law.	As noted in the DEIS, the best available information indicates that whales approached by a hunting party may react in a variety of ways but that such reactions are likely to be short-lived and not have lasting effects (e.g., Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales).
857	e_Anonymous6_6-2-15	The DEIS includes, "Although some have speculated that recently detected mixing between the WNP and ENP populations (refer to Subsection 3.4.3.2.1, WNP Seasonal Distribution, Migration, and Movements) signifies a lack of gray whale population structure (Bickham et al. 2013), the results of the aforementioned genetic comparisons represent the best available science and clearly demonstrate that significant mitochondrial and nuclear genetic differences exist between whales sampled in the ENP and those sampled on the feeding ground off Sakhalin Island in the WNP (Lang et al. 2011a)" (page 3-59). Since when did the best available science on gray whale population structure turn out to be significance based on speculation? If the populations are truly genetically distinct as described, then the risk to the WNP population is substantial, which should call for protective policy if we are basing it on the best available science. If the populations are truly genetically distinct, then the best option for the protection of the species is in fact the no action alternative. This much is beyond speculation.	Please see the response to frequent comment # 12 regarding risks to WNP whales.

Sort #	Commenter Code	Comment	Response
858	e_Anonymous6_6-2-15	Purpose/Need The purpose of this request, which is to fulfill the promises of the United States government, seems to be a legitimate request. By all means the government should keep its promises to this sovereign Native American tribe. However, the need implied by the statement is as follows, "The Makah Tribe's need for the action is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions." The aspects of this need are symbolic in nature; symbolic ceremonies should be enough to satisfy these conditions.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
859	e_Anonymous6_6-2-15	With this in mind, I would again suggest the no action alternative but the United States must keep its word to the sovereign Native American tribes if we as a nation are to maintain our integrity. That being said, many of the alternatives provided are inadequate at properly protecting the WNP population and PCFG as designated by the NMFS. If whales are to harvested, then alternative 7 (which ensures protection of the WNP population) would cover the bases as well as reducing the total amount of effected gray whales.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
860	e_Anonymous6_6-2-15	Conclusion My final comments are as follows: seeing as the incident in 2007 allowed for five members of the Makah tribe to go virtually (the charges being dropped after a year) unpunished for the illegal harvesting of a gray whale in a grossly inhumane manner, I do not personally find the request for the harvesting of the gray whales to be significant. It might seem unreasonable to some, that the opportunity of the many other members of the Makah tribe to pursue traditional subsistence patterns should be restricted by the mistakes of the few. However, since the offense went unpunished, the authority of NOAA fisheries and all of the following future policies to be established become merely symbolic themselves. The law should not be taken broken without punishment. When the law is broken, requests for exactions allowing more activity of the same nature should not be taken lightly. If the Makah tribe can bring down a gray whale in four days under much media scrutiny and protestors, then two four day sessions should be more than enough. If that is not good enough or the rules cannot be followed, then nothing should be allowed. Alternative 1 would be my first choice in responding to this request. If a compromise were to be made, then alternative 7 would be preferable as it protects both the WNP population and PCFG.	Comments noted. The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.
861	e_Anonymous7_6-2-15	Dear Mr. Stone: After reviewing the draft environmental impact statement (DEIS) regarding the Makah Tribe's request to resume hunting of gray whales, I recommend that NOAA adopt a management strategy that combines elements from several alternatives. Specifically, I recommend that NOAA set the strike limit	Comments noted. We will consider the appropriateness of combining elements of different alternatives in future decision-making.

Sort #	Commenter Code	Comment	Response
		at no more than 10% of the PBR annual limit; prohibit all hunting of females; use split shorter seasons and all other measures needed to avoid hunting the whales that are a part of the western North Pacific (WNP) gray whale population or the Pacific Coast Feeding Group; prohibit hunting in all of areas described in the DEIS (White rock, Tatoosh, etc.), including within 5 miles of shore, and require the use of modern hunting technology and equipment. Strike limit I would argue that the proposed killing of 24 whales over a 6-year period is too high and cannot be justified. Overall, I believe that the catch rate is much too high to justify. Since the Makah people are now able to get sustenance from other food sources, whale hunting is mostly for cultural practices. Taking away this privilege altogether is not justifiable, but is it should be done in moderation. The North Pacific gray whale, although no longer in danger, was once a protected species and I see no need to kill so many of them. I do understand that there is a cultural aspect of the Makah hunt that needs to be respected. To address both of these concerns I believe that the hunting should be allowed, it should just be reduced to a limit of one or two whales each year, with the taking of two whales not allowed in any two consecutive years.	
862	e_Anonymous7_6-2-15	To ensure that the hunt is done according to these restrictions there will definitely have to be someone present to hold the tribe accountable and make sure that they are following the rules that are outlined for them. Similarly, someone should be in charge of making sure that the take rate remains at the allowed level and that the whale is used almost in its entirety. A suggestion would be to take away hunting permission permanently or for a period of months/years to show the importance of a healthy ecosystem not only to the tribe but to the rest of the community.	All of the action alternatives include provisions for observers and enforcement, as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures
863	e_Anonymous7_6-2-15	**No hunting of females** The age and sex restrictions also are important considerations regarding the effects of whaling. Female whales and calves should be protected to the fullest extent possible because they represent the population's reproductive capacity. Limits placed on the annual take should include smaller limits on the number of females that can be taken. Calves and whales with calves should not be taken, as those whales are likely females. Since it is difficult to tell if a whale is a male or female just by looking at it, the tribe should not hunt any whale that is with a calf because it is most likely female. If the Makah do happen to hunt a female whale, then they should not be able to hunt any more whales for the rest of the year. However, if they capture a male they should be able to capture one more whale for the year. There should be	Alternative 3 has mortality limits that restrict the take of female whales (see Subsection 2.3.3, Alternative 3 [Offshore Hunt]), and all alternatives prohibit the striking of a whale calf or any whale accompanied by a calf.

Sort #	Commenter Code	Comment	Response
		some sort of supervisor that is not a part of the tribe to determine if the whale is a male of female to see if hunting can continue.	
864	e_Anonymous7_6-2-15	**Hunting seasons** The use of split shorter hunting seasons will help to avoid hunting whales that are still protected such as whales that are a part of the Western North Pacific (WNP) gray whale group and the Pacific Coast Feeding Group (PCFG). During specific seasons these two groups travel through what may possibly be the hunting area for the Makah Tribe. However, during other parts of the year these two groups do not travel through the area; therefore, decreasing the risk of accidently hunting a whale from the wrong group. If a whale is hunted that is from either the WNP or PCFG then the hunting for the year should cease. This rule should be in place because it would ensure that another whale from either of the groups would not get killed as well. If a member of one of these groups is still struck even with the split hunting seasons it would give reason to believe that the whales migration pattern is off and that there may be more from those groups. The area where the Makah would be hunting for Gray Whales is surrounded by national land, sanctuaries and reservations. These lands are considered to be highly productive and pristine environments that are important to species of fish, birds, and marine mammals. Regardless of the important land that surrounds the hunting range, there are endangered and threatened species that migrate through the area that the Makah would be hunting. There is no way to know exactly how each alternative will play out and how it will affect the environment, but it is a governmental concern to do everything possible to protect endangered and threatened species, thus making split seasons more appealing.	Comments noted.
865	e_Anonymous7_6-2-15	**Protected areas** Protected areas are important because it would not allow the Makah tribe to hunt within a 5 miles of shore which would help to protect the whales that are resting or feeding near shore. This would also help to protect nesting seabirds along the shore. Since the Makah tribe only wishes to hunt grey whales it is important to make sure that other animals and sea life is protected.	Recommendation noted. Subsection 4.5.3, Evaluation of Alternatives, explains how the different alternatives would affect wildlife besides gray whales, such as marine birds.
866	e_Anonymous7_6-2-15	Hunting technology and equipment In the DEIS the hunting method is described as using “traditional methods.” Does this allow the use of canoes? Canoes and other quiet boating vehicles are often worse for whales because they are not given the warning that there is something coming towards them. The whales are often are startled and will stop going in the direction they were headed (often to eat or rest), which could make them fatigued or distressed. It is also important to make sure that the whales do not suffer from a slow and painful death. The Makah tribe should be required to use a type of gun that would automatically kill	Please see the response to frequent comment # 15 regarding the use of modern weapons.

Sort #	Commenter Code	Comment	Response
		the whale. Taking these precautions are also important to make sure that none of the hunters get hurt. If a whale is struck with a weapon that kills it slowly, it could get very upset and start to knock the boat around. Thus, making it important that the Makah also use a larger boat that they can haul the whale back on instead of the traditional canoe.	
867	e_Anonymous7_6-2-15	The area where the Makah would be hunting for Gray Whales is surrounded by national land, sanctuaries and reservations. These lands are considered to be highly productive and pristine environments that are important to species of fish, birds, and marine mammals. Regardless of the important land that surrounds the hunting range, there are endangered and threatened species that migrate through the area that the Makah would be hunting. There is no way to know exactly how each alternative will play out and how it will affect the environment, but it is a governmental concern to do everything possible to protect endangered and threatened species. This protection will need to take form in making sure that the Makah do not hunt the gray whales or that they do not overhunt them, making this decision so important.	Pursuant to NEPA, the DEIS predicts and analyzes impacts of alternative actions on gray whales as well as an array of ESA-listed and non-listed species.
868	e_Anonymous7_6-2-15	Conservation and consumption concerns become pitted against each other in an issue like this because there are rarely circumstances where outcomes are favored by both parties. The Makah tribe has rights to hunting whales in their area. This only became an issue when the whale population started to decline and resulted in endangerment. Even though they are no longer on the list it is still important for their population to be observed. If the environmental concerns weight too heavily, than it is clear that the choice has to be favorable of the environment. This is a tricky decision none the less since the populations are at a healthy level again. We have nothing to compare this case to because the gray whale is the first species to actually return to healthy levels to the point where it could be removed from the endangered species list. The environmental health is the most important aspect to consider because there is no chance that the western or pacific coast feeding group could bounce back to the levels they are at now (or even higher) if they have a portion of their population killed.	Comments noted. Please also see the response to frequent comment # 12 regarding risks to WNP whales.
869	e_Anonymous7_6-2-15	Wasteful Take I would also like to bring to your attention the amount of the whale that will actually be used by the Makah Tribe. In order for it to be worth taking a species out of the environment I would suggest that at least 90% of the body should be used for subsistence purposes. Uses such as food, instruments, tools, clothing, etc. would seem like reasonable uses and would be worth the sacrifice of a whale. However, if most of the whale is either immediately disposed	Comments noted.

Sort #	Commenter Code	Comment	Response
		of, or left in a freezer until it is no longer good enough then the sacrifice would not be justified.	
870	e_Anonymous7_6-2-15	The Makah tribe has a deep root in whaling culture; however, they have not hunted regularly for decades. Is it still important to their culture to bring back this practice? Would one whale be enough to just serve the cultural and ceremonial part of their traditions since they are now able to purchase clothing and food from the store? I would argue that if their main reason for wanting to be able to hunt the gray whale again, that one whale each year would justify these needs. I am also curious to know if they count on these whales for their economic gain. If so, the percentage of wealth that they receive from bone carvings, etc. would have to be well worth the sacrifice as well.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
871	e_Anonymous7_6-2-15	One rising concern with consumption is something that is affecting populations all over the world. Are the whales really good enough to eat? There have been studies that show that seafood contains high levels of contaminants and are linked to causing birth deformities and cancer if enough is consumed. We also have to take into consideration that a captured whale may be diseased and deemed unsafe to eat. If such whales are killed and cannot be consumed then the sacrifice of these whales would certainly not be worth taking them out of their natural habitat. I would like to thank you for your consideration and taking the time to read my comments.	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
872	e_Anonymous8_6-2-15	Dear, Mr. Stone: After reviewing this draft environmental impact statement regarding the Makah request to resume gray whale hunting (DEIS) I recommend: Allowing alternative five for the Makah Tribe without the killing of western North Pacific (WNP) and Pacific Coast Feeding Group (PCFG) gray whales and redefining struck and lost. Struck and lost whales should be counted as mortally wounded. All hunts be monitored by a third party observer rather than a member of the Makah Tribe. Acknowledge that alternative three has very little cultural significance for the tribe. To avoid wasteful take, the annual harvest be set at one whale for the first year and then adjusted thereafter depending on the extent to which each whale is used for subsistence purposes. Harvesting of whales from the PCFG and WNP population be avoided. Preferred Alternative The no action alternative makes a lot of sense mainly because the Makah Tribe has not hunted gray whales for about 15 years. However, I feel that they should have some right to hunt whales for the cultural aspect as well as some subsistence reasons. I feel that four whales per year is very excessive and should only be about one or two whales. Struck and lost classification should be altered so that any whale hit by a harpoon counts as a struck and lost whale if the whale is not recovered. I prefer	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		alternative five because it gives the tribe a chance to practice their tradition of whale hunting and it will provide plenty of whale meat for subsistence purposes. This alternative avoids the killing of WNP and PCFG gray whales, the former being listed as endangered. Using two different short hunting seasons will minimize the impact on those two small populations. This alternative also counts whales that are struck and lost toward the number of whales harvested per season.	
873	e_Anonymous8_6-2-15	**Stuck and Lost** The number of whales that could be struck but lost is a major part of this proposal by the Makah Tribe. According to the definition of struck and lost in the DEIS, the harpoon must stick into the whale for it to count as being struck. This definition leaves room for considerable harm to a whale that is not harvested but is still not counted as struck. A whale could be wounded by a harpoon but not counted if the harpoon falls away from the whale. I believe that the definition is not sufficient any whale that is physically hit by a harpoon, whether it sticks in the whale or not, should be counted as struck and lost. Counting these whales as struck and lost also would provide incentive for the Makah to be careful and effective in their hunting practices.Other than the no action alternative each alternative would allow up to three struck and lost whales per year and 18 over six years. The tribe is also requesting to harvest up to 24 eastern North Pacific (ENP) gray whales in a six year period with the average of four whales per year harvested. Considering that the maximum number they would be able to harvest is five in a year, three whales struck and lost per year is very high. A high number of struck and lost whales indicates their hunting methods are not effective and that too many whales are suffering needlessly. To be precautionary, any whales struck and lost should be considered mortally wounded and counted towards the harvest quota. This would give the tribe more of an incentive to pursue any whale that has been struck. Struck and lost ENP gray whales would not be a conservation issue for the ENP population because this population is at a healthy level. However the WNP population is endangered and PCFG is poorly understood, struck and lost whales would have a major impact on those populations. Therefore, I recommend changing the definition of struck and lost to include whales that have been hit by a harpoon, regardless of whether it sticks, and lowering the struck and lost quota to reduce the total number that are injured of killed. Under the current definition whales may be seriously injured, if not killed, and still not count toward the Makah's limit of struck and lost whales in a season.There should also be a way to have little to no struck and lost whales during these hunts. Ideally, every whale they attempt to harvest would be harvested. In alternatives five and six the DEIS states that	Consistent with these comments, except for the tribe's proposal (Alternative 2), all of the action alternatives count struck and lost whales against the calculated limits on PCFG whales.

Sort #	Commenter Code	Comment	Response
		whales struck and lost count towards the tribe's annual harvesting limit. I agree with this idea in the fullest. If we cannot find a way to eliminate struck and lost whales then whales that have been stuck and lost must count towards the harvested count.	
874	e_Anonymous8_6-2-15	**Monitoring and enforcement of the Makah Tribe whaling activities** Monitoring and enforcement, such as recording struck and lost whales, number of whales harvested, the days allowed to hunt, and staying inside their authorized hunting zones will be a challenge. According to the DEIS the Makah Tribe will designate a whaling captain who will be in charge of enforcement of whaling operations. Designation of a tribal whaling captain should promote traditional practices. However, having a member of the tribe serve as the enforcement officer during these whale hunts should not be allowed. Such a situation would provide an incentive for that tribal member to not record a struck and lost whale if it would benefit the tribe as a whole that is, that person is subject to an unreasonable conflict of interest. It seems irresponsible to have a member of the Makah tribe be in charge of both the whaling process and enforcement. I recommend NOAA or the National Marine Fisheries Service (NMFS) designate a third party enforcement officer to ensure whaling operations are objectively and fairly regulated. I agree with the punishment of tribe members who do not follow permit guidelines, as described in the DEIS. Fines and criminal sanctions seems fair and appropriate when violations occur. Punishments must be strict to establish a firm precedent and send a clear signal that violations will not be tolerated.	Recommendations noted. All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures. If hunting is authorized, possible enforcement measures under the permit would include criminal sanctions (e.g., fines and imprisonment) and barring violators from exercising treaty fishing, hunting, and/or whaling rights for at least 3 years.
875	e_Anonymous8_6-2-15	**Culture** Culture is a major reason why the Makah Tribe has requested authorization to resume gray whale hunting. To this tribal community the whale has considerable traditional and sentimental value. Of the alternatives given in the DEIS, alternative three does not appear to meet the Makah Tribe's cultural needs. This alternative would break away from the traditional method of whale hunting that has been passed down from generation to generation by the tribe. It would require the use of motor vessels for the hunt, and therefore would not be meeting the tribes request to hunt these whales for traditional ceremonial purposes. Motorized vessels may help reduce the number of whales struck and lost, but it also might increase the number of vessel-whale collisions. Still the two reasons for hunting these whales are subsistence and ceremonial practices. With this alternative only the subsistence reason would be achieved. For that reason alternative three should not be adopted. Whale hunting may be more acceptable to the public if traditional hunting methods are used. In contrast if the tribe is	Comments noted.

Sort #	Commenter Code	Comment	Response
		allowed to hunt whales but only in a way that has little to no traditional or ceremonial value, the use of motor vessels, could cause the public to be less willing to accept such hunting. Overall I believe that this alternative has some good qualities but is not culturally consistent with the tribe's request to harvest gray whales for traditional purposes.	
876	e_Anonymous8_6-2-15	**Subsistence needs and wasteful take** Subsistence is a second main reason why the Makah Tribe wants to resume hunting gray whales. They are asking to harvest 24 whales in six years with an average of four whales per year. This seems like a high number of whales to harvest. This tribe has not used a whale for subsistence purposes in about 15 years. Allowing them to harvest four whales per year could lead to massive amounts of wasteful take. The Makah Tribe has been able to feed themselves with other forms of food other than whales for some time now. If they harvest four whales a year, much of those whales may be wasted.	Comments noted.
877	e_Anonymous8_6-2-15	My idea for reducing wasteful take while still allowing the whaling to occur would be to set up some sort of regulation that allows them to harvest only one whale the first year and then monitor how long it lasts throughout the year. Such monitoring should NOAA/NMFS more accurately determine the number of whales needed for the tribe per year. They may find that they do not need four whales every year one or two may be sufficient. This approach would allow the tribe to practice its traditional methods and still provide subsistence for the tribe while avoiding any wasteful take.	Recommendation noted.
878	e_Anonymous8_6-2-15	I do support some of the subsistence regulations that are described in this DEIS. The DEIS indicated that the meat from the whales would stay in the Makah Tribe community. I strongly support this measure because it means that all of the meat from the whale will be used within the tribe's boundaries , which is a very good idea and will also better help to reduce wasteful take.	Comments noted.
879	e_Anonymous8_6-2-15	**Conservation of whale populations** Conservation of the gray whale populations is a main issue of the Makah's request to hunt whales. There are three main groups of gray whales that occur in the waters in which the Makah Tribe would like to hunt. They are the ENP, WNP, and PCFG gray whales. The WNP is classified as an endangered species. The ENP gray whale population has recovered and is at a very manageable level. Harvesting from this subspecies is not a major conservation concern in terms of sustaining the population. In contrast, hunting the WNP and PCFG populations could pose serious risks to them because of their small population sizes . The alternatives in the DEIS differ with regard to the level of protection provided for the WNP and PCFG populations. Alternative two would	Comments noted.

Sort #	Commenter Code	Comment	Response
		allow an average of three PCFG gray whales to be harvested annually. That is a very high number for this small, poorly known group of whales. Taking three PCFG whales would likely not sustain the total population and could have negative ramifications. Alternatives two, three, four, and six all average around two to three PCFG whales being harvested. I prefer alternative number five because it provides more assurance that WNP and PCFG gray whales are not harvested. Having two, three week hunting periods during the time the WNP and PCFG gray whales are not normally in the hunting zone is a much better approach than the other alternatives that would allow for hunting during times of the year when the WNP and PCFG gray whales are frequenting the hunting zone. Hunting whales that are listed as endangered should not be allowed, but harvesting a small number of the healthy population would be permitable as long as the tribe stays within its permitted rights granted by the Secretary. Allowing for the take of an endangered species also could set a negative precedent. Thank you for considering my recommendations.	
880	e_Anonymous9_6-2-15	Dear Mr. Stone: After reviewing the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales, I recommend that NOAA— 1.) Implement Alternative 12.) Place greater value on conservation than on re-establishment of a neglected tradition 3.) Consider the adverse health risks associated with whale consumption4.) Uncertain affiliation The hunting of gray whales entails many risks, both to the environment and to the tribe itself. The most significant problem in this draft environmental impact statement (DEIS) is how to ensure the sustainability of the potentially affected gray whale populations. Although the eastern North Pacific (ENP) stock was recently removed from the List of Threatened and Endangered Species, the western North Pacific (WNP) still remains at extremely low levels. Implement Alternative 1 Legally the Makah have the right to hunt, but they must realize that times have changed and they must change as well. Conservation of a depleted species is the important part of this issue. While the alternatives are developed based on the most recent scientific data and are intended to allow take a small number of whales from the ENP stock, there are still too many uncertainties associated with gray whales to allow the Makah tribe to continue hunting. The uncertainty of the actual number of gray whales within the different groups (WNP stock, WNP stock, Pacific Coast Feeding Group (PCFG)), how they intermingle, and externalities of other sources of human-caused whale mortality calls for the utmost protection. Based on my analysis, I recommend alterative 1 to both maintain the health of the Makah Tribe and the health of the affected gray whale	These introductory comments are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		populations. Until there is an abundance of gray whales, untainted by contaminated waters, hunting should not be allowed to protect both the Makah people and the population of gray whales.	
881	e_Anonymous9_6-2-15	Culture vs. Conservation The big conservation question this DEIS puts forth is whether cultural needs should come before conservation efforts if hunting might affect the endangered WNP population or the PCFG. The Makah Tribe stresses their need for hunting these whales for cultural purposes, and proposed how they would prefer to go forward. Since whales from both the WNP population and PCFG intermingle with whales from the ENP population, Makah whaling poses a potential threat to these smaller populations.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition, # 12 regarding risks to WNP gray whales, and # 13 regarding risks to PCFG whales.
882	e_Anonymous9_6-2-15	The Makah Tribe's hunting methods deviate from past tradition, which leads to the question of whether cultural hunting can be justified if they are using modern weapons and motor boats rather than canoes and spears. Since they are not adhering to the traditional ways, justifying the hunt as a tradition is not permissible. That being the case "cultural" rationale for the hunt is not completely accurate or reasonable.	Please see the response to frequent comment # 15 regarding use of modern weapons.
883	e_Anonymous9_6-2-15	The Animal Welfare Institute (AWI) has consistently held that the Makah Tribe does not qualify for an aboriginal subsistence whaling (ASW) quota by the International Whaling Commission (IWC) and, therefore, there is no legal basis to engage in this National Environmental Policy Act (NEPA) decision-making process" (AWI1-1). In the past the Makah Tribe ceased hunting for 80 years, not "solely due to declining gray whale numbers but also [because of the]... increased economic profits available to them by working on a sealing boat" (AWI1-2). In essence, the Makah did not demonstrate a commitment to continuing their tradition, which is one of the standards that must be met to receive an AWS quota. Nor do they meet the "local aboriginal consumption" standard, which again means that their cultural reasons are unacceptable. Thus, the existing evidence does not support the cultural argument used by the Makah to justify their request for authorization to resume whaling. For that reason, I recommend that NOAA place greater value on conservation than they do on re-establishment of a neglected culture.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
884	e_Anonymous9_6-2-15	Health Risks The argument as to whether resumption of a whaling culture is worth the health risks of consuming whale meat and blubber is an important part of this issue. Since gray whales are higher in the food chain and they are bottom feeders, they carry large amounts of toxins or contaminants with potential adverse effects, as stated in the DEIS. As the chemical industry continues to manufacture products ranging from pesticides to pharmaceuticals, these	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.

Sort #	Commenter Code	Comment	Response
		products eventually end up in our oceans from runoff and sewage treatment centers. Science isn't able to assess the thousands of chemicals being released into our environment, and therefore we cannot fully understand the risks associated with them. Keeping with tradition does not justify putting a population of people at risk of adverse effects, especially when the existing data is insufficient to assess that risk. The DEIS stated that "it is not possible to discern precise risk levels based upon the existing best available information addressing the rate of consumption and method of cooking fresh whale tissues by Makah tribal members" (4-257). The consumption of drift whales raises the same issue, because these whale may have higher amounts of contaminants and are clearly in poor health or dead. The tribe knows of the risk associated with drift whales, which is why in alternatives 2 through 6 would allow hunting only of whales at least 5 miles offshore. Nonetheless, "whales that appear to be healthy can have contaminant levels higher than those found in stranded animals" (4-257). Since each individual species can carry and live with different amounts of chemicals, it is difficult and expensive to determine the contaminant levels and level of risk associated with whale consumption. Keeping a healthy human population is more important than keeping a tradition alive, especially when the risks extend to the next generation. If the future generation is not healthy, there may not be a tradition to maintain, which the Makah Tribe must keep in mind. One of the chemicals at the top of discussion is PCB's, which accumulate rapidly in marine species. PCB's have been known to cause a number of adverse effects, including cancer, immune effects, reproductive effects, neurological effects, endocrine effects, and other non-cancer effects (EPA.gov). The question for the Makah tribal members is whether re-establishing a tradition justifies consumption of a product rife with toxins with known adverse health effects.	
885	e_Anonymous9_6-2-15	Uncertain Affiliation There is great uncertainty about the intermingling of gray whales in the North Pacific.. Although research and observations are helpful, the scientific community cannot describe, fully and with confidence, the extent of that intermingling. Granting a permit to hunt gray whales is controversial because of their recent history and the vulnerability of several populations. The sustainable number of gray whales that may be killed is estimated mathematically, but not with complete certainty. The sustainability of this species is of the utmost importance, and because of the uncertainty, granting a permit could possibly push several of the populations towards extinction. The draft EIS indicates that "alternative 2 has the highest impact while alternative 5 would have the least impact" (ES-4). But the key word used in the executive	Please see the response to frequent comment # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
		summary is “likely” because of uncertainty regarding the possible effects on the populations involved. With such uncertainty it is imprudent to grant a permit to the Makah Tribe, especially a permit based on alternative two with the most significant impact. Until certainty can be guaranteed, hunting should cease for the betterment of the whale population. Thank you for considering my recommendations.	
886	e_Anonymous10_6-2-15	Dear Mr. Stone: After reviewing the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (DEIS), I recommend that NOAA should: Set smaller limits on the number of struck and lost whales. Ensure observes monitor all gray whale hunt. Make every effort to ensure that the whales hunted are from the Eastern North Pacific population only and do not include those whales that are part of the Pacific Coast Feeding Group. Acknowledge Makah Tribe traditions and culture, which value the hunting of whales. Set and enforce strict regulations on wasteful take; to ensure that the whales that are killed are well used. Implement alternative 5. Set smaller limits on the number of struck and lost whales. As stated in the DEIS Executive Summary, alternative 2, “The number of whales that could be struck 24 would be limited to no more than seven in any calendar year and no more than 42 over Makah Whale Hunt DEIS ES-1 February 2015 Executive Summary 1 the 6-year period, while the number of whales struck and lost would be limited to three 2 annually and 18 over the 6-year period.”. These numbers are excessive and should be lowered. This is major concerns because we will never know if struck and lost whales recovered or died. Under alternative 2, the total of struck and recovered and struck and lost whales could be 42 per-six year period, which is unnecessarily high. In fact, there would be no value gained from the injury on death of nearly half of them. If you reduce the number of struck and lost whales, whale hunters will have to become more efficient. This will encourage the Makah people to send their best experts and professionals on their whale hunting trips and will make them work harder to catch any whales that they strike This is much better than allowing a struck whale to swim away, and suffering and possibly dying needlessly from the injuries.	Recommendation noted.
887	e_Anonymous10_6-2-15	Ensure observes monitor all gray whale hunt. My second major point, is aimed at ensuring compliance with all rules. Observation is necessary to monitor accurately the number of whales being struck and recovered plus the number being struck and lost by the Makah tribe during their hunting trips. In fact, the only way to know the numbers of whales being injured or killed is through such monitoring. Furthermore, this will ensure that NOAA representatives responsible	Recommendations noted. All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.

Sort #	Commenter Code	Comment	Response
		for conserving the affected populations have accurate data on hunting effects. To ensure observation the Makah tribe should be required to notify NOAA in advance of any hunts to provide them with all necessary data. At least two NOAA agents should accompany every hunting boat to observe and monitor the hunting activity. I recognize such requirements may be expensive, but I also believe that NOAA must observe the Makah Tribe whale hunting trips to gain a better understanding of the hunting activities and tools and collecting accurate data on the numbers of whales killed and struck and lost. In my view, the benefits that will be gained from observing the hunting process exceed the costs.	
888	e_Anonymous10_6-2-15	Ensure whale population sustainability It is important to sustain healthy gray whale populations, which benefits the ecosystems in which they live. Gray whale populations that are small and at higher risk of extinction should be given extra protection by laws and regulations imposed on any people that hunt them. The Western North Pacific (WNP) population of gray whales could face extinction in the near future because of human's activities that affected them. Seasonal restrictions on hunting should help prevent the killing of WNP whales. Whales should not be hunted in breeding seasons, and hunters should avoid female whales. Females' are essential to sustain the population. To reduce the chance of killing a female the hunters must avoid taking whales that are swimming with calves. In fact, every effort should be made to protect the WNP population and the Pacific Coast Feeding Group. Whales have low birthrates, which makes it harder for them to recover when depleted. They also threatened by multiple human activities. For those reasons, NOAA should impose a smaller limit on the number of whales that can be killed each year. Makah Tribe hunters should be aware that any whale that is swimming with a calf is likely a female, and must be avoided. In fact, unsustainable whaling practices carried out now can only limit whaling opportunities in the future.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
889	e_Anonymous10_6-2-15	**Respect Makah Traditions and culture** The Makah Tribe hunted whales for hundreds of years, which indicate that such hunting was essential for them. Such traditions and culture warrant respect. Undoubtedly, this history makes it hard to impose new regulations and laws to stop or reduce their hunts. Nonetheless, the Makah Tribe has the right to hunt whales in accordance with the 1855 Treaty of Neah Bay. As stated in the Makah Whale Hunt DEIS Executive Summary, "The Tribe's proposed action stems from the 1855 Treaty of Neah Bay, which expressly secures the Makah Tribe's right to hunt whales." (p. ES-1). This rights to continue hunting whales, must be reconciled with efforts to set new laws and regulations	Comments noted. Please also see the response to frequent comment # 15 regarding the use of modern weapons.

Sort #	Commenter Code	Comment	Response
		to lower the number of whales being hunted in the North Pacific. Notably, modern and traditional hunting methods are not the same. Modern ways to hunt whales are not the same as those used in the past, which raises the question of whether the requested opportunity to hunt is consistent with Makah culture. Nonetheless, modern ways to hunt are much safer and efficient, and for those reasons may be more appropriate. Therefore, modern ways of hunting should be used in the hunting trips.	
890	e_Anonymous10_6-2-15	**Prevent/ avoid wasteful take Prevent/ avoid wasteful take**. The Makah believe that whale hunting benefits their community because it provides whale oil, meat, and bone. Those products demonstrate the importance of whale hunting by the Makah. Not using the products of whale hunting would be wasteful. Therefore, NOAA should introduce and enforce regulations on gray whales to prevent wasteful take. Those regulations should describe the difference between a wasteful take and non-wasteful take, based on whether the whale meat, bones etc., are being used fully, partially, or not at all. To enforce this regulation, observers must monitor the process of consuming/using the whale to determine if it was a wasteful take or not. Full use of the whales taken helps justify continued Makah whaling. In contrast, killing but not using all of a whale is wasteful and does not justify continued whale hunting. To prevent and avoid wasteful take, NOAA establish strict laws and regulations regarding the amount of whales that must be used. Whale hunting is inhumane if all of the whale is not consumed or used.	Recommendation noted. We will consider in future decision-making the appropriateness of monitoring the tribe's use of harvested whales.
891	e_Anonymous10_6-2-15	**Implement alternative 5** I found alternative 5 to be the best. Alternative 5 is similar to alternative 2, which allows Makah Tribe to take up to 24 whales' per-six year period, including four ENP gray whales each year. Alternative 5 has 2 hunting seasons, 3 weeks each. The first season runs from December 1 to December 21, the second season runs from May 10 to May 30. I believe that those hunting seasons are important to help ensure high-risk gray whale population or groups are sustained over time. Those seasons will also facilitate NOAA efforts to monitor and observe the hunts, which is vital to have accurate data on how many gray whales are caught and killed, as well as the number of whales that are struck and lost. These hunting seasons are intended to avoid or reduce the chances of killing WNP whales and PCFG whales, which are more vulnerable to whaling. Alternative 5 also states that female whales should be avoided, which I believe is critical. Alternative 5 also should include an education component to help Makah people understand the importance of female whales so that they avoid them. The loss of WNP and PCFG gray whales could irreversibly	Comments noted.

Sort #	Commenter Code	Comment	Response
		alter their ecosystems. With that concerns in mind, the Makah must assume responsibility for the effects of their hunting if they are to continue their longstanding tradition in the future.	
892	e_Anonymous11_6-2-15	Dear Mr. Stone: After reviewing the Draft Environmental Impact Statement for Proposed Authorization of the Makah Whale Hunt (DEIS), I recommend that NOAA: Drastically decrease the allowance for struck and lost numbers Address the issues of human health caused by consuming whale meat and/or blubber More fully assess the cultural significance of traditional Makah whale hunting Insure third party monitoring and enforcement of all regulations associated with this whaling authorization, if granted I have reviewed your alternatives and remain concerned about the lack of protection for the endangered western North Pacific (WNP) gray whale population and for the Pacific Coast Feeding Group (PCFG). I believe that the struck and lost mortality limits are dangerously high. I prefer the fifth alternative, modified to limit the harvest to one male whale per year (i.e. avoid harvesting females to the greatest extent possible) to conserve the various populations of gray whales in the region while still preserving the culture of the Makah Tribe.In addition, I recommend reducing the struck and lost numbers to the absolute minimum; limiting the hunt to a short, seasonal hunting schedule; and including stringent regulations to ensure conservation of all gray whale populations, with special focus on the WNP population and the PCFG. I recognize the importance of Makah Tribe culture, but culture is a man-made construct, subject to modification, while the environment is an essential construct for the continuation of life on Earth. In short, without nature we have no culture. We must respect the rights of the Makah, as described in the 1855 Treaty of Neah Bay, but only after protecting the greater good of the environment at large. As a collective society, we must support the conservation efforts to protect the gray whale.	Comments noted.
893	e_Anonymous11_6-2-15	Drastically decreasing the struck and loss numbers According to the DEIS, the eastern North Pacific (ENP) gray whale population recovered because of a suite of international and national protections (Section 3.4.3.2.2, Historic Status of the Gray Whale Population, Protection and Recovery after Commercial Exploitation) (Rughetal.2005).The population was delisted in 1994 under the Endangered Species Act (ESA) (59 Federal Register 31094, Jun. 16, 1994) and is currently composed of about 20,110 animals (Rugh et al. 2008) (Chapter 1, page 5). A small harvest (one or two animals) would not affect the viability of the Eastern North Pacific population, but it could seriously affect the viability of the WNP population or the PCFG. The measures being taken to protect these smaller	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
		populations are insufficient. One way to increase their protection is to ensure that the number of whales struck and lost is at an absolute minimum. These populations are too fragile to tolerate any hunting-related deaths, and the consequences would be even worse if whales from these populations were struck and died, but neither recovered nor associated correctly with their population. Looking at this issue through a humanitarian lens, I believe that hunting the whales is an injustice to their species. In my mind, the goals of the humanitarian and the conservationist are similar: to protect the health, safety and wellbeing of the gray whale populations. Many conservation groups are fighting to protect these populations and to avoid waste and unnecessary death.	
894	e_Anonymous11_6-2-15	Human health issues from consuming whale meat and/or blubber According to the DEIS, "concentrations of PCBs (1,200 µg/kg wet weight) and DDTs (520 µg/kg wet weight) in blubber of the whale caught by the Makah Tribe in 1999 were higher than the mean levels reported in stranded gray whales or in those hunted in the Bering Sea" (Chapter 3, page 302). If the whale meat and/or blubber is laden with contaminates, there is no reason that natives should eat it. The health of the Makah is a major consideration that needs to be addressed more fully. The reality is that contaminant levels may have increased over time due to our polluting behaviors. There are health consequences when someone eats fish that is contaminated with DDTs and PCBs. It does not make people sick right away. The effects bio-accumulate, meaning that the more contaminated fish or seafood that is eaten, connects to the greater amount of chemicals that is built up in the system of the person eating it over time. The health problems associated with an increased exposure to these chemicals include cancer, liver disease and developmental effects, as well as effects on the immune and endocrine systems. During pregnancy and lactation, mothers can pass DDTs and PCBs on to their infants. Those chemicals affect development; children through adolescence, elderly people and women of childbearing age are more sensitive to the harmful chemicals and should be especially careful. With that being said, "further analysis indicated that fish accounted for 55 percent of meat and seafood in the Makah diet, a figure that highlights the cultural significance of marine resources when compared to the average 7 percent of meat and seafood that occupy the diet of other Americans" (Sepez 2001 – Chapter 3, page 248). Fifty-five percent is a significant number and must be acknowledged. In addition, whale is found to have Vitamin E and Selenium that protect against the "toxicity of certain seafood contaminants like mercury" (Arnold and Middaugh 2004 – Chapter 3, page 248). These nutrients are understood to be beneficial to our health. However, the high	Please see the response to frequent comment # 11 regarding safety of gray whale products for human consumption.

Sort #	Commenter Code	Comment	Response
		DDT and PCB levels found in gray whales outweigh the benefits that whale meat and blubber present. My view is that no hunting should be authorized if the whale meat and blubber are not sufficiently safe for consumption.	
895	e_Anonymous11_6-2-15	Acknowledging the cultural significance of traditional Makah whale hunting For thousands of years, the Makah traditionally hunted whales. But, in the current historical context, they had no part in the recent massive commercial slaughter that brought so many whale species to the brink of extinction. The Makah received no benefits from the slaughter that threatened the whales they depended on for subsistence. Instead, they hunted whales to sustain their economy and culture. The whale hunt is a way to perpetuate their culture and traditions. The importance of the gray whale hunting is reflected in their values, legends, and stories. In the "hunting practices" section of the DEIS, the Makah, who are seeking to maintain their culture, propose to use hunting methods that are traditional yet quick to satisfy the Makah tribe, conservationists, as well as humanitarians. My recommendation is that if the Makah are allowed to hunt gray whales that they are allowed to use traditional weapons, as stated in the DEIS, but while considering the thoughts of humanitarians (by killing quickly without struggle), as a means of improving the fifth alternative.	Comments noted.
896	e_Anonymous11_6-2-15	Implementing a method to monitor or enforce while whaling If the Makah are granted the right to hunt gray whales, then all pertinent rules and regulations must be enforced to ensure conservation of the affected populations. Third party enforcement could simply follow the tribe's boat, but, in my opinion, the Makah deserve more dignity than having a third party following their hunts. Another proposal would be to hire a gray whale biologist from the Makah tribe to serve as an observer. The Makah biologist can be sympathetic to the traditional whale hunt while still performing their job. While the Makah are hunting for a whale, the biologist would be on board to monitor all hunting activities. Such monitoring seems essential to ensure that the Makah comply with all regulations and thereby help ensure that the gray whale populations continue to grow and thrive. Thank you for considering my recommendations.	
897	e_Anonymous12_6-2-15	Dear Mr. Stone:After reviewing the Draft Environmental Impact Statement (DEIS) on the Makah Tribe Request to Hunt Gray Whales, I recommend that NOAA adopt the no-action alternative. I also believe that before any hunting is allowed, NOAA needs to take a harder look at— The needs of the different gray whales populations The significance of whaling in Makah culture The sustainability of proposed whaling practices The current provided alternatives do not meet the	Comments noted.

Sort #	Commenter Code	Comment	Response
		biological needs of the whales, do not promote sustainability, and may result in the killing of more whales than is necessary to meet cultural needs.	
898	e_Anonymous12_6-2-15	Biology of Gray Whales The DEIS includes some provisions to maintain healthy and increasing gray whale populations. It states that no female whales are to be purposefully hunted and killed by the Makah. This provision is questionable because, from the view above water, it is not impossible to distinguish female from male whales unless the female is accompanied by a calf. Otherwise, there are no differences between females and males that allow the Makah to make such a distinction. Because of the importance of females to maintaining gray whale populations, the killing of a female should have adverse consequences for the hunters. I recommend that if a female gray whale is killed, that all whale hunting be stopped for the rest of the year. The loss of a female should be considered a critical violation of any hunting authorization.	Comments noted.
899	e_Anonymous12_6-2-15	Alternatives 2, 4 and 5 include hunting season provisions to avoid hunting western North Pacific (WNP) whales and whales from the Pacific Coast Feeding group (PCFG). The DEIS overlooked when mating and birthing seasons occur. The peak mating season is November to December and the peak birthing season is in January. Hunting under alternatives 2, 4, and 5 would overlap with these seasons and may have population effects not anticipated. For example, the number of females may be in the Makah hunting area during the November-January season, which increases the chances of killing a female. For the same reason, NOAA should consider limiting the hunting season to the period from early March and late June. Because a number of gray whale males remain within the Makah hunting grounds during this period, the Tribe is more likely to take males. Again, the purpose of hunting during this time is to avoid migrating female whales.	None of the action alternatives would allow the tribe to hunt calves or animals accompanying a calf. While pregnant females could be hunted, in DEIS Subsection 4.1.2.1 (Potential Timing of a Hunt and Number of Hunting Days) we note that most hunting would likely occur during the spring months after females have given birth, i.e., there are very few suitable hunting days in the November through January timeframe cited in these comments.
900	e_Anonymous12_6-2-15	In addition, the American Cetacean Society noted that mothers and calves tend to travel close to shore near the Strait of Juan de Fuca. Some alternatives include a restriction on hunting within 5 miles of shore. This is a preventative measure to protect mother and calf gray whales. I support this restriction.	Comments noted.
901	e_Anonymous12_6-2-15	Cultural Needs and Significance There are many traditions relating to the hunting of gray whales in Makah history and culture and they are important for understanding the intent of the proposed hunts. For over 3,800 years, this tribe has had their culture and communities shaped by the hunting of these whales. Makah tradition requires training, both spiritual and physical, to prepare for whale hunting. The Makah request to hunt gray whales is heavily influenced by religious, economic, and subsistence needs of the tribe. Traditional rituals	The DEIS addresses the concern that the Makah's proposal adds a new category of "cultural whaling." The United States offered a detailed explanation of its determination that the Makah Tribe's request met the IWC standards for aboriginal

Sort #	Commenter Code	Comment	Response
		conducted in preparation of gray whale hunting have been significant to this culture and, at one point, about 80% of the subsistence needs of the Makah Tribe were fulfilled by gray whale hunting. The practice of hunting and preparing whales was thought to physically and spiritually purify the men. Gray whales provided many products in this culture, including oil, meat, bone, sinew, and guts for storage containers (Olson 2015). In Makah history, all whale parts were used. However, when whale hunting for the Makah Tribe was legal briefly in the early 2000's, the gray whale taken was so toxic from the contaminants that the Makah Tribe used very little to none of the whale. This creates a dilemma. While hunting gray whales satisfies an important cultural need, there is very little value in hunting these whales for subsistence purposes. Why should the Makah Tribe hunt 4-5 whales per year if little of the whales is used for subsistence purposes?	subsistence whaling (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah). The DEIS also cites the document the United States prepared and presented at the 2007 meeting of the Aboriginal Subsistence Whaling Group that details the factors supporting the United States' conclusion that the Makah Tribe's request met the requirements for an aboriginal subsistence whale hunt (Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah).
902	e_Anonymous12_6-2-15	I also question whether the Makah desire to hunt gray whales is influenced by economic or spiritual needs. According to Diane Eck in her research project, there has been a gradual Makah disinterest in religious rituals and increase in poverty since the 1900's. At one point, the Makah Tribe stopped whaling to keep up with economic demand for seal furs. This implies that the tribe was driven more by economic needs than spiritual needs.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
903	e_Anonymous12_6-2-15	None of the alternatives provided adequate guidance as to how a whale could be used in the Makah community. The Makah Tribe may have a desire to religiously reinvigorate their culture, but they are not likely to maintain the cultural tradition of using the whale in its entirety. If whaling is authorized, NOAA needs to provide clear guidance on the use for these hunted whales. The DEIS does not adequately describe how these hunts are to be regulated and how the whales can be used by the Makah Tribe. Can the Makah Tribe hunt up to 5 whales per year simply for economic benefit? For religious rejuvenation? For subsistence purposes? In addition, the tribe also provides very little information regarding how whales will be distributed and used. The Makah Tribe has argued that hunting is for spiritual and subsistence purposes, but it should be required to describe just what that means. In my view, hunting the whales for economic benefit is morally wrong.	The DEIS describes various aspects of whaling and whale use on the Makah community (e.g., Subsection 3.8, Social Environment; Subsection 3.10, Ceremonial and Subsistence Resources). The Tribe's application also (DEIS Appendix A) describes cultural and nutritional components of whale hunting. Regulations governing a Makah hunt would include requirements for the possession and transfer of whale parts and handicrafts.
904	e_Anonymous12_6-2-15	The DEIS also fails to describe how the Makah Tribe plans to dispose of a whale if it is too toxic to use for subsistence purposes. The extraction of toxic whale parts is expensive and hazardous. Does this responsibility belong to the Makah Tribe,	The tribe would be responsible for the disposition of whale parts.

Sort #	Commenter Code	Comment	Response
		who are killing the whales, or to the government, which is responsible for regulating the hunting of gray whales?	
905	e_Anonymous12_6-2-15	Sustainability of Hunting Practices I also must question how these whales will be hunted. Traditionally speaking, gray whales were hunted by small groups of Makah Tribesmen in canoes and using spears to kill the whales. Today, there are many alternatives that are more effective for killing whales. While the Makah Tribe should be allowed to grow culturally, can they do so if they hunt with non-traditional methods? Under alternative 3, the DEIS states that no whales shall be hunted within 5 miles of land. This ordinance indirectly impacts Native American culture because it would require a motorized boat to hunt gray whales instead of a canoe. This is because rowing a canoe that far out, catching a whale, and bringing it back to shore is an excessive amount of work. The alternatives also allow for guns, grenades, and other new technologies to be implemented to hunt whales. To me, it is a contradiction to use updated hunting technology to maintain a cultural practice. NOAA should provide more guidance on what weapons can be used to catch these whales. No grenades or guns should be allowed. This is a competitive advantage that is not needed if the Makah Tribe is allowed to use motorized boats to hunt these whales.	Please see the response to frequent comment # 15 regarding the use of modern weapons
906	e_Anonymous12_6-2-15	The sustainability of the proposed hunting also will depend on what gray whale populations are affected. A major issue with granting Makah Tribe permission to hunt gray whales is whether gray whales will be taken from the WNP population (about 140 whales) or PCFG (about 175 whales). Those populations are small and highly vulnerable to whaling. The WNP gray whale population is also listed as an endangered species under the Endangered Species Act. Given the vulnerability of these populations, I believe NOAA must set stricter regulations than the alternatives provide to preserve these populations.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
907	e_Anonymous12_6-2-15	As mentioned before, it is very difficult to distinguish between male and female whales from a boat. The accidental killing of female whales could be a serious blow to a small population. The death of a single female whale may eliminates the opportunity for that whale to reproduce up to 18 times (Henry 2015). I recommend that if a female is killed, that the tribe is unable to hunt whales the rest of the year. I also would not want the hunted female whale to be used for subsistence purposes. Furthermore, if two female whales were killed in a four-year period, then NOAA should impose a ban on the Tribe to prohibit hunting for four years. Such measures would encourage caution and awareness in the Makah Tribe. This will also be a reasonable amount of time for the population to recover from the unnecessary loss of 2 females, and up to 4 additional calves.	Comments noted.

Sort #	Commenter Code	Comment	Response
908	e_Anonymous12_6-2-15	I also must question the takings clauses presented in all of the alternatives. The DEIS does not explain how the accidental killing of whales, both from strikes and strikes and losses, will be regulated and how the Makah Tribe will be held accountable for such events. There also needs to be more regulation to ensure accurate accounting of the number of takes. Someone should be with the Makah Tribe during all whale hunts to count how many whales are taken, the gender of the whales, and whether there were successful strikes or strikes and losses.	The Makah Tribe's waiver request includes accommodations for both a Makah Fisheries Management Department observer and a NMFS observer to accompany the whaling team in the chase boat(s). These observers would observe the hunt, photograph and document the physical characteristics of any whale landed, and possibly take biological samples from any landed whale. For more on enforcement, see Subsection 2.3.2.2.12, Other Environmental Protection Measures. For information on the monitoring of struck and lost whales, see Subsection 2.3.2.2.5, Number of Whales Struck and Lost (Annual and 6-year).
909	e_Anonymous12_6-2-15	I also disagree with the number of whales per year that the Makah Tribe is requesting. There is very little reasoning behind the Makah decision for 4-5 whales per year. The argument of using whales for subsistence purposes, as discussed earlier, is not a valid reason to take these whales because the Makah Tribe is unable to use the entire whale due to the number of toxins within the whales.	Comments noted.
910	e_Anonymous12_6-2-15	For these reasons, I do not believe that the current alternatives are adequate. Although ENP gray whales are no longer on the endangered species list, their population grows slowly and is sensitive to changes in the environment. It is very difficult to properly regulate which whales are valid to hunt. It is also very difficult to use the whale in its entirety, as Makah tradition calls for, because of the accumulation of chemicals within these whales. If the Makah Tribe are authorized to hunt whales, a new alternative should be created to better accommodate gray whales instead of the Makah Tribe. It is important to consider the Makah culture, but the tribe's efforts to maintain its culture must not significantly impact the whale populations. To do this, the number of whales the Makah Tribe may take should be 3 or less per year, with a total of 15 whales over 6 years. This number is reflective of both the slow reproduction rate and population growth rate of the populations. This will satisfy a cultural and religious	The Makah Tribe's proposed action would limit the number of harvested whales to prevent the Eastern North Pacific stock from falling below its optimum sustainable population (OSP). See Subsection 2.3.2.2.2, Numbers of Whales Harvested (Annual and 6-year), and 3.4.2.1, Marine Mammal Protection Act Management, which explains the OSP concept.

Sort #	Commenter Code	Comment	Response
		need for gray whales in the Makah culture while also not significantly impacting the whale populations.	
911	e_Anonymous12_6-2-15	Furthermore, a representative from the NOAA and a marine biologist should observe and record every whale hunt to determine the number of takings and strikes and losses. This is a preventative measure to properly estimate how many whales are killed and injured in the Makah hunts. I also believe there should be consequences for striking and striking and losing too many whales. Such consequences provide a means for holding the Makah Tribe accountable for its actions and encourage better hunting practices. If the Makah Tribe takes too many whales, there should be a hold on whale hunting for four years to allow for whales to regenerate populations. I believe this is a more suitable option than levying a fine to the tribe. Thank you for considering my recommendations. Works Cited http://makah.com/makah-tribal-info/whaling/>. Henry, Alison. "Giants of the Ocean: Whale Facts." Overview of Gray Whales. World Wildlife Fund, 12 Feb. 2015. Web. 4 May 2015. <http://www.worldwildlife.org/stories/giants-of-the-ocean-whale- facts>. Olson, Brittany. "The Makah Whaling Tradition." Makah Tribal Info. Makah Tribe. Web. 4 May 2015.	All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.
912	e_Armlin_7-31-15	I am writing to you because of my concern for the whales and the planet I live on. I strongly believe that allowing this hunt to take place will be detrimental to our oceans and the family of whales left behind after this senseless slaughter! The early ancestors of the Makah hunted whales for survival. There is no need to hunt whales in our century, especially for survival! There is no justification for this.	Comments noted.
913	e_Armlin_7-31-15	The need to hunt for cultural reasons is absurd to me in this day and age. What cultural reason is there to kill an innocent intelligent sentient animal? How can tradition and cultural be a basis for slaughter? Slavery was a tradition and it was wrong and was abolished! Not every tradition should carry into the future, especially one of needless, senseless slaughter.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
914	e_Armlin_7-31-15	When you steal, kill from the oceans or anywhere for that matter, you steal from the entire world. Our oceans and seas are in peril along with earth! The oceans and it's inhabitants are connected to us and our earth! We need to protect it, not kill it off! All this senseless killing of whales and other cetaceans is killing our oceans and our planet!	Comments noted.
915	e_Armlin_7-31-15	Whales should not be slaughter anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. I urge you to protect them. Do the right thing! Do right by	Comments noted.

Sort #	Commenter Code	Comment	Response
		the whales and everyone living on this planet! Do not allow this hunt to take place. thank you for your attention in this matter. Karen Armlin Jackson, NJ "Our task must be to widen our circle of love and compassion to embrace all living creatures." Albert Einstein	
916	e_Armon_6-29-15	Please do not permit Makah gray whale hunting. Best available scientific data is showing distinct population segments of many cetacean species, and Eastern Pacific Gray Whales. Gray whales are difficult to identify individuals or members of a distinct population segment, even in daily research observations and photo identification, such as at San Ignacio Lagoon- a well documented mating and birthing lagoon of the Eastern Pacific Gray Whale. Best available science is also showing Western Pacific Gray Whales- an endangered distinct population segment- are migrating to the eastern pacific coast- and in the proposed hunting area. Best available science is also showing a 'Resident'- distinct population segment of gray whales in the proposed hunting area. How will the Makah hunters identify and distinguish between the many distinct population segments of gray whales? And not hunt the endangered, resident, or 'friendly' gray whales?	Please see the responses to frequent comments # 5 regarding the stock status of the PCFG, # 12 regarding risk to WNP whales, and # 13 regarding risk to PCFG whales.
917	e_Armon_6-29-15	People of the Makah themselves are divided and not all support, particularly the elders do not support resuming gray whale hunts.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
918	e_Armon_6-29-15	The overriding issue is sovereignty and independence, and that the Makah Treaty rights supersede the Olympic Marine Sanctuary & Marine Mammal Protection Act. The Treaties need to be renegotiated. The Makah traded their land for this right to hunt. Giving the Makah land, renegotiating the treaty, and supporting ecotourism needs to be considered.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
919	e_Armon_6-29-15	What are our current definitions and management of a "Marine Sanctuary" and the "Marine Mammal Protection Act"? Issuing a hunting permit is not a sanctuary or protection for the gray whale. Sincerely, Caroline Armon Marine Educator, Naturalist, Science Research Volunteer Salish Sea and San Ignacio Lagoon	Regulations governing the Olympic Coast National Marine Sanctuary are located at 15 Code of Federal Regulations (CFR) Part 922, Subpart O. Subsection 3.1.1.1.2 of the DEIS, Designation and Regulatory Overview, explains that these regulations prohibit taking any marine mammal, sea turtle, or seabird in or above the sanctuary, except as authorized by the MMPA, the ESA, and the Migratory Bird Treaty Act, or pursuant to any treaty with an Indian tribe to which

Sort #	Commenter Code	Comment	Response
			the United States is a party (15 CFR 922.152(6)). The Makah Tribe is pursuing a waiver of the MMPA take moratorium through legal means, pursuant to the Court's decision in Anderson v. Evans, and as allowed for in Section 101(a)(3)(A) of the MMPA. For more information, see Subsections 1.2.3.3 and 3.17.3.1 of the DEIS. Pursuant to the National Marine Sanctuary Act, NMFS must consult with the Sanctuary if regulations authorizing a hunt are issued.
920	e_Arnett_7-21-15	To whom it may concern,Please stop the hunting of whales by the Makah Tribe.Tradition and ceremony is not a valid reason to continue to hunt an animal by itself. Thank you,Bill Arnett	Comments noted.
921	e_Ashton_7-20-15	Dear decision makers, This is taken from (YOUR) NOAA's information on Grey Whales @ http://www.fisheries.noaa.gov/pr/species /mammals/whales/gray-whale.html ~In contrast, the Western North Pacific population remains highly depleted and its continued survival is questionable. This population is estimated to include fewer than 100 individuals. ThreatsHistorical threats included primarily commercial whaling, which severely depleted both the eastern and western populations between the mid-1800s and early 1900s Current threats include: collisions with vesselsentanglement in fishing gearhabitat degradationdisturbance from ecotourism and whale watching disturbance from low-frequency noise possibility that illegal whaling or resumed legal whaling will remove animals at biologically unsustainable rates.	Comments noted.
922	e_Ashton_7-20-15	The eastern stock, due to their annual migration along the highly-populated coastline of the western U.S., as well as their concentration in limited winter and summer areas, may make them particularly vulnerable to: impacts from commercial/industrial development local catastrophic events	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
923	e_Ashton_7-20-15	I stand by every word and reason as laid out by Sea Shepherd Conservation Society here: ~Sea Shepherd has 12 primary reasons for opposing the plan to slaughter whales by the Makah: 1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	
924	e_Ashton_7-20-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
925	e_Ashton_7-20-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
926	e_Ashton_7-20-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
927	e_Ashton_7-20-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
928	e_Ashton_7-20-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
929	e_Ashton_7-20-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.

Sort #	Commenter Code	Comment	Response
930	e_Ashton_7-20-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
931	e_Ashton_7-20-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
932	e_Ashton_7-20-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
933	e_Ashton_7-20-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
934	e_Ashton_7-20-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
935	e_Ashton_7-20-15	12. Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. Sea Shepherd is dedicated to the objective of ending the killing of all whales in all the world's oceans forever. In this effort, we speak for the whales as citizens of the Earth whose right to live and survive on this planet must be defended. These animals had enough threats imposed upon them daily...with out adding direct human hunting into the mix.I implore you to decide	Comments noted.

Sort #	Commenter Code	Comment	Response
		LIFE for these whales, now and into the future. Sincerely, Rebecca Ashton Seattle, Wa.	
936	e_Aven_7-13-15	Please don't allow the Gray Whale hunt to happen. Bambara Aven	Comments noted.
937	e_Aylesbury_5-28-15	Dear NOAA or whom it may concern, Please do not follow through with the Makah whale hunt. We are loosing species on this planet at a rapid rate and even as I type this email to you, and as you read it. We do not need this senseless killing! Please, please say "NO!" to the Grey Whale Hunt! I am one of many trying to be the voice for the voiceless. Will you join me and speak up for these beautiful creatures and save their lives!Thank you for your time, Meagan Aylesbury	Comments noted.
938	e_Baechler_3-8-15	Normally I support indigenous peoples in all things, but I am urging you to say NO to the Makah Tribal Whale Hunt. The whales are sentient beings, as intelligent as we are. They have families, intelligent communications, loving relationships.	Comments noted.
939	e_Baechler_3-8-15	They are not necessary now for the Makah people's survival.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
940	e_Baechler_3-8-15	Our oceans are endangered; the world climate is changing rapidly, and it may be a miracle if whales survive at all. (The traditional foods of the whales are at risk too, with ocean warming). These whales are Critically Endangered, and should be spared any hunting at all. I urge that there be substantial fines and jail time for hunting them. Thank you, Mary Baechler Yakima, Wa. 509-961-2792	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
941	e_Bagylos_7-16-15	Please do not allow the tribe to hunt whales. These whales should be considered endangered. Besides the health issues for themselves, our oceans and it's lives have been meddled with enough.	Comments noted.
942	e_Bagylos_7-16-15	There are plenty of other food sources and the whales should not be a food source for them. thank you Paulette Baglyos Cleveland, OH	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
943	e_Barbara_3-7-15	To the Makah TribeWhen it comes to hunting whales, it is time to bury that tradition. We have learned more about whales and how they cherish their pod. They feel pain, they mourn when one is lost, just as every other mammal on this blessed earth mourns. I can't see any positives in whale hunting at all in this world we live in.	Comments noted.
944	e_Barbara_3-7-15	Times change, whale hunting needs to be abolished forever. Step up and do the right thing. We don't need more unrest in this world we live in. This will be horrific for all the world if you don't leave this tradition in the past where it belongs. Not all traditions are good … some evil. Let the whales live their lives free and unharmed. Do you really want to do this? It seems appalling that you even want to think about this. Where are your hearts? This is not a peaceful act. This is my opinion on the subject, and it will be a very sad day for humanity if this whale hunting idea is not put to rest forever. Spread peace .. give thanks, and please live your life in peace and honor.Sincerely, Barbara M Sequim, WA	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
945	e_Beaone_7-16-15	No, No, please no. With a growing imbalance of sea creatures, plus the pollution of our waters, it makes no sense to turn to killing still another of our precious creatures. Did you know they have discovered whales can actually talk to people, just as dolphins can? Is this a resource you really want to waste for what? We are past the days when we can afford to let one more animal, on land or in the seas, be subjected to slaughter, especially one with such promise and need to keep this planet alive. Did you see the huge whale slaughter on Faroe Island last week, or the Japanese slaughter of dolphins, both where the water ran red with their blood. Did you know they cut off the shark's fins and tail and leave the shark alive, dumping it back into the water to die?	Comments noted.
946	e_Beaone_7-16-15	We simply have to stop the killing and pray for some return of balance to the earth and the ocean life without which we are all dead. Please do not allow this to happen. Bea Manderscheid Tucson, AZ	Comments noted.
947	e_Beatty_4-6-15	No to any resumption of whale hunting. Apart from the cruelty involved in hunting these amazing mammals it then sets a very very bad precedent which other nations will use to legitimise their own so called "traditional" hunting for whales and dolphins or other animals- e.g. Taiji dolphin hunt.	Please see the response to frequent comments # 1 regarding the humaneness of a whale hunt and # 4 regarding the precedential effect of a waiver internationally and domestically.
948	e_Beatty_4-6-15	For another thing we now live in the 21st century and while I appreciate that many tribal and indigenous peoples want to retain their cultural identity I do not believe it should be at the suffering of other sentient, highly developed, emotionally and biologically complex animals such as whales or anything else for	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		that matter. It's about as logical as proposing that Fijians should be allowed to resume cannibalism as that was once a very strong part of their culture. Any culture, ethnic group or nation that can only define itself or retain its sense of worth and identity by killing things doesn't deserve to continue. There is so much more that defines us, that honours us. Ann Beatty Sydney Australia	
949	e_Becker_3-12-15	Dear Makah tribe, Isn't it time we, as a species, STOP this sort of thing? Do we not want to leave our marine friends in peace? What would anyone want with a whale in these modern times? I don't think this is what mother earth has in mind. Please do the right thing and listen to your conscience. No whaling. Thank you for reading, Erin Becker	Comments noted.
950	e_Becker_5-3-15	Please do not allow the Makah to hunt whales. There is no subsistence need. Whales should be allowed to live free in the wild without being killed by humans. I support option 1, to not allow Makah whale hunting. Thank you, Brandon Becker Cary, NC	Comments noted.
951	e_Bergeron_3-9-15	This is unexceptable!	Comments noted.
952	e_Bernstein1_3-28-15	I am firmly against changing the 2004 moratorium under the Marine Mammal Protection Act as the Ninth U.S. Circuit Court of Appeals stated. The Makah have no argument to start hunting whales on the bases of ancestors actions. If this was agreed too than all the Hungarians in the US should return to impaling anyone who they deem enemies without legal actions - My ancestors were vicious but we have moved into the modern era and see that action was wrong. Today's Makah eat pizza, use electricity, dress in modern clothes, use motorized vehicles and boats and use US currency etc. They must go into the future or totally return to primitive ways of life. Take all the comforts of modern living from them and truly return to primitive ways.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
953	e_Bernstein1_3-28-15	They should join in on protecting and valuing Whales as they wish us to do to them. I live on the Olympic Peninsula and anyone here who see's a whale is full of wonder and excitement. They have a dam difficult time surviving. Hungar and Rosemary Bernstein. Beaver, Wa	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
954	e_Bernstein2_3-28-15	I AM FIRMLY AGAINST CHANGING the 2004 moratorium under the Marine Mammal Protection Act in a decision by the Ninth U.S. Circuit Court of Appeals. The Makahdo not live as their ancestors in any form. They use electricity, US. currency, dress in modern clothes, eat pizza go to school in state institutions and have decided in every way to be modern people. No one gets to return to ancestors actions against modern laws. If so I could return to impaling anyone I	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		felt was an enemy as my Hungarian ancestors did. But we do not look for ancient behavior to guide us in these times we now know those actions were wrong. I live on the Olympic peninsula near the Makah and they want their neighbors and the world to respect them but they must drop this barbaric Idea. They need to respect whales and protect them. Rosemary and Hungar Bernstein, Beaver, Wa	
955	e_Bertano_ 5-20-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	The introductory comment are noted; specific responses are provided below. Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
956	e_Bertano_ 5-20-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
957	e_Bertano_ 5-20-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members;	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	
958	e_Bertano_ 5-20-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of of these threats were adequately evaluated in the DEIS.	Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
959	e_Bertano_ 5-20-15	The proposed hunt is inherently cruel: It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale. I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Thank you for considering my views. Sincerely, Silvia Bertano Corso Rosselli 123/8 Torino, Italia 10129	Please see the responses to comments # 1 regarding the humaneness of a whale hunt and # 3 regarding the desire of the Makah Tribe to revive its whaling tradition.
960	e_Best_5-15-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	The introductory comment are noted; specific responses are provided below. Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
961	e_Best_5-15-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the responses to frequent comment # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
962	e_Best_5-15-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
963	e_Best_5-15-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of of these threats were adequately evaluated in the DEIS.	Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
964	e_Best_5-15-15	The proposed hunt is inherently cruel: It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale. I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Thank you for considering my views. Sincerely, Rudy Best 50 Wheeler Ave Salem, NH 03079-3441	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
965	e_Blankenship_3-21-15	Shooting a whale from a motor boat with a high caliber rifle is hardly a First Nation cultural activity. I respect the First Nations, but the Makah do not have a reasonable cultural claim for a whale-killing permit. Sincerely Barbara Blankenship UCLA	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 15 regarding the use of modern weapons.
966	e_Bollo_4-25-15	The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
967	e_Bollo_4-25-15	The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
968	e_Bollo_4-25-15	If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
969	e_Bollo_4-25-15	If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
970	e_Bollo_4-25-15	If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
971	e_Bollo_4-25-15	The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt

Sort #	Commenter Code	Comment	Response
			for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
972	e_Bollo_4-25-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
973	e_Bollo_4-25-15	If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives include provisions to limit impacts to PCFG whales.
974	e_Bollo_4-25-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
975	e_Bollo_4-25-15	Many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
976	e_Bollo_4-25-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
977	e_Bollo_4-25-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.12.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
978	e_Bollo_4-25-15	Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished. Thank you. Michele Bollo 1692 Burgundy Rd. Encinitas, Ca 92024 760-840-0414	Comments noted.
979	e_Bookless_4-22-15	To whom it may concern, The Macah Tribe has requested permission to resume killing whales citing their Tribal tradition. If their request is granted, then I believe that they should be required to take whales using the traditional method. They should carve dugout canoes, paddle them out themselves, spear the whale, and then tow it back themselves. They should not be allowed to use power boats and rifles like they did last time. They should be informed that they will not be allowed to call The Coast Guard or 911 if they capsize or are injured, because they certainly did not have those facilitates, traditionally. Undoubtedly, several tribal members will be injured, and perhaps killed, during the hunt, and that is traditional, as well. Also, before they take a whale, they should provide written, specific details about what they plan to do with the whale. The last time they took a whale, they were towed out to sea by a powerboat, they paddled around a bit, and threw a spear, and then they killed the whale with a .50 caliber rifle. Then a powerboat towed them back to shore. When they arrived at the shore, it was revealed that only one tribal member was still alive who had ever eaten whale, an no one alive had any recipes or plans on what to do with it. Frankly, that is complete nonsense. If I go hunting or fishing, I eat what I take. I don't just kill things because my ancestors did. In fact, my ancestors were vikings, but I am not petitioning to raid coastal villages. The Macah request is disingenuous because they are not asking to use traditional methods, and they have no idea what to do with a whale if they get one. Their request should be denied. Tod Bookless Tukwila, WA	Please see the response to frequent comment # 15 regarding the use of modern weapons
980	e_Booz_3-21-15	I am against issuing any permits to kill grey whales by anyone, native American tribe or whoever. This is not acceptable. The whales are part of the ecological community we live in here on Earth and they should be left alone to live their lives as they have always done.	Comments noted.
981	e_Booz_3-21-15	No one "needs" to hunt whales any longer! Martha Booz 3823 Valley Lane El Sobrante, CA 94803 mlbooz@calnatives.com	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
982	e_Boschen_3-20-15	To whom it concerns! Please oppose the plan to slaughter whales by the Makah: The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	
983	e_Boschen_ 3-20-15	If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
984	e_Boschen_ 3-20-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
985	e_Boschen_ 3-20-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
986	e_Boschen_ 3-20-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
987	e_Boschen_ 3-20-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		Constitution. Some of the reasons why the plan to slaughter whales by the Makah is not right! Regards Marianne Boschen	
988	e_Boschen_3-31-15	Dear Sir or Madam, please oppose the plan to slaughter whales by the Makah: The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
989	e_Boschen_3-31-15	If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
990	e_Boschen_3-31-15	If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
991	e_Boschen_3-31-15	The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation. Thank you for your consideration. Sincerely Marianne Boschen	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
992	e_Bradow_4-29-15	I, Evan Bradow, A citizen of Clallam County, support the Makah Tribe in their treaty rights to hunt whales. As long as the whales are not in danger of becoming extinct. I think Sea Shepherd Conservation society need to focus on more important issues. The Makah tribe gave up enough of their rights to modern society. The focus should be on saving Makah culture.Evan bradow 4614 S. Fey road Port Angeles, Wa 98363	Comments noted.
993	e_Brennan_and_Whittall_4-29-15	We are NOT in favor of a gray whale hunt by the Makah Tribes. This is NOT the 1800's; the hunt doesn't appear to mean much to the younger generations (who we understand don't even like the meat); there is NO value to them hunting these majestic mammals. It is a waste of the time and effort put into recovery of	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		the species to allow their slaughter for what amounts to something that is no longer relevant in modern times.	
994	e_Brennan_and_Whittall_4-29-15	It would be one thing if they hunted with weapons like they used before they acquired firearms, but they don't. It is not the hunt of the past, but purely a blood sport. Lana Brennan Lanny Whittall PO Box 1936 Allyn, WA 98524	Please see the response to frequent comment # 15 regarding the use of modern weapons
995	e_Broschart1_3-21-15	Dear Mr. Stelle: Please accept my comments in favor of Alternative 2 -- the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. It is my understanding that DEIS Alternative 2 will allow for both adequate protection of Eastern North Pacific gray whales and responsible use by the Makah Tribe of Washington State for their cultural and subsistence needs. This seems to be a reasonable solution. I encourage you to pursue this course of action. Furthermore, I support the Federal Government's and the people of the United State's responsibility to the Makah Tribe and their treaty. I urge you to expedite the approval process since 10 years is far too long to make this Tribe wait for a fair decision from our government. Respectfully submitted, Sarah Broschart, Secretary Nancy Broschart, Chief Financial Officer Reed Broschart Broson Pacific Corporation Ventura, California	Comments noted.
996	e_Broschart2_3-21-15	Dear Mr. Stelle: Please accept our comments in favor of Alternative 2 -- the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. As owner and operator, respectively, of the commercial F/V Creature based in Ventura, CA, we fully appreciate the need for balancing wise-use and conservation of our marine resources. We understand that DEIS Alternative 2 will allow for both adequate protection of Eastern North Pacific gray whales and responsible use by the Makah Tribe of Washington State for their cultural and subsistence needs. This seems to us to be a fair and balanced approach to the situation. We encourage you to pursue this course of action. Furthermore, we support the Federal Government's responsibility to the Makah Tribe and their treaty. We ask that you expedite the approval process since 10 years is far too long to make this Tribe wait for a fair decision from our government. Respectfully submitted, Ron Broschart, owner Dalton Davison, Captain F/V CREATURE	Comments noted.
997	e_Brown_5-5-15	In regard to the Makah tribe's requests to resume whaling, I would like to comment against allowing such exploitation. I am an anthropologist who has worked with representatives of many different tribes and also worked for a southwest tribe for over 8 years. I am a strong proponent, in principle, of Native American tribes retaining and strengthening their cultures. I do not believe, however, that allowing the Makah to resume killing whales will do anything to preserve their culture. In order for the tribes' cultures to persist, they must	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		evolve and adjust to their environment, as they have done for thousands of years. When they try to freeze their cultural practices at one point in time while their languages, economics, educational system, and living environments change radically, the preservation effort is guaranteed to fail.Whaling will not preserve the Makah culture, it will only kill whales which are already in short supply. It may also result in killing members of the Makah tribe, losses that may be counterproductive for tribal preservation. Do the Makah propose using traditional methods to hunt whales?	
998	e_Brown_5-5-15	Do they propose hunting in small boats with hand-thrown harpoons, or do they wish to use power boats and high-powered rifles to demonstrate their manliness? This would not be cultural preservation, but more enacting scenarios they have learned from movies, TV, and the internet.The Makah must evolve as a people, a culture, and as citizens of the USA and the world. If they wish to have any credibility among themselves and with the larger culture around them, they cannot isolate themselves on their Reservation and pretend that they are living in the 19th Century when it comes to whaling, and then drive pickup trucks, watch TV and use the Internet like everyone else around them. Killing animals with overwhelmingly superior weapons is not brave, not manly, and definitely not in the interest of preserving their culture. The young generation of Makah will not be inspired by whaling to learn the language and customs of the tribe, nor to continue to keep these atiributes alive and in use. Perhaps if the Makah learn that to truly respect life and the whales, they must preserve the whale population, a value that will greatly enhance efforts to preserve their own culture. I strongly recommend that whaling permits be denied to the Makah tribe, permanently. Geoffrey Brown Bellingham, WA	Please see the response to frequent comment # 15 regarding the use of modern weapons
999	e_Brown_7-21-15	Dear Mr. Stone, I am writing to urge you to deny the request by Makah Tribe for a gray whale hunt permit. With the exception of a single gray whale killed in 1999 and another whale killed illegally in 2007, the Makah have not hunted whales for nearly 90 years. Consequently, the tribe cannot demonstrate a subsistence or nutritional need for whaling or whale products.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1000	e_Brown_7-21-15	The proposed hunt could jeopardize two imperiled populations of gray whales: the resident Pacific Coast Feeding Aggregation and the Western North Pacific, which number only 209 and 140 animals, respectively.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1001	e_Brown_7-21-15	While the main Eastern North Pacific gray whale population is much larger (nearly 21,000 animals), they and their habitat are subject to threats like climate change, contaminants, ocean noise, ship strikes, and net entanglement	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		throughout their summering, wintering, and incredibly long migratory range (from Alaska to Mexico), and shouldn't be subject to a new threat posed by a hunt. Sincerely, Alex brown	ENP gray whale population in the face of climate change and other threats.
1002	e_Brown_7-26-15	Dear Mr. Stone, I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. I am also concerned that human safety could be jeopardized by the whale hunts, because of the planned weaponry and the hunts taking place so close to shore and in a populated area. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	Please see the response to frequent comments # 2 regarding the ASW status of the Makah Tribe and 3.
1003	e_Brown_7-26-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1004	e_Brown_7-26-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members;	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please also see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	
1005	e_Brown_7-26-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these threats were adequately evaluated in the DEIS.	Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1006	e_Brown_7-26-15	It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1007	e_Brown_7-26-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1008	e_Brown_7-26-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Tradition and culture must not be the basis for slaughter.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1009	e_Brown_7-26-15	The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1010	e_Brown_7-26-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	
1011	e_Brown_7-26-15	The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the desire of the Makah Tribe to revive its whaling tradition.
1012	e_Brown_7-26-15	The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1013	e_Brown_7-26-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC. Thank you for considering my views. Sincerely, Wendy Brown -- Our greatest glory is not in never falling, but in rising every time we fall. Confucius	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1014	e_Brown_7-30-15	Dear Sir, Ms., I guess I cannot understand why if you feel such a strong connection to the whales - why do you feel you have to kill them? Your ancestors had to kill the whales to survive and it probably hurt them to kill such beautifully magnificent creatures. They are much more intelligent and their brain is much larger than ours. The karma always comes back to you and if you kill these beings it will come back to you in such pain that you will suffer a terrible life and your true spirit knows this to be true. Celebrate the life, let them live and admire their grace and beauty. Realize that your ancestors had to kill to live and they are forgiven by their true karma. You could create a new tradition to honor these beautiful creatures and watch them flourish. Your spirit will flow with goodness and life will be renewed. This much I know it true. Thanks for your reading and	Comments noted.

Sort #	Commenter Code	Comment	Response
		consideration. Sincerely, Wendy Brown-- Our greatest glory is not in never falling, but in rising every time we fall. Confucius	
1015	e_Bunn_5-16-15	This comment is submitted on behalf of Verna Bowechop Bunn a Makah Tribal Elder, 86 years old. I do not believe the Makah Nation of whalers should be penalized for the deplorable condition of the present ocean pollution (environment) as they continue their quest to return to their God given rights of treaty whaling and fishing! Verna R Bowechop Bunn Makah Tribal Elder, 86 years old	Comments noted.
1016	e_Burkhart_3-16-15	To whom it may concern, I am writing you to ask that you please deny the request to hunt 5 Gray whales off the coast of Washington State. Though the Makah tribe is trying to share their culture with the younger generations, this act was done by the tribes to be able to provide enough food for their families. Today, there is no need to hunt whales to provide nourishment.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1017	e_Burkhart_3-16-15	The West Northern Pacific Gray whale population is listed as endangered on the NOAA website, and should be protected from the threat of human endangerment. With human boat traffic, toxins, and pollution already a threat to these whales, we should take this ESA listing seriously, and prevent further threat to this species. Thank you for your consideration, Kelsi Burkhart	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1018	e_Burr_3-22-15	No killing of whales! We need their intelligent presence in the oceans of the world! Betsy B. Burr 9 Canterbury Way Morristown, NJ 07960	Comments noted.
1019	e_Buslot_4-11-15	Dear Sir, Whales are facing major threats. Due to the increase in the population the Makah Tribe in Washington State would soon re-visit their efforts to resume whaling, claiming their Treaty rights gave them the authority to kill Gray Whales. Literally, the day after the Coalition returned from Guerrero Negro to San Diego, a new request was applied by the Makah for a waiver under the Marine Mammal Protection Act. The DEIS acknowledges that if the Makah hunt is authorized, it may lead to future regulatory changes that would in turn lead to increased hunts of whales or other marine mammals.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1020	e_Buslot_4-11-15	The DEIS is unable to ensure that the highly endangered Western Gray Whale will not be killed. Only genetic analysis would allow identification of a whale as either Eastern North Pacific, Western Pacific Whale or a member of the Pacific Coast Feeding Group. It is impossible to ID these whales as they all look alike.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1021	e_Buslot_4-11-15	The DEIS lacks important published research on the extent of Orca predation which has been estimated at 35% of calves. Given the increase in numbers, and the ability of transient Orcas to move deeper into Gray whale habitat in the Arctic as the ice melts, the rate of predation is likely to be as high or higher than 35%. No current Russian figures or current research have been included in the DEIS.	The commenter does not identify the published research allegedly lacking from the DEIS. The DEIS includes updated and relevant material in the following Subsections: 3.4.3.1.2,

Sort #	Commenter Code	Comment	Response
			Global Distribution and Population Structure; 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.1.6, Natural Mortality; 3.5.3.1.1, ESA-listed Marine Mammal Species (Killer Whale); 4.5.2.2, Prey Availability; 5.1.3.8, Natural Mortality.
1022	e_Buslot_4-11-15	The precedent set by granting a waiver will : - Set an unholy precedent at IWC, particularly as Japan is attempting to have its coastal communities given the same rights as the US is seeking for the Makah Tribe. - Set the wheels in motion for the killing of Humpback Whales as efforts are being made to delist the Northern Humpback Whale from the Endangered Species List. The Tribe has indicated its desire to kill Humpbacks. - Set a precedent for a significant number of Native American Indian Tribes to claim discrimination and seek the same whaling rights as the Makah.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1023	e_Buslot_4-11-15	The Bowhead whale quota for Alaskan Inuits is a source of great controversy at IWC and within the conservation community. If a waiver is granted to the Makah, the US will have cemented its position as a whaling nation. A total reversal of a proud record of whale conservation. The Tribe proposes killing a maximum of five Gray whales per year on average and up to 24 whales in a 6 year period. The number of whales struck (and not killed) would be no more than 42 over the six year period.	Comments noted.
1024	e_Buslot_4-11-15	The Makah Tribe claims hunting gray whales is a treaty right. The Tribe says the exercise of its treaty whaling rights will provide a traditional subsistence resource to the community and sustain and revitalise the ceremonial, cultural, and social aspects of its whaling traditions. An Indian magazine carries an article which demonstrates the battle those of us who want to protect whales are facing. Killing whales in the 21st Century has no place in any culture. A dead whale is a dead whale. If a waiver is granted by the Federal government, then the IWC will have to accept a new whale killing category – healing over 200 years of cultural disruption. Sincerely, Chantal Buslot Belgium	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe, # 3 regarding the Makah Tribe's desire to revive its whaling tradition, and # 4. Regarding the precedential effect of a waiver internationally and domestically.
1025	e_Caretti_4-29-15	Given the fact that the political climate in this country will assuredly allow the Makah to wrongfully hunt gray whales, there are additional considerations to fully honor the sacred traditions of the tribe. They are: 1. The hunt must be allowed only from traditional, human powered vessel. 2. The hunt must not be assisted in any way by mechanical, technical means, or equipment not available to the tribes at the time of the treaty signing. 3. Government assistance or	Please see the response to frequent comment # 15 regarding the use of modern weapons.

Sort #	Commenter Code	Comment	Response
		protection (taxpayer paid) must not be provided. If the tribe is truly committed to the "Tradition" and not the commercial aspect of the hunt, they should be proud to DEMAND the same conditions stated above. Louis and Donna Caretti and Family Port Orchard, WA	
1026	e_Carling_7-31-15	The murder of whales should be prohibited without exception. Hunting whales is just as offensive as hunting humans. I oppose the Makah Tribe's request to murder whales.	Comments noted.
1027	e_Carling_7-31-15	The number of whales in the oceans in about 10% of the number needed for a healthy oceanic ecosystem. It would be environmentally irresponsible and morally reprehensible to allow the murder of any whales. Prof. M Carling	Comments noted. For information on the current estimated population of Eastern north Pacific gray whales, see Subsection 1.1.3, Summary of Gray Whale Status.
1028	e_Carlson_7-16-15	Leave them be. cruelty and suffering just to kill a whale or two for what? John Carlson	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1029	e_Caruso_7-21-15	I support the NO-ACTION ALTERNATIVE, Alternative 1.	Comments noted.
1030	e_Caruso_7-21-15	As a resident of the state of Washington, I have some familiarity with the Makah Tribe which does not have a subsistence need for whales. This is one reason that their request to hunt gray whales should be denied. The Makah Tribe would not qualify for an aboriginal subsistence whaling quota from the International Whaling Commission because this tribe is unable to demonstrate either a nutritional or subsistence need for whale meat and other whale-related products and the tribe is unable to demonstrate a continual traditional dependence on whales and whaling. In order to maintain consistency and clarity with past determinations and future requests regarding aboriginal subsistence whaling, the United States government should recognize that the Makah Tribe does not meet sufficient criteria for an International Whaling Commission aboriginal subsistence whaling needs statement. Certainly, these circumstances provide insufficient foundation for granting an unprecedented waiver to The Marine Mammal Protection Act.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1031	e_Caruso_7-21-15	There is no evidence that the Makah Tribe needs to kill whales in order to promote or maintain the Tribe's culture and historical connection to whales and whaling. The 1855 Treaty of Neah Bay to which the Makah Tribe turns to claim whaling rights was of a time in history and human relationship to animals and	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
		marine life which does not compare with the evolution of laws and the contemporary views of an expanding proportion of United States citizens. The United States government was a party to the treaty and in looking to provisions of that treaty today, the United States government must take into consideration the living citizens of this nation and the applicable laws that they abide by.	
1032	e_Caruso_7-21-15	To maintain and strengthen their cultural connection to whales, the Makah Tribe can uniquely add to numerous examples offered on the North Olympic Peninsula of educational programs that center on whales. I work in the hospitality field in Port Townsend and through two of the hotels that I work at, I help arrange whale watching tours with Puget Sound Express. Families and individuals are excited to take these tours and an example of one woman's experience was expressed to me during the past week when she spoke of her visit to the North Olympic Peninsula during which she saw gray whales, minke whales, orcas and a humpback whale. This woman was in awe of these whales. Alive, these whales inspire a spiritual connection that the Makah Tribe can choose to respect in people in general and to build upon with understandings of their history and culture. All the resources that have been and are continuing to be expended in pursuit of the whaling rights provision of the Treaty of Neah Bay could have been and should be channeled into alternatives that provide resources needed by the tribe to promote their culture alongside the United States of today and in objectively valuing and therefore abiding by the Marine Mammal Protection Act. The Marine Science Center at Fort Worden State Park near downtown Port Townsend also uses education to focus on the ocean environment and its impact on whales through the Orca Project. Thirteen years ago, a female Orca was discovered stranded on the North Olympic Peninsula. After her death, the toxic chemical levels measured in her body were the highest such levels thus far found in a marine mammal. Local children named this Orca "Hope". In 2011, Marine Science Center employees and volunteers, including children, assembled a skeleton of Hope which is now on exhibit as part of an educational program regarding Orca Whales and the challenges they face to survival.	Comments noted. Please also see the response to frequent comment # 9 regarding non-lethal action alternatives.
1033	e_Caruso_7-21-15	This inspiring example of connecting with the whales that are near at hand in this part of the world is in stark contrast to the photograph reprinted in the "Peninsula Daily News" in March of this year which shows two members of the Makah Tribe "celebrating" on the body of a gray whale that died slowly in a Makah Tribe whale hunt in 1999. Seeing that picture is worth everyone's effort to view. The behavior exhibited in that photograph would not be considered	Comments noted.

Sort #	Commenter Code	Comment	Response
		celebratory to many people. http://www.peninsuladailynews.com/ar cle/20150307 /NEWS/303079992	
1034	e_Caruso_7-21-15	That whale was killed in May 1999 by several shots from a 0.50 caliber elephant gun fired by a whaler in a chase boat after initially being harpooned by a canoe crew of the Makah Tribe. Where is the humane treatment of animals in this? What subsistence or nutritional need did that whale meet by being eaten by 1,800 guests who were invited to feast at the tribe's community center? And this is not to speak of a second gray whale that was illegally killed by use of a 0.50 caliber machine gun by five members of the Makah Tribe in 2007. The whale was shot at 9:30 AM and not until evening did this whale disappear beneath the water's surface; not to ever surface again. Being a vast and diverse nation, I live on the North Olympic Peninsula which is made richer by containing Olympic National Park and being partially bordered by Olympic Coast National Marine Sanctuary. Yet, I was born in central New York and exposed to the traditions of the Haudenosaunee Confederacy of Nations. In considering this Makah Tribe whale hunting request, I was reminded of the words spoken by a Haudenosaunee elder: "Choose your allies wisely". In the context that this elder made this statement the allies that he was referring to are the trees. The ally that I choose is the whale, not the hunter. The Makah Tribe has the spiritual opportunity to make this choice as well and the prohibition of whaling must be maintained under The Marine Mammal Protection Act. There are other ways that could be explored and developed that would address an outdated treaty provision without violating well established law.	Comments noted. Please also see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1035	e_Cash_5-26-15	I can't imagine what the trade off would be to even make you consider this but it's wrong.....do not do this.....this isn't the 19th century or back before then....this is just an image play and a mistaken one.....this is so wrong and horrible I can't even believe it's on the table.....do not do this..... who's in charge of this.....it will be stopped if this goes through so don't do it now thank you, you will hear from me again Penny Cash, Psychotherapist Seattle,	Comments noted.
1036	e_Chalfant_7-29-15	To Whom it My Concern - My family and I received word that NOAA is considering giving the Makah permission to resume hunting of Gray whales. Let me say, we are adamantly against such move and fully support Alternative 1, No Action. For more than 90 years, with the exception of one year where a whale was illegally killed, the Makah have not hunted whales, why start now? The Makah obviously do not need to hunt whales for subsistence, they have been managing fine w/o killing whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
1037	e_Chalfant_ 7-29-15	The populations of whales closest to the location of the Makah are struggling, to say the least. These animals are highly intelligent, very social and family oriented. I state this because we were blessed to have had the opportunity to spend several weeks with the Gray Whales in Mexico.	The DEIS discusses the status of PCFG whales at length; contrary to this comment the best available information indicates that the PCFG is not struggling and has been relatively stable for more than a decade.
1038	e_Chalfant_ 7-29-15	We directly interacted with them, it was an incredible experience, and I would go so far as to say it was a spiritual experience. The first day we all went into the bay, immediately a baby whale approached our vessel, the mother was a short distance away. The baby came to the side of the boat and raised its head for us to engage in contact, which we did. This was the first of many, many experiences that exceeded our expectations and understanding of these magnificent creatures; they are amazing! Mothers would be trusting enough to leave their babies at the side of our boats and take off for a period of time, we ended up babysitting! There is no question the social connection these animals made with us, and they showed us time and again their degree of intelligence. Performing next to the boat with incredible moves, as if, and they were, entertaining us. The final day a mother came to our boat and opened her mouth for us to stroke her baleen!!!If killing were to resume, this would most definitely affect their behavior and such tourism would suffer.	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
1039	e_Chalfant_ 7-29-15	We are shocked and dismayed in this day and age when we know so much about the whales, our own government would be considering opening a window of slaughter. With warming oceans becoming more acidic, with sonic, deafening blasts occurring in their waters, pollution, impact with ships, do we really need to slaughter these poor creatures again - of course not! They have every right to live a life as do we. They do not threaten us, just live their lives. Who are we to open the gated of hell once again on these peaceful creatures?	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1040	e_Chalfant_ 7-29-15	The National Marines Fisheries has not examined alternatives. How about the Makah offering whale watching tours? They will have the ability to make money and attract the admiration of people. Should you give permission to kill, the Makah will become the pariah of the West Coast. Believe me, people love whales! Let's see some progressive thinking, not regressive thinking! A LOUD "NO!" from our family to giving the Makah permission to slaughter whales - it's horrifically cruel, unjustifiable and outdated. Thank-you. Skip Chalfant and family	Please see the response to frequent comment # 9 regarding non-lethal alternatives to a hunt.
1041	e_Chilson_4 -27-15	It is not my intention today to suggest that the Makah lose treaty rights or that their deep connection to the ocean and its resources should not be recognized. My intention today is to defend the whales. Whales that for decades lived	Comments noted.

Sort #	Commenter Code	Comment	Response
		peacefully in their world with momentary interactions with humans that did not make them fear for their lives—interactions that were born out of curiosity and celebrated their majesty as seen through the lens of a camera and not the sites of a rifle. In the year 2015, no intelligent mammal should be hunted down at the hands of a human in the name of ancient, unpracticed tribal customs and subsistence. Decades of subsistence without whale meat or byproducts have proven it is being done.	
1042	e_Chilson_4-27-15	Tribal customs should celebrate the lives of the whales and their role in our current ecosystem. Just because they are no longer on the endangered species list does not mean we should strive to put them back there. The reality is that technology and the sheer passage of time has changed the fabric of tribal traditions and should help rewrite the future. Their adoption of this technology not only makes this an unfair fight, but also blurs the line between what should be held onto as critical customs and hypocrisy.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire and # 15 regarding the use of modern weapons.
1043	e_Chilson_4-27-15	The whales have families, social structure, great intelligence, and a level of comfort with humans that make them so vulnerable to the very people that have an incredible opportunity to create new customs based on ancient traditions.	Comments noted.
1044	e_Chilson_4-27-15	NOAA needs to take a stand to protect marine mammals and recognize the world as it is now where it is impossible and unfortunate that things cannot go back to the way they were and the only way to maintain integrity in one's history is to recognize that although it would be incredible lucky to live out our lives in seclusion with out influence from others to upset the ways of our ancestors, we are all humans on one planet that desperately needs to coexist with the other intelligent life forms on it, not kill them.Thank you.Jennifer Engles-Klann	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1045	e_Clark_3-17-15	Please do not let the makah hunt whales. Their actions were disgraceful last time and there is no reason to allow the hunt.	Comments noted. The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.
1046	e_Clausen_5-26-15	Subject: RE: Whaling In The USA I'm strongly opposition Whaling In The USA. Sincerely, nina clausen	Comments noted.
1047	e_Cocking_5-2-15	It is my understanding that NMFS is considering a cultural exemption to the Marine Mammal Protection Act by allowing the hunting of five grey whales per year as part of a response to a historical precedent. I do not favor this exemption.	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
		Let's say that 10 other indigenous groups from Washington to Alaska make the same request. In order to not be discriminatory, they would also have to be given permission. This yields a 50 per year harvest. Over ten years 500 whales would be taken and 5,000 per century. In the meantime, global climate change is likely to affect the population and it's health causing further impact. It is hard to argue that this is in line with the goals of the Marine Mammal Protection Act. In fact, granting the exemption would potentially have a unintended consequence of subverting it in a significant manner. Dean Cocking PhD Associate Professor Biology James Madison University Harrisonburg, Virginia	precedential effect of a waiver internationally and domestically.
1048	e_Coley-Ward_7-31-15	Dear Dr. Hogarth and Minister of NOAA Fisheries, I am writing to you in the 11th hour, to appeal to you to deny the Makah Tribe's request to pursue the hunt of our residential gray whales for the proposed purposes of satisfying tradition and a treaty composed in 1855, when our oceans and wildlife were not as compromised as they are today.	Comments noted.
1049	e_Coley-Ward_7-31-15	Since the ceasing of commercial whaling that nearly abolished our gray whale population, the relationship between man and cetacean has been on the mend, with new generations of whales learning to grow increasingly trusting of humans sharing their habitat. This allows for magnificent observations and a booming ecotourism industry as well advancements in environmental and marine research. Today we know more about cetacean intelligence and behaviour, as well as their vulnerability, than we did years prior when "harvesting" them was the norm. We've since learned that they imprint their young with what to fear and migration routes. Allowing gray whales that migrate through our coasts to be hunted, while appeasing the Makah Tribe's wishes, breaches the trust we've been earning back from whales through our arduous conservation efforts.	Comments noted.
1050	e_Coley-Ward_7-31-15	Waiving prohibitions to serve as a gesture to accommodate others' cultures, traditions and religions, only serves to separate us as a people as most of us fight to rightfully protect that which a small community wishes the right to destroy for the sake of preserving a tradition.	Comments noted. For an examination of the impacts of the authorization or denial of the Tribe's request on social relations, see Subsection 4.8, Social Environment.
1051	e_Coley-Ward_7-31-15	Together we are appealing to Iceland, Norway, Denmark and Japan to abide by International Whaling Commission's anti-whaling laws that to this day, they refuse to respect, how can we hope to succesffuly appeal to them if in the meantime, we are allowing whale hunts to take place in our own nations under the Aboriginal Subsistence Whaling exception? Every one of those countries refusing to abide by International anti-whaling laws use the very same argument: that they resume their whaling activites to preserve tradition. Traditions that	Comments noted.

Sort #	Commenter Code	Comment	Response
		have since fallen to the way side as more modern conveniences are accessed, and as we've since learned about the intelligence, importance and vulnerabily of our cetacean populations.	
1052	e_Coley-Ward_7-31-15	The Makah Tribe make mention of Article 4 of the 1855 Treaty of Neah Bay with states: [Article 4]: The right of taking fish and of whaling or sealing at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the United States... What is common amongst all citizens of the United States, with the exception of the Makah Tribe, is the willingness to abide by anti-whaling laws and respect that whaling actives have since be ceased for logical reasons, whether for conservation, ecotourism or in efforts to advance animal rights.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1053	e_Coley-Ward_7-31-15	Lastly, with the recent uproar surrounding the poaching of Cecil the lion, while the poacher's reason were different than that of the Makah Tribe, the result was the same; a magnificent creature paid with it's life to satisfy an unnesesary purpose. Where does trophy hunting for sport end and hunting to satisfy a tradition begin; the sustinence argument no longer applies. I stand with with other Americans and Canadians who believe there are other ways of honouring traditions without requiring the unnecessary death of a living creature. I place my faith in your good judgement. Warmly,Summer Coley-Ward Victoria, BC Canada	Comments noted.
1054	e_Collins_7-25-15	I strongly support the first alternative that continues to prohibit whaling by the Makah tribe. The Makah can honor their ancestors and culture without the killing of whales. Randall Collins Seattle , WA	Comments noted.
1055	e_Coons_5-11-15	Gentlemen, I am opposed to the killing of Grey Whales for any reason. To satisfy a treaty which is 160 years old and ignore the many changes in cultural behavior, environmental and sociologic conditions seems untenable.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1056	e_Coons_5-11-15	I empathize with the Makah and their traditions but do they have a "need" for the whale itself? If the whales will be sacrificed for survival, then let our government supply them with their essential needs. If the killing is for ceremonial and traditional reasons, and those reasons are compelling, may I suggest a compromise. Issue a permit to allow the Makah to approach the Grey Whales and "harpoon" a radio transmitter to the whale or whales. Provide the elders with means to track the tagged whales via the internet. Video the entire process and have a celebration at the end of the day. These ideas are obviously crude and suggested without full knowledge of the situation. Please...find a compromise which in part satisfies the desires and traditions of the Makah without the	Comments noted. A non-lethal hunt alternative was considered in the DEIS but eliminated from detailed analysis (see Subsection 2.4.1, Non-lethal Hunt) because its effect on the human environment would not be different from the No-action Alternative and its analysis would provide no additional information for the public or decision-maker.

Sort #	Commenter Code	Comment	Response
		unnecessary sacrifice of a majestic Grey Whale. Sincerely, Harold Coons, M.D. Escondido, CA	
1057	e_Cooper_6-4-15	I prefer the Alternative 1, NO HUNTING of whales.	Comments noted.
1058	e_Cooper_6-4-15	I sympathize with the Makah and their attempts to preserve these aspects of their culture, and to honor our treaty with them.But, whales are now known to be extremely intelligent, sentient beings and there is simply no need to slaughter and harass them for purely cultural reasons. This is just one of those old "customs" that needs to fade away forever. Many more people will be horrified at the slaughter of whales than will be uplifted.I want the whales to see humans not as enemies but as harmless companions at sea, and not be afraid of us (though I realize they are still being hunted by other countries). Sorry, Makah natives, the whales' right to live is greater in my mind than your treaty right to kill. Kathleen Cooper, Sequim, WA -- "The last word in ignorance is the man who says of an animal or plant: 'What good is it?'" - Aldo Leopold	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1059	e_Cushing_4-26-15	Please please do not allow the Makah to resume hunting grey whales. These beautiful animals should be honored with the gift of life and should not be sacrificed to tribal traditions. The Makah need to accept that this tradition is not the foundation of their culture and move forward. It is so wrong. Anne Cushing Post	Comments noted.
1060	e_Daniels_7-30-15	Dear Sirs,I understand that the whale hunt is a tradition, however, sometimes you need to let go of those traditions, and allow these animals to flourish in the wild.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1061	e_Daniels_7-30-15	The will become extinct, and it is our jobs as humans to see that they don't.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1062	e_Daniels_7-30-15	Please don't allow these "traditional" hunts, it is no longer necessary for these people to "survive" by killing whales.Rhonda Daniels	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1063	e_Darrell_5-7-15.pdf	Dear Trustee, Did the Makah People reserve their right to whale in their treaty with the U.S. Govt.? Did they voluntarily forego their whales for decades because of endangered populations, due to over-whaling by non-treaty holders? I'd say the answer whether Makah can whale as they've proposed, is clear. NOAA's job	Comments noted.

Sort #	Commenter Code	Comment	Response
		as a trustee to treaty-holding tribes, is to protect the tribe's treaty rights, not to ask the public if NOAA, and the rest of the Fed. Trustees, should uphold the tribe's treaty rights. The treaties are the "law of the land" as noted by case, and SCOTUS decisions. Darrell Phare	
1064	e_David_7-31-15	Dear Mr. Stone, This letter is to inform you that I wish to add my name to the list of people that want to deny the Grey Whale Hunt proposed by the Makah Tribe of Washington state. This tribe has only harvested one whale legally in 90 years. Why on earth would this be considered a traditional and current cultural trait of these members?	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1065	e_David_7-31-15	We need to protect our local Cetaceans and ensure they are protected from this proposed cull. In this day and age there is no need for Tribal members to kill these magnificent mammals. They should be honouring and protecting them.	Comments noted.
1066	e_David_7-31-15	A more proactive approach would be for the Makah tribe to provide cultural tours including whale watching. Thank you for your attention in advance. I hope you make the right decision. Sincerely Kathie David	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1067	e_Davidson_5-2-15	The killing of intelligent species, i.e. the gray whale, for a cultural bias seems to me as bad as forcing women to have a clitorectomy because their culture does not trust the sexuality of women. Cultures change, cultures adapt, we should not sacrifice our moral grounds to accommodate an outmoded cultural view. Please prevent the slaughter of any gray whales to meet outmoded cultural biases. Gary Davidson	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1068	e_Davis_4-24-15	I strongly object to the Makah hunting whales at any time! Whales are a sentient species and no sentient species should kill another. Thank you, Jean Davis Hoquiam, WA	Comments noted.
1069	e_Dee_7-31-15	First, I would very strongly urge you to please reconsider allowing gray whales to be killed by the tribe for subsistence purposes!	Comments noted.
1070	e_Dee_7-31-15	Second, there is absolutely no basis for the resumption of whaling since gray whales are endangered and the killing of just one would jeopardize the entire population which is still unknown due to two distant populations possibly merging into one. Studies should be conducted to better understand the entire population so that conservation measures can be made possible to protect the remaining gray whales.	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status.
1071	e_Dee_7-31-15	Third, the tribe's use of modern weaponry and equipment to kill gray whales truly implies that these people have all the modern conveniences needed to live a comfortable life. They absolutely do not need to have whale meat for sustenance! Like all cetaceans that live in the U.S. waters, gray whales do deserve to be protected via the Marine Mammal Protection Act [MMPA]. You must do	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		everything possible to ensure that all gray whales are completely protected instead of some being taken by the tribe for consumption! I do thank you so much for taking my message into complete consideration. LAURICE DEE, Ph.D.	
1072	e_Dennie_7-28-15	With all respect, The moratorium on hunting gray whales under the Marine Mammal Protection Act must be continued! Thank You Keisha L. Dennie	Comments noted.
1073	e_Derry_6-11-15	Dear NOAA,Thank you for giving the public a chance to comment.I am amazed that we are still having discussion about the Makah Nation's right to whaling. We are a country run by law, and their 1855 treaty is a law. The Makah have the right to whale. Certainly, times have changed, but the constitutional laws, including treaties with Indian Nations, enacted many years ago must remain valid if our country is to remain viable. I wonder how the public would respond if deer and elk hunting seasons were suddenly prohibited. Or if we suddenly dropped an important right guaranteed by the constitution.The Makah have shown great sensitivity in observing a moratorium on whaling when the gray whales were endangered and in waiting, waiting, waiting while courts and others make up their minds. Given their treaty, they should not have to be waiting.	Comments noted.
1074	e_Derry_6-11-15	I do favor an alternative which allows, at the most, 2 whales killed per year. Unless the Makah plan to establish a business, in which they sell whale meat to secure money for educational or other needs, most likely two whales per year will be plenty for their needs.	Comments noted.
1075	e_Derry_6-11-15	I hope that in good faith the Makah and NOAA can establish a plan which ensures that the most modern and humane killing methods will be used. Every effort should be made to actually kill the intended whale and not merely wound and lose it. Every effort should be made to protect mother whales with calves so that calves are not left abandoned. In the intervening years since the 1855 treaty, we have come to understand the social and emotional ranges of gray whales. Needless suffering is more than cruel.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1076	e_Derry_6-11-15	As I read through the alternatives listed in my local paper, I would certainly favor the alternative 5 idea with two 21-day hunting seasons. Such a plan gives whales a chance to understand that they will not always be hunted.However, if NOAA cannot come to an agreement with the Makah, I still believe they have the right to whale, as established by their 1855 treaty. Probably, this right would not even be questioned, had European-Americans and Japanese not hunted whales practically to extinction. Those who hunt in a wanton manner need restrictions. My sense is that the Makah do not fall into this category.Sincerely yours,Alice Derry 1862 Deer Park Rd. Port Angeles, WA 98362	Comments noted.

Sort #	Commenter Code	Comment	Response
1077	e_Deutsch_ 3-10-15	I was very distressed to read that the Makah tribe might be allowed to kill gray whales. We are in the 21st century, how can this be contemplated. I am sure the tribe now enjoy many of the modern conveniences and entertainment options available in this country..	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1078	e_Deutsch_ 3-10-15	It is amazing that some actually think that killing these wonderful sentient whales will somehow restore honor. As you probably know there is no way to humanely kill a whale. To allow this to happen to a species that has been involved in close encounters with humans on whale watching trips is totally outrageous. In the past native americans used to count coup by touching an enemy warrior and escaping. I would suggest that the Macah people to do likewise. Touch the whale and then leave it be. If we want to keep the moral high ground when we fight animal cruelty in other nations, we must not allow any hunting of this gentle giant. Thank you for your consideration Jeffrey Deutsch DMD	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1079	e_Devlin_7-31-15	Docket ID: NOAA-NMFS-2012-0104Agency: National Oceanic and Atmospheric Administration (NOAA) Parent Agency: Department of Commerce (DOC)Document: Draft Environmental Impact Statement -- related to theSubject: Makah Tribe Request to Hunt Eastern North Pacific Gray WhalesRecommend: Deny Permission -- Choose Alternative 1 -- the No-Action Alternative I have reviewed NMFS' evaluation of the five action-alternatives as contrasted with the no-action alternative, which represents the current status: no hunting of gray whales. For ease of reference, the DEIS and related documents can be accessed at the following link: • http://1.usa.gov/1DGmhrH Deny Permit -- Maintain Current Policy -- No Hunting of Gray Whales In too many respects, allowing a hunt under any of the action-alternatives would increase the risk of adverse impacts to the whales as well as to marine traffic, law enforcement, and safety. Beneficial impacts cited are few, even to the Tribe-members who have requested authorization for a hunt. I urge NMFS to choose Alternative 1 -- the No-Action Alternative. I urge you to deny the request to hunt gray whales.	Comments noted.
1080	e_Devlin_7-31-15	Treaty vs. Tourism -- Whale-Killing vs. Whale-Watching I respect the Makah's wish to enforce the treaty that gave them the right to hunt whales. Certainly, the United States has dishonored numerous treaties with Native Americans, to our great shame. Nevertheless, so much has changed in the world since that particular treaty was signed. I note that, with two exceptions, the Makah Tribe has not hunted whales for nearly a century. Thus, the rationale of needing to kill whales for subsistence purposes, or to maintain a cultural tradition, is not supported. Instead, this appears to be an effort to resurrect an obsolete activity	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
		that is economically unnecessary, ecologically contraindicated, and socially odious.	
1081	e_Devlin_7-31-15	The world-wide horror at the killing of Cecil the lion shows how controversial reinstating whaling would be. Imagine the bad public-relations impact when the bloodshed of a whale-hunt "went viral" on the Internet. Surely it would be better for the whales and the people alike if, instead of whale-killing, the Makah provided a whale-watching experience for tourists.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire and # 9 regarding non-lethal action alternatives.
1082	e_Devlin_7-31-15	Minimum Viable Population (MVP) -- Meta-Analysis Says ~ 5,000 I understand that two populations of gray whales -- both imperiled -- could be jeopardized by the requested hunt. They are the ... Pacific Coast Feeding Aggregation -- 209 resident whales -- and the Western North Pacific -- 140 whales. Nether population-segment has enough whales to be viable. Definitive conclusions regarding minimum-viable population (MVP) size arose from a meta-analysis of the scientific literature spanning the preceding 30 years. The researchers filtered hundreds of studies and selected 141 sources covering 212 unique species whose distribution was skewed toward heavier animals, particularly mammals. Across all species, the median MVP was 4,169. The "bootstrapped 95% confidence bounds" MVP for all species ranged from 3,577 to 5,129. With regard to mammals, the median MVP was 3,876. The "bootstrapped 95% confidence bounds" MVP for mammals ranged from 2,261 to 5,095. The meta-analyis authors stated: " ... we recommend the upper 95% confidence limit of MVP ...." Hence, we get a rounded number -- a numerical threshold -- of approximately 5,000 to inform management practices. Therefore, conservation practitioners at NMFS should aim for an MVP of better than 5,000 for each of the two endangered gray-whale populations. Important: MVP reflects the minimum number necessary for a viable population. However, best management practices would call for an optimum population -- which would mean a level significantly higher than the minimum. The first link below takes you to an article discussing the meta-analysis' findings (including an interview with the lead author). The second link is to the report itself. http://www.americanscientist.org/issues/pub/a-magic-number/ http://coreybradshaw.files.wordpress.com/2011/03/traill-et-al-2007-biol-conserv.pdf	We reviewed the study referenced in this comment and note that it addresses minimum viable population sizes (MVPs) for entire taxonomic species. However, neither PCFG nor WNP gray whales are a separate species. Instead both populations, along with ENP gray whales, are part of a single taxonomic species (Eschrichtius robustus) that currently numbers well over 20,000 animals.
1083	e_Devlin_7-31-15	What About the Main Population of Eastern North Pacific Grays? I understand that the gray whale is the sole living species in the genus Eschrichtius, which in turn is the sole living genus in the family Eschrichtiidae. Thus, it is imperative that we-humans do everything possible to protect this unique species. While the main Eastern North Pacific gray whale population might appear adequate, it is already	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale

Sort #	Commenter Code	Comment	Response
		being subjected to numerous and increasing threats, such as ... Climate change, Pollution and toxic spills, Noise -- from commercial traffic, seismic surveying, and military-weapons testing, Ship-strikes, and Entanglement in fishing nets. Their long gestation-period and two-year breeding cycle make it difficult for the species to rebound unless strictly protected. Gray whales do not need the additional stress of being hunted. Deny Request to Hunt Gray Whales For the reasons discussed in this letter, I urge NMFS to choose Alternative 1 -- the No-Action Alternative. Please deny the Makah Tribe's request to engage in whale-killing. Help the Tribe, instead, to develop a whale-watching enterprise. Thank you. Sincerely, Marybeth Devlin	population in the face of climate change and other threats.
1084	e_DiDomenico_4-11-15	Dear Mr. Stelle: Please accept my comments in favor of Alternative 2 -- the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. It is my understanding that DEIS Alternative 2 will allow for both adequate protection of Eastern North Pacific gray whales and responsible use by the Makah Tribe of Washington State for their cultural and subsistence needs. This seems to be a reasonable solution. I encourage you to pursue this course of action. Furthermore, I support the Federal Government's and your Agency's responsibility to the Makah Tribe and their treaty. I urge you to expedite the approval process, 10 years is far too long to make this Tribe wait for a fair decision from our government. Respectfully submitted, Greg DiDomenico	Comments noted.
1085	e_Draeger_5-26-15	Hello, I've read about the request to resume the hunting of Gray Whales in the North Pacific area. My opinion is that hunting of Gray Whales should be delayed until the population of the Western North Pacific Gray Whale population increases; it is currently only at 150 (estimated). I'm just worried that these could be hunted alongside other whale populations and this breed could go extinct. Thank you for your time. --Kailyn J. Draeger	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1086	e_Draeger_5-28-15	Hello, I've read about the request to resume the hunting of Gray Whales in the North Pacific area. My opinion is that hunting of Gray Whales should be delayed until the population of the Western North Pacific Gray Whale population increases; it is currently only at 150 (estimated). I'm just worried that these could be hunted alongside other whale populations and this breed could go extinct. Thank you for your time. --Kailyn J. Draeger	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1087	e_Dudgeon_7-16-15	To Whom It May concern;I oppose any effort to allow the gray whale hunt. Whaling is inherently cruel since it involves trying to kill (using harpoon and bullets) a large, moving animal from a moving boat on a rolling ocean by (in this case) individuals with little to no whaling experience-a sure recipe for cruelty and suffering. PLEASE, PLEASE, help these beautiful creatures by not letting them be	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		hunted. Thank you. Kathleen Dudgeon 1544 Oakwood av Highland Park, IL 60035 Kathleen6671@att.net	
1088	e_Duncombe_5-18-15	Dear Mr. Stone I would very much appreciate if you would extend the comment period for 60 days to allow us to read the 1300 page document.	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1089	e_Duncombe_5-18-15	Also I would appreciate if you took the following into consideration. 1-NMFS needs a complete EIS of the endangered Western North Pacific stock of which only 140 remain. It has been noted that at least 22 follow some of the same migration path as the Eastern North Pacific stock.	The DEIS conveys the best available information regarding the WNP stock and its relevance to the various alternatives analyzed in our review of the Makah's waiver request.
1090	e_Duncombe_5-18-15	2- NMFS needs to complete an EIS of the 200 residents . These should be classified as two separate stocks.	For reasons described in the DEIS and the NMFS stock assessment reports, the PCFG is not recognized as a stock under the MMPA.
1091	e_Duncombe_5-18-15	3-There is no longer a need to hunt for subsistance as the Makah stopped when the grays were nearly extinct for 70 yrs. Also the archaeological dig at Ozette reveals 80% of the bones were from a diet of Northern fur seals.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1092	e_Duncombe_5-18-15	4-In April of `95 NMFS was notified by the Makah they had the option to build a processing plant & sell whale meat to markets outside US .	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
1093	e_Duncombe_5-18-15	5-There are no enforcements or regulations of whale meat or handicrafts taken off the reservation.	Comments noted. We will consider the need for such provisions in future decision-making.
1094	e_Duncombe_5-18-15	6-Treaties do not address climate change, toxic blooms, oil drilling or spills. Acidification, wave energy or vessel disturbance,	Comments noted.
1095	e_Duncombe_5-18-15	7-NMFS does not address the protection of the same 33 whales in the U & A (usual & accustom area) in the marine sanctuary. This includes returning mothers & calves to nurse & rest.	DEIS subsection 3.4.3.4.3 (PCFG Abundance and Trends) notes that there are, on average, 33 gray whales identified in the Makah U&A per year.

Sort #	Commenter Code	Comment	Response
			These are not the same whales year after year, as is clearly stated in the DEIS.
1096	e_Duncombe_5-18-15	8-The 9th District Court of appeals states the treaty refers to 'in common' that establishes a relationship for our fair share that we choose for whale-watching, aesthetic values & that the whales must be of their fullest population potential.	The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.
1097	e_Duncombe_5-18-15	9-In 2004 the Nat`l Congress of American Indians passed a resolution giving full support to the Makah hunt including other 'effected 'tribes. Many coastal tribes here & in Canada are watching closely. It is highly likely others will follow suit. This could expand internationally as well & set an unwanted precedence.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1098	e_Duncombe_5-18-15	10-In the Sept 8, 2007 hunt the whale bled to death over 20 hrs & sank. The Tribal Council was implicated by all 5 whalers yet no action was taken by the Tribal court. -- Sincerely sam Duncombe President reEarth Nassau Bahamas	The DEIS describes the NMFS investigation of the illegal hunt, including allegations of tribal council endorsement (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal council cooperated with the agency as it conducted its investigation and analysis under NEPA. NMFS' Office of Law Enforcement did not find evidence that the tribal government sanctioned the unauthorized hunt. The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.
1099	e_Dupont_3-9-15	Dear Noaa, I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. The Makah tribe does not rely on gray whale meat for subsistence. There is no reason to violate the Marine Mammal Protection Act.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1100	e_Dupont_3-9-15	These whales bring tourism to the Pacific NW. If they are hunted they will navigate other routes and this will hurt tourism. Sincerely, Doreen Dupont MD	Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is

Sort #	Commenter Code	Comment	Response
			unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
1101	e_Ebacher_3-10-15	Please let the Makah People hunt under their reserved treaty right. It is the right thing to do. Dr. Dominic Ebacher Belfair, WA 98528	Comments noted.
1102	e_Elfenbein_5-15-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	These introductory comment are noted; specific responses are provided below. Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1103	e_Elfenbein_5-15-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1104	e_Elfenbein_5-15-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members;	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	
1105	e_Elfenbein_5-15-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of which were adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1106	e_Elfenbein_5-15-15	The proposed hunt is inherently cruel: It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale. I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Thank you for considering my views. Sincerely, Jake Elfenbein 6148 Brea Blvd. Las Vegas, NV 89118-1406	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1107	e_Ellern_7-26-15	Dear NOAA, I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1108	e_Ellern_7-26-15	In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1109	e_Ellern_7-26-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
1110	e_Ellern_7-26-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies.To risk the lives	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. The DEIS discusses the likely impact of a whale

Sort #	Commenter Code	Comment	Response
		of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong.	hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
1111	e_Ellern_7-26-15	Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	Subsection 4.6.3.2.3, Whale-watching Industry, of the DEIS explains that it is unlikely that gray whales would respond to a Makah tribal hunt by avoiding whale-watching vessels.
1112	e_Ellern_7-26-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason.	Comments noted.
1113	e_Ellern_7-26-15	It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. There is no need to revive a "traditional" whale hunt. None at all. How about a revival of hunting the white man if old traditions are being revived. Janet Ellern Seaside, Oregon	Comments noted.
1114	e_Elliott_4-28-15	Please don't do this. The whales belong to all cultures. Please consider changing so future generations can credit you as part of the reason we still have them. All cultures must change to grow. Think of the amazing things you can do to be a part of protecting them. I pray for wisdom and guidance. Will respect. Ta ma'ra J Elliott	Comments noted.
1115	e_Evenson_3-25-15	Please do not allow the Makah tribe to resume hunting Eastern North Pacific gray whales in the Northwest.There is a worldwide moratorium on whaling (altho Japan & Norway seem to be exempt). The Makah tribe should not be allowed to hunt them regardless of their tradition or culture.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1116	e_Evenson_3-25-15	Whaling is a cruel business with the animal suffering for hours & maybe days. There is not any quick way to slaughter a whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1117	e_Evenson_3-25-15	Many are endangered. The moratorium on whaling should apply to the Makah tribe. Thank you for listening to my comments. Marilyn Evenson Tacoma, WA	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status.
1118	e_Ewing_7-29-15	I am contacting in regards to the Makah tribe wanting to start whaling again. I am against this happening because they are wanting to hunt a whale that is endangered. They don't need the "food" and are only doing out of a "tradition" It	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S.

Sort #	Commenter Code	Comment	Response
		is very discouraging knowing how native americans feel about animals and this tribe wanting to start killing endangered species mainly for a tradition.	Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status.
1119	e_Ewing_7-29-15	Using a gun on these creatures? When did the native americans start using a gun on a marine mammal? Harpoons force a slow death. The animal suffers. Again this really surprises me that this native American tribe would be ok with this process when we know they usually respect the animals they have had to kill.	Please see the responses to frequent comments # 1 regarding the humaneness of a hunt, 3, and 18.
1120	e_Ewing_7-29-15	We are in the 21st century and traditions like this now need to become folklore. We are working to save our oceans, the life in the oceans which play a huge role in our existence. Please do not allow the Makah tribe to go back to "old ways". There are many forms of transportation to bring food as have been done since the whaling has stopped. They are attempting to use the native American status as an excuse to kill. Again not for food. but for a old tradition. Some traditions need to come to an end. and this is one of them For the animals, not for me, not for you, but for the animals and the existence of humankind we must have these whales. Please tell them NoRespectfully Christopher Ewing	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1121	e_Fairweather_7-15-15	I am writing to express my opposition to any resumption of whaling in the U.S. I believe that whales should not be slaughtered anywhere at any time as they are intelligent mammals, living in complex social groups,	Comments noted.
1122	e_Fairweather_7-15-15	whose populations have already diminished considerably and who are suffering the adverse effects of climate change, oceanic pollution and physical and social disturbance due to the noise of military and industrial operations at sea.	
1123	e_Fairweather_7-15-15	The IWC allows whaling by aboriginal peoples where there has been unbroken tradition and whale meat is needed for subsistence. This does not apply in the case of the Makah, who have stated that this is a cultural issue, and some of whose own people do not support whaling.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and #3 regarding the Makah Tribe's desire to revive its whaling tradition..
1124	e_Fairweather_7-15-15	The fact that such an activity is 'traditional' does not justify its continuation as society moves forward and there is ample scientific evidence of the stress and pain caused to sentient non-human beings when they are harassed and violently slaughtered - and suffer equally as their social group members are killed before them.	Please see the responses to frequent comments # 1 regarding the humaneness of a hunt, and # 3 regarding the Makah Tribe's desire to revive its whaling tradition..
1125	e_Fairweather_7-15-15	Whales are already illegally hunted by Japan, Iceland and Norway and allowing the Makah to establish a gray whale quota would encourage these countries to continue and extend such activities.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1126	e_Fairweather_7-15-15	In addition the Makah are likely to wish to hunt other whale populations so allowing even limited hunting would set a dangerous precedent.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1127	e_Fairweather_7-15-15	Vancouver Island residents have expressed the wish to return to commercial whaling if the Makah are allowed to do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1128	e_Fairweather_7-15-15	This would reverse the advances made by the IWC over past years and weaken the position of the US as a strong voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1129	e_Fairweather_7-15-15	Whaling poses risks for humans also as harassed, distressed and possibly wounded whales could be dangerous for the increasing numbers of tourists participating in whale-watching voyages. Please do not allow any resumption of whaling. Thank you for your attention.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1130	e_Falch_3-9-15	Sir, Madam, I advise you to watch this short video of 4.51 minutes on the impact of whales on climate and the vital importance of their survival and propagation around the world https://www.youtube.com/watch?v=M18HxXve3CM Richard E Falch.	Comments noted.
1131	e_Farrell_3-6-15	I am absolutely outraged at the USA even considering allowing the Makah Tribe to hunt the endangered Gray Whale, this is an horrendous and cruel practise which in this day and age is definitely not necessary for food for this tribe. Please do not allow this to be passed, it is so very wrong and unnecessary. We need our whales for the oceans to survive, they do not need to be hunted to extinction or near extinction which has happened in the past! Regards Jools Farrell Avalon Beach, Sydney, Australia P.S: I would appreciate a reply to my email, thank you!	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1132	e_Feldi_5-16-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1133	e_Feldi_5-16-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
1134	e_Feldi_5-16-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1135	e_Feldi_5-16-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		that impact or will impact gray whales; none of of these threats were adequately evaluated in the DEIS.	
1136	e_Feldi_5-16-15	The proposed hunt is inherently cruel: It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale. I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Thank you for considering my views. Sincerely, katherine feldi 7 river rise rd New City, NY 10956-5601	Please see the responses to frequent comments # 1 regarding the humaneness of a hunt, and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1137	e_Flum_3-12-15	noaa, It will be a tragic mistake if hunting of the Eastern North Pacific Whale is allowed. I urge NOAA to deny this hunting permit on the basis that tribal culture must allow for the sacred nature and intelligence of the Whale and ensure its life in this difficult time.	Comments noted.
1138	e_Flum_3-12-15	Food supplies, Navy sonar and many obstacles are harming the general whale population. Sincerely, Char Flum	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1139	e_Flynn_4-6-15	Please no do not join Japan and the rest of the countries who hunt these beautiful gentle creatures. Do not shame your great nation who Is already scrutinized for Seal Hunting . Do not hunt the whales please let them be.We have no right to take their lives to hint them to own them. Leave them be. The world is watching. Thank youKaren Flynn UK	Comments noted.
1140	e_Ford_7-27-15	With science to back, from all corners of the globe, consume whale or dolphin meat is extremely harmful to the health. Which part of health warnings, just to start are people not getting?	The DEIS discusses the presence of persistent and potentially toxic contaminants in whale meat and blubber and allowable consumption rates for humans, based on health concerns, noting that contaminant concentrations often are lower in freshly harvested whales than in stranded whales and also lower in baleen whales than in toothed whales because of their different food sources

Sort #	Commenter Code	Comment	Response
			(see Subsection 3.16.3.2, Environmental Contaminants in Gray Whales). The DEIS notes that under the action alternatives, individual tribal members would be exposed to higher levels of certain contaminants as a result of eating more whale products (Subsection 4.16.3.2, Alternatives 2 through 6).
1141	e_Ford_7-27-15	What is it about age old traditions? Is it the act of killing that empowers men? Or is it the ego that drives man to behaviour that is so devolved spiritually that it actually has no meaning to what the origins were. There were no shot guns - as our last mad men used. What kind of heroic example are we setting for the next generations? Do we not understand what a Sentient being means? Honestly, think of what evolution is and if we must involve God, what would the answer be? We are all here on this earth to learn, so maybe someone needs to teach someone something before all is lost! FFS.	Comments noted.
1142	e_Ford_7-27-15	Throw the book of science at them. Whale consumption should be made illegal. It costs tax payers more money in the long run from the effects of mercury poisoning...and they are going to reproduce??? JESUS! Lyndal From Old Canada - where we were proud to be Canadian	Comments noted.
1143	e_Foster_5-29-15	To all those concerned, Please continue to prohibit the Makah tribe from hunting grey whales. I am therefore asking you to choose Alternative 1- No action. I am completely opposed to the hun ng of whales, or any other animal. Just because these whales are not endangered, this does not they should be cruelly hunted and killed. They have a right to live. Regards, Joanna Foster (UK)	Comments noted.
1144	e_Frech_4-8-15	To whom it concerns! Please oppose the plan to slaughter whales by the Makah: The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
1145	e_Frech_4-8-15	If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1146	e_Frech_4-8-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1147	e_Frech_4-8-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1148	e_Frech_4-8-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1149	e_Frech_4-8-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution. Some of the reasons why the plan to slaughter whales by the Makah is not right! Regards Luise Frech	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1150	e_Freund_5-1-15	dear sir/madam my name is nancy freund. i currently live in seattle washington. i was raised in oak harbor, washington. and i am 65 years old. in addition, i have visited san ignacio, mexico to watch the gray whale population in the lagoon; and i have just finished reading: "sightings: the gray whales' mysterious journey"; coauthored by Linda Hogan (chickasaw) and Brenda Peterson (a nature writer	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		living in seattle). although i am sympathetic to the native desire to resume whaling in an effort to preserve their rich heritage; i suggest you do not support this desire. I believe there are activities, other than whaling, through which the makah tradition can be sustained, enriched and enlivened. The efforts of the Quileute tribe to turn their whaling canoes into whale-watching boats is an excellent example of survival through adaptation.	
1151	e_Freund_5-1-15	i would also like to quote "Sightings" "The gray whales dredge up the sea bottom, creating richer silt, a more sunlit plankton. When exposed to sunlight the plants bloom. Through photosynthesis, they not only support the life of the ocean but provide 80 percent of the Earth's oxygen." The gray whale plays an important part in our ecosystem, as well as an important part in the makah tradition. I encourage you to help the makah tribal members envision communal efforts that will preserve humans, whales and traditions. thank you for your consideration nancy freund 3609691800	Comments noted.
1152	e_Gabernowitz_8-1-15	We say N O to the Gray Whale Hunt!!! Regards E. Gabernowitz	Comments noted.
1153	e_Garland_5-5-15	Sorry, Not really buying the main thrusts of the Makah in the Needs Statement. The nutritional argument is bogus.	Comments noted.
1154	e_Garland_5-5-15	The ceremonial aspects can be covered/incorporated through ceremony. No need to kill whales. That aspect is clearly a cultural relic that can be left behind without any long-term damage to the psyche, and, social order of the Makah. Steve Garland 5615 24th Ave NW- #63 Seattle WA 98107	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1155	e_Garrett_4-26-15	It's a different time and a different word. They need to get over it.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1156	e_Garrett_4-26-15	There is nothing traditional about what these men do. Shooting whales with 50 Cal rifle is not traditional. Especially since they can go down to the local supermarket and buy dinner these days. Why don't they make money for themselves and whale watch instead of killing peaceful creatures that us washingtonians love to watch and are lucky to have.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1157	e_Garvey_7-31-15	The Sea Shepherd Conservation Society has collated what I consider to be a fairly thorough list of valid arguments against the proposal. Doubtless you have seen this list many times by now, and I see no point in simply regurgitating it here. I include a link to this list for reference, in case you wish to review it again. h p://www.seashepherd.org/news-and-media/2005/08/26/twelve-reasons-to-oppose-the-plans- by-the-makah-whalers-to-murder-whales-951 I have a few	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		objections to add to this, however. First, we cannot justify a "yes" on the grounds of respecting treaty or traditions. That would be cruelly ironic given the recent betrayal of the Apache by our government's surrender of their sacred grounds to a mining company. If we are to claim respect for treaty and tradition of Native People's, we must do so with proper regard to a) cultural significance and b) adjustment to the criteria of the modern age. The Apache sacred grounds clearly play a greater and more positive cultural role than a whale hunt, but mining profits apparently justify desecration. Certainly, maintenance of a "clean" stance on abstinence from whaling ... a noble objective ... provides a better basis for breaking with tradition or treaty. Have some decency, US government! My ancestors (Celts) traditionally dispatched folk by burning them in giant wicker men, a fine tradition clearly out of step with modern times. The Mayans and Aztec of Central and South America performed human sacrifice, but we would never consider enabling that tradition today. Given what we now know about the cognitive capabilities of whales and the complexities of their social structures, whale hunting can be said to approximate human sacrifice in barbarism.	
1158	e_Garvey_7-31-15	But I DO appreciate the cultural value of indigenous tradition. If any Makah wants to get in a traditional leather boat and traditionally paddle out to take on Moby Dick with a traditional bone tipped spear, I will not stand in his way. Clearly, a man that steeped in tradition and that ballsy is not to be trifled with! But they don't do that. They use powered vessels, and modern weapons, and there is nothing traditional about any of that.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1159	e_Garvey_7-31-15	So we can dispense with tradition easily enough. Now we have to consider the health of the tribe. Heavy metal concentrations, especially mercury, in whale meat are typically alarming high, and in my view no American citizen should be exposed to those levels of toxicity. If we are to allow the taking of whales for meat, then that meat must be tested and inspected before being distributed in any way to any American citizen. Any meat that does not test within acceptable limits must be destroyed. Given the uncertainty of radio isotope distributions in the Pacific due to the ongoing Fukushima catastrophe, a higher level of caution is required. Any plan to enable whale hunting by the indigenous must rigorously address the food safety issue. Any agency that approves a whaling plan that does not address the relevant food safety issue is, quite frankly, irresponsible and derelict in it execution of its duties. Sincerely yours, I remain irrevocably opposed to this and any whale hunt, Robert C Garvey	Please see the response to frequent comment # 11 regarding safety of gray whale products for human consumption.
1160	e_Geer_3-6-15	There is no reason for hunting whales. Many cultures had traditions and customs that are no longer practiced, as times changed. Using cultural tradition as an	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
		excuse to hunt and kill whales is not valid. The moratorium under the marine mammal act should be permanent – “A no-action alternative would not authorize a whale hunt. It would continue a moratorium under the marine mammal act.” Jean Geer	Tribe’s desire to revive its whaling tradition.
1161	e_Geer_3-7-15	Greetings Neighbors, A policy of allowing certain "indigenous" peoples to hunt otherwise protected whales for local use to satisfy their cultural needs is totally ludicrous in the 21st century. Should "indigenous" peoples whose ancestors practiced head hunting or human sacrifices be allowed for cultural reasons?	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1162	e_Geer_3-7-15	Whale hunting belongs to the past. All products obtained from whales are replaceable. Furthermore there is obviously no economic benefit in the killing of whales. The Makah drive cars, shop at Wal-Mart and go to the grocery store like their “non-indigenous" neighbors, who by a vast majority abhor the thought of the Makah hunting whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1163	e_Geer_3-7-15	The vast majority of the people living in Clallam County believe that whaling is an inhumane practice that should be stopped permanently. What benefit is there to the Makah people to alienate the vast majority of its neighbors just because a few individuals need to kill whales to make themselves relevant. To their neighbors, killing whales won’t make them relevant – it makes them pitiful relics of a past that is long gone.	Comments noted. The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).
1164	e_Geer_3-7-15	Some Makah have argued that there is no principled difference between eating whale and eating beef or chicken. The deployment of this argument to defend the practice of whaling because of cultural tradition makes the entire argument superfluous. Since there are substitute foods and products readily available, then there is no justification or economic benefit for the killing and processing whales. Whale watching eco-tours is the alternative to any economic excuse for hunting whales. There may be many who disagree with me but the rights of a species to survive on this planet take absolute precedence over the "rights" of a cultural practice or tradition by groups of humans. Whale hunting must be stopped permanently! Regards, Jack "Imagine a world in which we are all enlightened by objective truths rather than offended by them." - Neil deGrasse Tyson	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1165	e_George_6-7-15	Don't allow the Makah tribe to injure and kill whales. They hadn't done whale hunts since the 1920s, until 1999 when they senselessly killed a whale and didn't know what to do with it, wasting it's life. So they don't rely on whales for subsistence.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1166	e_George_6-7-15	Protect whales. Whales already face enough problems. Don't allow their senseless killing. - Karen George an American citizen	Comments noted.
1167	e_Gerritsen_4-11-15	In this day and age it is no longer necessary for these folks to kill whales. It is as out-dated as it can be	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1168	e_Gerritsen_4-11-15	and these folks have access to other food sources. No whale slaughter! Sincerely, Liz Gerritsen	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1169	e_Giese_5-27-15	Please end the Makah whale hunt. Please protect whales. Thank you. --Mark M Giese 1520 Bryn Mawr Ave Racine, WI 53403	Comments noted.
1170	e_Giovane_5-14-15	We would like to give our support to allowing the Makah Tribe to continue hunting whales for subsistence and ceremonial purposes as guaranteed in the treaty between the Tribe and the US Government. Personally, we believe that whales, and all cetaceans, are unique and worthy of protection; there should be a world-wide ban on all commercial harvesting of them. However, in the case of the Makah's right to continue the whale hunt, I am strongly in favor of allowing this practice to continue based on the following. As archeology students, we had the opportunity to work at the Ozette site in 1975 and 1976. Just prior to our working there, House 1 had been excavated. In that house, many artifacts attributed to whaling were uncovered. One such artifact, the whale saddle (which, from what we understand, was never meant to be seen by the uninitiated), was the first bit of physical evidence showing us how important whaling was to the Makah. This was more than just hunting to "put meat on the table", so to speak: whaling was a sacred and vital part of the entire community. At Ozette, gray whales pass by on their seasonal migrations to and from the Baja Peninsula---we remember seeing them ourselves and can imagine, in pre-contact times, what it must have been like to go out on a hunt. We saw the evidence that all parts of the whale were utilized by the Makah, with whalebone being used for clubs and for incorporation into the drainage systems between the houses. We learned that to successfully complete a hunt, all the members of the crew, their wives and families had to undergo many rituals beforehand to insure success. To guarantee that the harpooned whale would be easily returned to the village (and not swim out to sea), the whale was considered as an honored guest which would sacrifice itself for the good of the community—again much ritual was involved in this important aspect. During the voluntary ban on whaling, and at	Comments noted.

Sort #	Commenter Code	Comment	Response
		the time gray whales were on the endangered species list, members of the Tribe kept these traditions alive in the hopes that someday the hunts could resume. As nonnatives, our understanding of all of this is very limited, but we can see how spiritually significant whaling is to the Makah people. We also had the privilege of being teachers at Neah Bay for over twenty years. The students that we taught were (and still are) like family to us. In the past, the school had a negative impact on the kids---we heard stories of students being punished for speaking Makah in school. We're happy to know that today many of the teachers are Makah, and that Makah language and culture are promoted school-wide. Growing up in Neah Bay presents many challenges for the kids. Our educational system is very future-oriented. We tell the kids, learn this stuff and some day it will help you go to college or you will use it in your job. However, to go off to college, kids must leave their families and community, and risk being forced to make a choice between two different cultures. As for work, unemployment is extremely high on the west end of the Olympic Peninsula. The time-honored occupations of fishing and working in the woods are still some of the only ways to make a living. Many kids feel that there is nothing to do, and so it's easy to fall into the trap of drugs and alcohol. However, strong cultural ties—like the canoe club and Tribal Journeys—provide a way to travel another course. We were teaching the year "the whale" was taken after whaling was allowed to resume. It was an amazing experience! Our principal, Bill Pearl, released the students to go down to the beach in the village to await its coming in. He didn't want any of them to miss this historic event—and they would have gone anyhow. We went ourselves after school was over, to see the beach covered in people, in the rain, singing the whale ashore. This was a momentous day, not only for the Makah, but for all indigenous people in the country—a country that has historically broken its treaties with native peoples. Here, the treaty was honored and the Makah could once again experience this integral part of their culture—of "who they are". We also witnessed the threats and abuse the Makah people had to take from Sea Sheppard and others. Most nonnatives just don't have a clue as to how important cultural traditions are to native people. In truth, the U.S. has become the "melting pot" it wanted to be, and so many of us have lost our own language, culture, and traditions. Hunting whale to the Makah is so much more than just hunting or fishing. It is the thread to generations past, it is what gives the Makah their unique identity, and because of this, we would like to strongly give our support to its continuation. We would like to give our support to: Alternative 4 would limit the hunt to June 1-Nov. 10 to avoid killing endangered Western	

Sort #	Commenter Code	Comment	Response
		Pacific gray whales — a population distinct from resident whales — and limit mortality to one member of the Pacific Coast Feeding Group that ranges from Northern California to northern Vancouver Island. Thank you very much for allowing us to respond to this very important issue. Gary A. Giovane Leigh S. Giovane La Conner, WA	
1171	e_Glass_4-20-15	It appears that the Makah tribe would be prime candidates to run whale watch tours rather than participate in the controversial and divisive practice of whale killing. Although I support treaty rights in most arenas and sympathize with our Native People, I am strongly opposed to the killing of gray whales by any organization. Thank you for allowing me to comment on this important issue. Sincerely, Gail D. Glass	Comments noted. Please also see the response to frequent comment # 9 regarding non-lethal action alternatives.
1172	e_Gleason_et_al_5-14-15	The Pacific Sámi Searvi, an organization of Sámi, Sámi-Americans and allies living in the Pacific Northwest, urges the NOAA and any other involved US federal agencies to remove all obstacles to Makah hunting of Pacific grey whales. Since the species has recovered from its mid twentieth century population crisis, and since the IWC has approved a limited, sustainable hunt for the Makah, the only objections that can be made to the tribe resuming the hunting that they voluntarily suspended in the 1930s are objections based on what opponents believe to be the proper way for humans and grey whales to co-exist. These arguments are derived from values that are specific to colonial, settler culture. Makah culture has its own understandings of what the proper way for humans and grey whales to coexist is, and these understandings are every bit as valid as those of their opponents. Furthermore, the Makah reserved their right to hunt these whales in the Treaty of Neah Bay. Our Indigenous Makah brothers and sisters are a sovereign nation, and are not obligated to restrict their legally protected practices based on the foreign sensibilities of other cultures and newcomer groups. The Pacific Sámi Searvi fully supports their rights—both legal and spiritual—to resume this practice that is so central to their way of life, and we wish them good hunting. Signed by the Pacific Sámi Searvi Board of Directors Lynn Gleason - President Renee McAdams - Vice-President Amy Swanson King - Secretary Sylvia Murray - Treasurer Mary Brandt Rose Edwards Chris Eggo Mary Williams Troy Storfjell	Comments noted.
1173	e_Gomer_5-4-15	The Makah tribe has a treaty right to hunt whales in their usual and accustomed places. If it is decided not to honor that treaty right, the US government has two possible courses of action: (1) Declare the treaty invalid, and return to the tribe all the land that was ceded under the treaty. (2) Negotiate compensation to the tribe for the loss of the right to hunt whales. If negotiations are unsuccessful,	Comments noted.

Sort #	Commenter Code	Comment	Response
		request that the United Nations appoint an arbitrator with the right to impose appropriate compensation. If the US government simply denies the permit without compensation, we become a rogue nation that does not honor its treaty commitments. -- Gomer Thomas 9810 132nd St NE Arlington, WA 98223-8850	
1174	e_Good_3-6-15	Hi Folks. Here's my input on the matter under consideration. I truly appreciate the need to celebrate what is and was important to this community and reaffirm their spirituality. I feel however that this can by still done without harvesting from this aquatic community. Its a community that we all now growing to understand in new and greatly different ways than any understanding from our relationships with them in the past; however deep they might have been. By all means they should celebrate their relationship with whales. Perhaps we all should. But with respect to both communities, I feel a token harvest has no place in today's world. So rather I see this an opportunity to change and celebrate whales in new ways even if as simply as just champions for the aquatic communities that are part of who they are. But I imagine there are other ways to celebrate as well. I look forward to hearing them. Best Regards, Dan Good 1-204-367-4945 in Manitoba, Canada	Comments noted.
1175	e_Goodman_3-11-15	Although I deplore what our government has done to Native American tribes, messing with treaties and land, I do not believe that killing another species will contribute to their well being and longevity. My understanding is that under aboriginal clauses of the international whaling commission you cannot kill whales for aboriginal subsistence purposes, unless there is an unbroken tradition and a proven subsistence necessity. I don't feel that these situations are met. Also, as our resources dwindle, killing whales is not an effective solution. Be creative, create more fish nurseries, and find another option. Thank you, Alice Alice Goodman 206-551-7721	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1176	e_Gorter_7-31-15	Dear Sir or Madam: Thank you for providing us with an opportunity to comment on the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales (2015). The American Cetacean Society–Puget Sound Chapter (ACS/PS) understands and appreciates the Makah Tribe's legal right to hunt gray whales under the 1855 Treaty of Neah Bay. ACS/PS also understands and respects the cultural significance of whaling as an important part of the Makah Tribe's history and identity. However, as a whale and dolphin conservation group we naturally oppose any resumption of whaling. While perhaps not commercial in nature, the Makah gray whale hunt does not seem to meet the same definition of a pure subsistence hunt as is currently practiced by native people in Alaska and the Canadian Arctic.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1177	e_Gorter_7-31-15	Although gray whales of the Eastern North Pacific stock were delisted from the ESA 1994, this population continues to be highly vulnerable. Unusual mortality in 1999 and 2000 highlight the fragile nature of their recovery.	The die-off of ENP gray whales between 1998 and 2000 remains a concern, though the recovery of the population from that event is encouraging. The DEIS describes that event and reviews the scientific literature analyzing that event (Subsection 3.4.3.1.7, Strandings). It is difficult to draw inferences about future abundance trends based on the die-off. The DEIS evaluates potential scenarios for the future of the population in the discussion of cumulative effects (Subsection 5.4, Other Environmental Protection Measures).
1178	e_Gorter_7-31-15	The effects of climate change will likely be a continued threat to gray whale populations in the North Pacific.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1179	e_Gorter_7-31-15	Listed as Endangered under the ESA, and critically endangered by the IUCN, the Western North Pacific Population is still not quite understood. Increased sightings and satellite tagging suggests that individuals belonging to this beleaguered population travel down the coast of North America. Without DNA analysis it would be nearly impossible to identify a Western gray whale from a North Eastern Pacific individual, if one would come in sights of a Makah whaling vessel. More research into the definition of current gray whale stocks or population would seem to be warranted before granting a waiver under the MMPA.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1180	e_Gorter_7-31-15	If and when the Makah Tribe is granted a waiver under the MMPA to hunt gray whales, we would be terribly concerned that this would open future requests by other tribes (e.g., Quilleute, Nu-Chaa- Nulth) with similar whaling traditions. We sincerely hope the Makah will reconsider their quest and decide not to exercise their treaty right. Yours truly, Uko Gorter Uko Gorter, president American Cetacean Society – Puget Sound Chapter P.O. Box 2174 Kirkland, WA 98083-2174 acspsinfo@acspugetsound.org www.acspugetsound.org	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1181	e_Grace_4-6-15	I say NO. there are not enough whales to hunt. Leave the whales alone. Thank you. Please deny the permit to the Makah tribe to hunt whales again.Janelle Grace	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals. See Subsection 1.1.3, Summary of Gray Whale Status.
1182	e_Graham_5-5-15	Dear NOAA,I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines. In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1183	e_Graham_5-5-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
1184	e_Graham_5-5-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
1185	e_Graham_5-5-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason.It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Mrs Julie Graham	Comments noted.
1186	e_Griffith_5-14-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. During the 1920's the Makah tribesmen had to paddle their boats at least 25 miles offshore just to find a whale to kill that is how close to extinction the resident gray whales along with Western North Pacific gray whale was at that time. The Makah didn't eat the whales they killed they rendered the whale down for oil and sold it door to door to housewives for their lamps. What a terrible waste of a whales life.	
1187	e_Griffith_5-14-15	The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1188	e_Griffith_5-14-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1189	e_Griffith_5-14-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		history and culture. Such a solution would be beneficial to all involved, including the gray whales.	
1190	e_Griffith_5-14-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1191	e_Griffith_5-14-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1192	e_Griffith_5-14-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1193	e_Griffith_5-14-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Barbara Griffith 3734 HST NE Apt-2 Auburn, WA 98002-1348	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
1194	e_Grove_6-17-15	I would like to comment on the proposed resumption of the Makah Gray Whale Hunt. I am opposed to the killing of gray whales by the Makah Tribe in NW WA state. The idea that the killing of gray whales is needed to preserve the cultural heritage of the Makah Tribe does not make sense in the 21st Century. It is important to honor and respect ones cultural heritage. However, as times change and knowledge increases some cultural practices become obsolete in present day society. Killing of gray whales is one of these. The Makah do not need to kill gray whales to honor their past . Please do not allow the resumption of the killing of gray whales. Thank you, Dan Grove 950 E Snowline Dr Port Angeles, WA 98362	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1195	e_Hamann_3-8-15	To whom it may concern, Should the Makah tribe be allowed to hunt the gray whale, or any whale for that matter? My answer is a resounding NO. There is no legitimate reason to kill a whale in these modern times. None. These beautiful and intelligent creatures deserve to be left in peace to live their lives. Nobody's "traditions" can trump that. I can't believe that in 2015, we are still debating this. Some things from the past should remain in the past. They have no place in a compassionate world. Respectfully, Sue Hamann Blaine, WA	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1196	e_Hamblin_7-31-15	To Whom it May Concern, I would like to comment against allowing the Makah Tribe to resume killing Grey Whales off the coast of Washington. I have been fortunate enough to visit the birthing grounds of these whales and have experienced the phenomenon of some of the whales coming up to the boat I was in and appearing quite curious about us and seemingly wanting to have contact. These whales exhibit an intelligence that can be compared to humans.	Comments noted.
1197	e_Hamblin_7-31-15	Whales, all whales, still risk an uncertain future: global warming, acidification of the oceans, human pollution, all take their toll.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1198	e_Hamblin_7-31-15	I respect the Makah's wish to resume their ancient tradition. However, cultures in order to continue to thrive need to be responsive to changing times. Although these whales may be off the threatened list, they are still threatened with other environmental challenges as mentioned.	Comments noted.
1199	e_Hamblin_7-31-15	I also have serious doubt the Makah, in these modern times, will prefer whale as sustenance over current food options available today. Perhaps there are other ways they can acknowledge this piece of their culture rather than the killing of beautiful, intelligent beings. I believe that your organization can support the Makah to become stewards of these majestic creatures, teach their history and	Comments noted. Please also see the responses to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		share it with the world. They can be the stewards, not the slaughterer. Thank you for your consideration, Codi Hamblin	
1200	e_Hampton_7-29-15	While I personally would never kill a whale, I SUPPORT THE MAKAH PROPOSAL (Alternative 2). It is sound from a conservation biology perspective, posing no risk to the health of the whale population. Furthermore, the Makah are guaranteed this right by treaty and should not have to defend why they want to do it, why it's important to them, what the community benefits are, how they do it (within reasonable parameters), what clothes they where while they do it, how they celebrate it, how efficient they are with the meat, or a dozen other questions that the ambient white culture has the privilege of not answering when practicing their customs. Thank you, -- Steve Hampton Davis, CA	Comments noted.
1201	e_Haney_4-22-15	To whom it may concern: I can't believe that we would even consider letting the Makah's continue whale hunting. There is nothing that is needed from a whale that can not be found via other substances. Makah's are not using gray whales to sustain life.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1202	e_Haney_4-22-15	This is a barbaric act! It takes a 36 ton whale days to die from harpoons. It would be like killing a grown man with toothpicks.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1203	e_Haney_4-22-15	Actions that occurred in 1855 do not still occur today, we don't ride horses to work or churn butter or hang road kill out to dry in the front yard (well at least I and my neighbor's don't). I am disgusted in the thought this this is even up for consideration. I am a property owning, tax paying, full time employed mother. I am sending out as much information about the meetings on social media as I can. I hope to stop this hunt. All over the world people fight to save whales and other animals from cruel acts, how can we even consider this action here in Washington state? There must be a political motivation? You will be hearing from me again. Thank you. Tammy Haney 2435 South 121 place Seattle, Wa. 98168	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1204	e_Hanson_7-30-15	To Whom it May Concern; Thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. I would like to urge you to adopt Alternative 1 – No Action for the following reasons: The Treaty of 1855 states the that the Makah reserve the right to whale and fish in usual and accustomed places 'in common with all citizens of the United States'. The last portion of that sentence tends to be left out of written descriptions regarding this issue, but it is an important one to consider. It implies that the Makah share the same rights as other U.S. citizens when it comes to whaling and the United States is not currently a whaling nation.	The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.

Sort #	Commenter Code	Comment	Response
1205	e_Hanson_7-30-15	Gray Whales are the focus of an enormous ecotourism industry along the entire coast of North America from Alaska to Baja California. In the breeding lagoons of Mexico, gray whales are known to be 'friendly' and approach boats soliciting interaction with humans. As someone who works in the ecotourism industry in Baja I have frequently heard visitors express their concern about the threat of hunting these whales who have been become so trusting of humans, and that perhaps they shouldn't be taking part in whale watching for that reason. A renewed gray whale hunt could jeopardize the whale watching industry along this migratory corridor, and this should be taken into consideration.	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.
1206	e_Hanson_7-30-15	The Pacific Coast Feeding Aggregation (PCFA) of gray whales numbers in the low hundreds and previous research has suggested that it may be a genetically distinct sub-population. Likewise, the Western Pacific gray whale population numbers only approximately 130 individuals and is also thought to be genetically distinct. The taking of a whale from either of these populations could be devastating and is unacceptable. While the status of the Western gray whale has recently been called into question due to new research results, it is imperative that more research be conducted on both of these populations before a hunt is considered or authorized. There is no way to plan timing of a hunt in such a way that will ensure that a whale from either the PCFA or the Western Pacific population will not be harmed. Since we still know so little about the Western gray whale it is impossible to determine which months they might be passing by Washington State. Likewise, limiting a hunt to the spring and fall months when the PCFA is not likely to be present, will instead target migrating whales, including potentially pregnant females and Western gray whales. The only way to ensure that this doesn't happen is to have an expert gray whale researcher on board the whaling vessel to identify every whale being targeted by the Makah, and that does not seem feasible or likely.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
1207	e_Hanson_7-30-15	The area where the Makah will be hunting also happens to be habitat for endangered Southern Resident killer whales and humpback whales as well as other marine mammal species protected by the Marine Mammal Protection Act. It is unacceptable to allow the use of a high powered rifle in an area that could pose to a threat to any of these animals especially the critically endangered Southern Residents which were just listed as one of the 8 species most likely to go extinct.	Comments noted. Subsection 4.5.2.1.1, Marine Mammals (Excluding Gray Whales), discusses the impact of the alternatives on marine mammals, including ESA-listed mammals such as Southern Resident killer whales and humpback whales.
1208	e_Hanson_7-30-15	There is no way to kill a whale quickly and humanely. Even with a high caliber rifle that is meant to decrease time to death, these sentient mammals take	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		several minutes to hours to die and it is most certainly an agonizing, painful and terrifying death.	
1209	e_Hanson_7-30-15	When the treaty of 1855 was written, whales were thought of as little more than large fish species that were only valuable for human use and consumption. Since then we have learned much more about whales and their intrinsic value, not as a resource but as sentient intelligent animals. Their social structures and communication abilities are still poorly understood but could be very complex. They have large well developed brains and possess the ability to feel pain, loss and grief.	Comments noted.
1210	e_Hanson_7-30-15	While I am supportive of indigenous peoples trying to regain their culture and sense of community in general, I feel very strongly that it is wrong to knowingly cause a sen ent animal pain and terror and to take its life simply for the sake of culture. There is much we s ll need to learn about every aspect of gray whale life and social structure before we can and should consider the proposal to resume whaling. I understand that you chose not to consider the alterna ves brought forth by individuals during the last comment period. But I strongly urge you to reconsider that and to encourage and help the Makah Na on to establish a whale watching business using a tradi onal whaling canoe. In this way they can revive and teach visitors about the customs and culture of whaling without harming the whales. Thank you for you consideration. Cindy Hansen	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1211	e_Hansen_7-30-15	To Whom it May Concern; Thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales. I would like to urge you to adopt Alternative 1 – No Action for the following reasons: The Treaty of 1855 states the that the Makah reserve the right to whale and fish in usual and accustomed places 'in common with all citizens of the United States'. The last portion of that sentence tends to be left out of written descriptions regarding this issue, but it is an important one to consider. It implies that the Makah share the same rights as other U.S. citizens when it comes to whaling and the United States is not currently a whaling nation.	The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.
1212	e_Hansen_7-30-15	Gray Whales are the focus of an enormous ecotourism industry along the entire coast of North America from Alaska to Baja California. In the breeding lagoons of Mexico, gray whales are known to be 'friendly' and approach boats soliciting interaction with humans. As someone who works in the ecotourism industry in Baja I have frequently heard visitors express their concern about the threat of hunting these whales who have been become so trusting of humans, and that perhaps they shouldn't be taking part in whale watching for that reason. A	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching Industry.

Sort #	Commenter Code	Comment	Response
		renewed gray whale hunt could jeopardize the whale watching industry along this migratory corridor, and this should be taken into consideration.	
1213	e_Hansen_7-30-15	The Pacific Coast Feeding Aggregation (PCFA) of gray whales numbers in the low hundreds and previous research has suggested that it may be a genetically distinct sub-population. Likewise, the Western Pacific gray whale population numbers only approximately 130 individuals and is also thought to be genetically distinct. The taking of a whale from either of these populations could be devastating and is unacceptable. While the status of the Western gray whale has recently been called into question due to new research results, it is imperative that more research be conducted on both of these populations before a hunt is considered or authorized. There is no way to plan timing of a hunt in such a way that will ensure that a whale from either the PCFA or the Western Pacific population will not be harmed. Since we still know so little about the Western gray whale it is impossible to determine which months they might be passing by Washington State. Likewise, limiting a hunt to the spring and fall months when the PCFA is not likely to be present, will instead target migrating whales, including potentially pregnant females and Western gray whales. The only way to ensure that this doesn't happen is to have an expert gray whale researcher on board the whaling vessel to identify every whale being targeted by the Makah, and that does not seem feasible or likely.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales. We agree that it may be difficult to identify pregnant females during certain times of the year.
1214	e_Hansen_7-30-15	The area where the Makah will be hunting also happens to be habitat for endangered Southern Resident killer whales and humpback whales as well as other marine mammal species protected by the Marine Mammal Protection Act. It is unacceptable to allow the use of a high powered rifle in an area that could pose to a threat to any of these animals especially the critically endangered Southern Residents which were just listed as one of the 8 species most likely to go extinct.	Comments noted. Subsection 4.5.2.1.1, Marine Mammals (Excluding Gray Whales), discusses the impact of the alternatives on marine mammals, including ESA-listed mammals such as Southern Resident killer whales and humpback whales.
1215	e_Hansen_7-30-15	There is no way to kill a whale quickly and humanely. Even with a high caliber rifle that is meant to decrease time to death, these sentient mammals take several minutes to hours to die and it is most certainly an agonizing, painful and terrifying death.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1216	e_Hansen_7-30-15	When the treaty of 1855 was written, whales were thought of as little more than large fish species that were only valuable for human use and consumption. Since then we have learned much more about whales and their intrinsic value, not as a resource but as sentient intelligent animals. Their social structures and communication abilities are still poorly understood but could be very complex.	Comments noted.

Sort #	Commenter Code	Comment	Response
		They have large well developed brains and possess the ability to feel pain, loss and grief.	
1217	e_Hansen_7-30-15	While I am supporttive of indigenous peoples trying to regain their culture and sense of community in general, I feel very strongly that it is wrong to knowingly cause a sentient animal pain and terror and to take its life simply for the sake of culture. There is much we still need to learn about every aspect of gray whale life and social structure before we can and should consider the proposal to resume whaling. I understand that you chose not to consider the alternatives brought forth by individuals during the last comment period. But I strongly urge you to reconsider that and to encourage and help the Makah Nation to establish a whale watching business using a traditional whaling canoe. In this way they can revive and teach visitors about the customs and culture of whaling without harming the whales. Thank you for you consideration. Cindy Hansen	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1218	e_Hart_6-3-15	Steve, First off the Makah Tribe does not need to hunt whales for subsistence period! If they are willing to give up their hamburgers, steak and other meats then I would agree with that statement of subsistence. Ceremonial I have no problems with if the alternatives are modified.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.
1219	e_Hart_6-3-15	As a professional biologist I don't agree completely with all the alternatives presented other than no action, which I know will not be chosen so I will address the other alternatives. If I had to choose an alternative I would choose alternative number 5 with some modifications. The Makah Tribe would have to use only wooden canoes and primitive weapons to hunt and this would strongly support the ceremonial request of the EIS. This methodology would also reduce or minimize the impact to the WNP and PCFG population. If a whale is struck it counts against the total for the 5 year period. With writing many EIS's over my career I know that none of the suggestions above will be used or even considered as that is the purpose of the EIS to tell the public about the impacts and how the plan is made to minimize impact as much as possible. I fully understand the Makah's treaty rights and none of the above suggestions go against that treaty. Thanks for listening. V/R George Hart 16158 NW Church RD Seabeck, Wa 98380	Comments noted.
1220	e_Hasbrouck_6-6-15	Killing of whales should be prohibited. Whales need protection. There are many examples of things humans once did, which in this day and age no longer make sense. Killing whales is one of those things. Alisa Hasbrouck Port Angeles, WA	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1221	e_Haut_5-9-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1222	e_Haut_5-9-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.
1223	e_Haut_5-9-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1224	e_Haut_5-9-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	ENP gray whale population in the face of climate change and other threats.
1225	e_Haut_5-9-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1226	e_Haut_5-9-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1227	e_Haut_5-9-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Lisa Haut 463 orange Street New Haven, CT 06511-3817	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1228	e_Hayward_7-14-15	Dear Sir / Madam, Whaling is a disgusting practice. There is no quick and painless way to kill a whale. Japan has faced worldwide criticism for continuing to hunt whales and the US have been one of their biggest critics. Why on Earth would the US even contemplate whale hunting? Please rule out whale hunting once and for all. Join compassionate countries and realise the cruelty caused to these majestic, intelligent animals. Yours sincerely, Michelle Hayward	Please see the responses to frequent comments # 1 regarding the humaneness of a hunt and 3.

Sort #	Commenter Code	Comment	Response
1229	e_Henault_3-6-15	The Makah are a great people. Great people do not need to kill great animals to recreate their ancestral ways. Time has moved on. They have many other choices for subsistence living, if that's what they choose to do.	Comments noted.
1230	e_Henault_3-6-15	Please, do not allow the Gray Whale hunt by the Makah. Whales have so much to overcome to live their lives the way nature means whales to live.	Comments noted.
1231	e_Henault_3-6-15	The method used to hunt whales is cruel and painful to the whale. This is not about the numbers of Gray Whales being able to absorb the loss of whales by hunting...this is about the life of one whale, the whale they will try to kill. Thank you. Jan Henault Brookings, Oregon	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1232	e_Hendershott_7-15-15	To Whom It May Concern: I would like to talk about the California gray whales. They are unable to speak for themselves, at least not in a human language. Every spring, in Laguna San Ignacio, Baja California, people participate in viewing and interaction with California gray whales in their mating and birthing areas. Whale mothers and their calves hear the sound of the small boat motors and respond by coming to the boat in anticipation of the love and affection from the people onboard. The boat and the sound of the motor lure them to approach to interact with people who mean them no harm. I know this because I have been there with them. I have also swum amongst humpback whales and know whales to be highly intelligent and respectful toward people. They stopped the movement of their fins and tails to avoid hurting us when currents drew us close to them. When these gray whales migrate toward Alaskan waters, along the Washington coast, they have not forgotten the friendship that the boats and the sound of motors meant in Mexico. They come directly to the boats, expecting communication with friendly people. During the last approved Makah whale hunt, the whale came right to the hunters' boat and, instead of receiving friendship, received a harpoon. Many people, including my own family and friends, wept for the cruelty of this betrayal followed by an easy kill.	Comments noted.
1233	e_Hendershott_7-15-15	The most recent illegal killing of a resident gray whale by Makah tribal members was cruel and brought great sorrow to those who knew that the whale suffered for hours before sinking to its death. These whales are members of a whale family. They are bonded and highly communicative. When a member is taken, it is felt by the others.	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1234	e_Hendershott_7-15-15	Doing something in the name of tradition is not a valid reason. Some traditions have proven to be immoral and have been left behind in history. Slavery is a good example. In the case of the Makah hunt, the hunt is much different than the hunt of their ancestors. In part, the whale is spoiled by a large boat for the hunters in the smaller boat. I have heard from a reliable source that the last legal whale	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		killed by the Makah was not appreciated and treated in a respectful manner by all members of the tribe. If this is true, this would be even more cause to discourage future whaling by the tribe. There is no good reason for this hunt. It is not necessary for the lives or health of tribal members. It is unfair and immoral in light of the socialization to people in Baja. We feel that whaling should be remembered as a tradition of ancestors, not of current tribal members. We strongly encourage a “no action” vote on this issue. Thank you.Tracy Hendershott Kirkland, WA	
1235	e_Hendren_ 3-16-15	With all respect this is NONSENSE. 12 primary reasons for opposing the plan to slaughter whales by the Makah: 1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1236	e_Hendren_ 3-16-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1237	e_Hendren_ 3-16-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name “Yabis” (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1238	e_Hendren_ 3-16-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1239	e_Hendren_ 3-16-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
		and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	precedential effect of a waiver internationally and domestically.
1240	e_Hendren_ 3-16-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
1241	e_Hendren_ 3-16-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1242	e_Hendren_ 3-16-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1243	e_Hendren_ 3-16-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1244	e_Hendren_ 3-16-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1245	e_Hendren_ 3-16-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1246	e_Hendren_ 3-16-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	
1247	e_Hendren_ 3-16-15	12. Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. On 3/13/15, 5:07 PM, "Jeff Fisher - NOAA Federal" <jeff.fisher@noaa.gov> wrote: Dear Marie, thank you for your e-mail and for sharing your concerns. I have forwarded them to the project staff that are handling NOAA Fisheries' recent release of the Draft Environmental Impact Statement (DEIS) regarding the Makah Tribe's request to hunt gray whales. The Makah tribe historically hunted gray whales for subsistence and ceremonial purposes, relying on their treaty right of whaling. In 2004, the U.S. Court of Appeals for the Ninth Circuit ruled that in order to engage in these hunts, the Makah must also comply with the subsistence take provisions of the Marine Mammal Protection Act (MMPA). The Makah are complying with the regulatory process under the MMPA. They have prepared a request to NOAA Fisheries to authorize these hunts under the Marine Mammal Protection Act, and NOAA Fisheries has now finished a draft environmental analysis of the potential impacts of granting that request. This draft EIS, prepared by NOAA Fisheries, evaluates several alternatives for action, including an alternative that would authorize the tribe to take up to five whales per year off the Washington Coast under certain limitations, and an alternative that would continue to prohibit the Makah from hunting gray whales. This draft EIS replaces a 2008 draft that NOAA Fisheries set aside in 2012 after new scientific information became available. The draft EIS is the first step in a robust public process that could eventually lead to authorization for the tribe to resume its ceremonial and subsistence hunts. This draft EIS is the public's opportunity to look at the alternatives that have been developed and let us know if NOAA Fisheries has fully and completely analyzed this action. Your comment e-mail has been added to the record. The next steps in the process that could lead to resumed tribal hunts include public meetings on the draft EIS, finalizing the EIS, and then rulemaking with public comment. Should you wish to track the issue moving forward, we have information posted on our website at: h p://www.westcoast.fisheries.noaa.gov/protected species/marine mammals/cetaceans/whale hunt.html If you would like clarifying information,	Comments noted.

Sort #	Commenter Code	Comment	Response
		please feel free to contact Steve Stone, who is cc'd on this response. Sincerely yours, -- Jeffrey P. Fisher, PhD WA Coast/Lower Columbia Branch Chief NOAA-NMFS 510 Desmond Drive SE Lacey, WA 98503-1263 (360) 534-9342 On Wed, Mar 11, 2015 at 8:52 AM, Marie Hendren Good day, I wasn't sure exactly who to send this to. If you aren't the right person please forward it. Wrote: The Mahak Tribe in NW Washington State is planning on harvesting 24 whales over a period of 6 years with the blessing of NOAA. H p://www.upi.com/Science News/2015/03/09/Washingtons-Makah-Indian-tribe-co uld-soon-hunt-gray-whales/6361425917545/<h p://www.upi.com/Science News /2015/03/09/Washingtons-Makah-Indian-tribe-could-soon-hunt-gray-whales /6361425917545/> This is not 100 years ago. Time does not move backwards and feeling guilty about the past does not make up for the future. These animals are under many forms of stress in their environment as I'm sure you are aware. In addition to the added stress of the Navy gearing up to take over the Washington Coastal waters it's hard enough for them to find enough to eat to survive. I have alerted various whale organizations and other animal activist groups to this issue. I am completely against trophy hunting in any form and hoping the Tribe is not looking to make this into an adventure profit making venture. It's really surprising the Makah Tribe is not more sensitive to the extreme issues marine animals are facing and doing something to help these creatures instead of killing them. Instead, the Tribe wants to roll back the present by attempting to recapture some romantic vision of their past. Marie Hendren A Concerned Citizen of Washington State -- Jeffrey P. Fisher, PhD WA Coast/Lower Columbia Branch Chief NOAA-NMFS 510 Desmond Drive SE Lacey, WA 98503-1263 (360) 534-9342	
1248	e_Hight_4-27-15	Hello, I am a Washington State resident and I strongly oppose reopening of the Makah whale hunt. While I respect Native American culture, the killing of a highly sentient being for any reason is wrong.	Comments noted.
1249	e_Hight_4-27-15	I just visited Neah Bay a few weeks ago and visited their cultural museum. If they want to live a life of tradition, then they should do it 100%, not pick and choose what part of their tradition they wish to live. How traditional is it to use motor boats and machine guns? Please add my name to the list of opposers. I live in Everett, WA in a neighborhood where I can walk to a park overlooking Possession Bay, and if I'm lucky, (in the spring) I can see the blows of visiting Gray whales while they feed on shrimp. Sincerely, Shelby Fifield	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1250	e_Hill_3-13-15	To Whom It May Concern,I wish to express my opposition to the resumption of whale killing by the Makah tribe. I am frankly disgusted that NOAA does not simply have the courage to say NO to this barbaric practice once and for all. Every	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling

Sort #	Commenter Code	Comment	Response
		group of people, whatever their background, can point to customs and behaviors that have been abandoned as not suitable in the modern world. This “tradition” is one of those things that must be left in the past.The idea that resuming the killing of whales is some kind of panacea to cure all of the ills of Makah life, or that it is necessary in some spiritual way is, to be honest, a load of nonsense. All of the ceremonies and activities that are supposedly held in connection to the whale hunt could just as easily be held for a ceremonial hunt in which whales are not actually harmed, or for a whale watch.	tradition and # 15 regarding the use of modern weapons.
1251	e_Hill_3-13-15	The fact that they want to kill the animal rather than simply honor the tradition makes this whole thing feel like an elaborate ritual of animal sacrifice. A ritual made all the more sadistic given what we now know of the complexity and intelligence of the victims of this practice, the whales. The modern world cannot open the door to this kind of barbarism, NOAA cannot open the door to this kind of barbarism. The resumption of whale killing by the Makah is both an assault on the environment and an insult to anyone who cares about the environment. Makah whaling, just like Nantucket whaling, is now, and MUST forever remain, a thing of the past. Regards James Hill	Comments noted. Please also see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1252	e_Hinds_5-2-15	Do not grant any permits to kill any gray whales in US waters. The populations are too low to allow this in our waters.David Hinds Ph.D. Professor of Biology Emeritus CSUB	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals. See Subsection 1.1.3, Summary of Gray Whale Status.
1253	e_Hopp_5-24-15	Regarding the 2015 Makah whaling DEIS: I support Alternative 2, the Tribe’s Proposed Action alternative, and I strongly urge rapid approval of whale hunting for Makahs in order to provide a normal healthy diet for Makah adults and for growing Makah children. The key issue, to me, is the as-yet unknown nature of Makahs’ requirement for nutritional components found in whale meat and blubber. It is clear from reading the scientific studies listed in this DEIS, that any Makah need for whale products in the diet is almost entirely unknown scientifically. While opponents of Makah whaling may wish to cite this lack of evidence as a reason to continue the moratorium on whaling, the opposite is true in any fair, scientific, and logical consideration of the facts: given a lack of information on the health effects of whale products in the Makah diet, it should be absolutely incumbent on decision-makers to allow Makah whaling until such time as it can be proven they do not need whale products. If we are to give the	Comments noted.

Sort #	Commenter Code	Comment	Response
		benefit of the doubt one way or the other, we should favor human health over whales. The DEIS touches too lightly upon some points that need much more emphasis. In particular, the subject of “traditional subsistence” is inadequately defined. If subsistence means to eat a healthy diet, then Makahs may have been denied a healthy diet by the Ninth Circuit Court of Appeals 2004 decision, and are still suffering from that lack of healthy food for Makah adults and more importantly, Makah children. Furthermore, in several sections, the DEIS fails to adequately emphasize the key human health aspects of dietary whale meat and oil. For instance, Section 1.3.2 Need for Action, states: “The Makah Tribe’s need for the action is to exercise its treaty whaling rights to provide a traditional subsistence resource to the community and to sustain and revitalize the ceremonial, cultural, and social aspects of its whaling traditions.” However, the term “traditional subsistence” in this statement obscures the fact that what is at stake is a food Makahs have adapted to for thousands of years. It is unknown to what extent any Makah individual requires whale meat and oil to be healthy. However, differences between Makahs and Americans in general as regards diet and health are well established. For example, consumption of alcohol is tolerated by most non-Makah Americans and indeed can increase life expectancy for non-Makahs. For Makahs, however, alcohol in any amount is toxic. What if whale meat and oil are also differently metabolized by Makahs? If so, then Makahs may benefit from whale-based food in a way different from non-Makahs. The differences between Makahs and non-Makahs regarding alcohol metabolism have been scientifically documented at the DNA level, but any differences in needs for whale meat and oil are absolutely in the “unknown, to-be-determined” category. If eventually a clear need for whale meat and oil is established for Makahs, then someday the whaling moratorium now in effect will appear in a different light. It will represent a case of health-threatening discrimination against Makahs, and the anti-whaling advocates involved in the decision may be viewed as racist, and perhaps even genocidal. The aforementioned points are not peripheral to the debate over Makah whaling. They are central. We should not err on the side of whales. If we err at all, we should err on the side of human beings. If the Ninth Circuit Court and the anti-whaling advocates continue to have their way, then it is very possible that harm will to be done to growing Makah children, by denying them the whale-based nutrition their bodies are adapted to. This decision by the court should be overturned immediately based on the human health issue of providing an adequate diet for a whale-eating people, the Makahs. I am an expert in these matters, and not just voicing conjecture. I have a	

Sort #	Commenter Code	Comment	Response
		PhD in Biochemistry from Cornell Medical College, one of the nation's top schools studying human nutrition. I have decades of experience in DNA and molecular biology studies, and I was for years a Vice President in the biotechnology industry, taking pharmaceutical products through FDA approval and marketing them for human health needs. I understand human clinical research, and I know that the Makah need for whale products in the diet has not yet been studied in any significant or reliable way. Under the circumstances, I find it unconscionable that the Ninth Circuit Court saw fit to block a whale-eating people from eating whale. Above are my main points. Further detailed responses follow: Section 3.16.3.1 Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods, correctly states that: "Historically, whale oil and whale products were important nutritional components of the diet of the Makah Tribe." In a lengthy discussion, this section lists what is known about the nutritional value of whale compared to other foods. However, at several points the discussion emphasizes that inadequate data exist, both from lack of testing, and from inadequately small sample sizes. Given that Makah health hangs in the balance, this inadequacy of data is unacceptable. Furthermore, the overall weight of evidence is in favor of whale consumption contributing to human health. What is missing from this discussion is whether there are other nutritional substances in whale meat and oil that have not even been discovered, let alone studied adequately. The discussion makes it clear that the study of nutrition in whale-consuming people is an almost untouched field of endeavor. Therefore, and notion that Makahs may substitute other seafoods for similar health benefits, is only just speculation and is not supported statistically. Furthermore, given our lack of knowledge, there is a real danger that denying Makahs whale food may be harming them on a current, ongoing basis. Section 4.16.3.1, in assessing the health effects of Alternative 1, No Action stated: "Overall, there is insufficient information to conclude that the lack of fresh whale products under the No-action Alternative would be expected to negatively alter current dietary conditions for any tribal member." My point: what if future information proves lack of fresh whale products is indeed harmful to Makahs? This statement is then indefensible and harmful to Makahs. In the absence of information, it is essential to err on the side of humans over whales. Therefore, the No Action alternative is unacceptable, with an unmeasured level of risk to Makahs. Section 4.16.3.2 assessing the health effects of Alternatives 2, 3, 4, 5, and 6, stated: "It is impossible to predict the precise changes in [...] the nutritional composition of the Makah diet if they have the opportunity to	

Sort #	Commenter Code	Comment	Response
		consume freshly harvested whale products." My point: this statement appears to accept the lack of information. The lack of information is unacceptable. Given the lack of information, it is absolutely incumbent upon decision-makers to err on the side of humans over whales and allow Makah whale hunting to assure that any unknown needs for whale nutrients are met. Finally, in my view, the current situation is the opposite to that which normally prevails in the American judicial system. Usually courts consider the preponderance of evidence before issuing a ruling. In this case, Makah rights have been taken away in a situation where their need for whale products in their diet is almost entirely unknown, and what little is known favors them. In that light, the entire EIS process is moving backwards. The No Action Alternative should be to allow whaling, with whaling bans only being considered based on clear evidence of a lack of harm to Makahs. But the Ninth Circuit Court set this backwards process in motion with its whaling ban. The framers of this document should, at the least, address this iniquity by including a strong statement of clarification. For instance: "Given that Makahs have consumed whale for thousands of years, the idea that they are adapted to a diet of whale and therefore have special needs for a diet of whale, is a very real concern. It is quite possible that the current ban on whaling is harmful to Makah health. Given the uncertainties and chance for harm to Makahs, their right to hunt whales should not be denied any longer." Respec tfully, Thomas P. Hopp, PhD Seattle	
1254	e_Horton_7-31-15	To the Makah Tribe, Don't you respect our wildlife? They are not yours to take. They are not a natural resource. I can see where this tradition had a place at one time. It doesn't any more. These intelligent, sentient beings should not have to suffer at your hands because the Makah tribe will not adapt. Leave them alone! Its disturbing to think that anyone, especially in Washington state, should think it appropriate that they can hunt any whale. Haven't humans done enough damage? I'm sorry that you are paying for something that your tribe probably didn't do. The Europeans decimated certain populations and took others for the aquarium trade.	Comments noted.
1255	e_Horton_7-31-15	Even if the gray whale population is doing better, it is an act of savage brutality to hunt them, that should not be condoned.	Comments noted.
1256	e_Horton_7-31-15	To see such a great company such as NOAA even propose this makes me lose faith. Don't return to the dark days where we are the hunter and the whales are our prey. Move forward to a time where no whaling anywhere is condoned. Be a leader in the great movement and show the world what Washington State tribes set the bar at! The Makah Tribe would lose all respect in my eyes if this were to	Comments noted.

Sort #	Commenter Code	Comment	Response
		occur. Thank you for your time, and your consideration. Most sincerely, Lindsey Horton	
1257	e_Howell-Owasso_3-13-15	I respect our Native Americans and realize they had many rights taken from them and the Treaties need to be honored. HOWEVER.. I think we need to offer alternatives to a hunt as they don't NEED the whales to sustain themselves. I respect culture.. I respect them. So, instead of saying NO to them, why not offer them an alternative way to to honor this culture instead? Educational storytelling? Lots of Native Americans don't DO all their culture anymore simply because times have changes, but they honor it still through other ways. Maybe showing them they can educate with whale watches from their reservation? They can still tell about their hunts and show how they did it.. but instead they can show respect of the animal in a conservation way. Not that I'm trying to tell tribes what and what not to do..	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1258	e_Howell-Owasso_3-13-15	I'm sure 160 years ago there were many more nutritious & 1000s more in #, now they would have plastics injestion, Mercury poisoning, probably safer not to eat them now!Save the WhalesTommy Howell-Owasso	Please see the response to frequent comment # 11 regarding safety of gray whale products for human consumption.
1259	e_Howerton_3-17-15	Executive Summary and the Purpose and Need: Summary of Proposed Action do not appear to agree on number of whales to be harvested, number per year to be harvested, and period of time to harvest. The Alternatives talk about 24 whales over a 6 year period and no more than 6 whales taken in any given year. The 1.0 Purpose and Need: Summary of Proposed Action talks about 20 whales over a 5 year period and no more than 5 whales taken in any given year. See also Table 1-1. Dr. BJ Howerton, MBA -- Dr. BJ Howerton, MBA Northwest Regional Office Environmental Services Mgr. 911 N.E. 11th Avenue Portland, OR 97232-4169 Telephone: (503) 231-6749 Fax: (503) 231-2275	Subsection 2.3.2.2.2 (Numbers of Whales Harvested (Annual and 6-year)) of the DEIS explains the basis for the transition from 5-year to 6-year catch limits.
1260	e_Hudnall_5-11-15	Comments given orally at the April 29th, 2015 Port Angeles meeting: James Hudnall speaking. I am a charter member of the Society for Marine Mammalogy, but I am not representing that organization in any way tonight. Please note that I am here to urge continuation of the DEIS No-Action Alternative which continues the moratorium established in 2004: Option 1. NMFS is asking us if everyone's wishes can be accommodated by allowing only a few offshore migrating whales to be killed. Multiple problems exist with this approach to the issue. First and foremost, there is an ethical issue, very similar to that which relates to the killing of African elephants, but in this case the whales don't trample and eat the local inhabitants' crops. The world has learned that elephants are too precious alive to be legally killed. Gray whales, like elephants, are large-brained sentient creatures	Comments noted.

Sort #	Commenter Code	Comment	Response
		also too precious alive to be killed, and they now comprehend a modern unwritten treaty between humans and themselves in which humans have agreed and demonstrated a will not to slaughter or harass. Violating this unwritten treaty will undermine and subvert the modern human global ethic.	
1261	e_Hudnall_5-11-15	Ethics aside, there are several very serious scientific reasons why gray whales should not again be killed by humans. These fall generally under two headings: unknown future impacts on gray whales from rapid climate change and possible future population die-offs similar to the unexplained 1999 die-off of approximately one-third of the current population. Climate change is causing increasingly rapid changes in the seas and food supplies of the gray whale. As researchers Wayne Perryman and David Weller wrote in 2013: "The impacts of climate change in the Arctic environment are just beginning to be tracked, and are far from being understood. Projections into the future of how this ecosystem will continue to change are even more challenging. ...only continuous long-term research and monitoring will help us to understand possible population level effects." (Whalewatcher Magazine, Fall, 2013, p. 16.) We simply do not know enough about future impacts of rapid climate change to diminish the gray whale population by even a single whale.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1262	e_Hudnall_5-11-15	The scientific problem related to possible future unpredicted gray whale die-offs is that no one can be sure if there will be enough gray whales in the future to adequately sustain a genetic stock without knowing what causes a gray-whale die-off. In 1999 NMFS declared an Unusual Mortality Event (UME) when the gray whale population crashed from just over 21,000 individuals in 1997-98 to under 16,500 whales in 2000-2001. Up to one-third of the adult gray whale population was lost without any forewarning by whale scientists. Subsequently, no satisfactory explanation of the die-off has ever been put forth. With so little human knowledge of the problems gray whales face, we should not allow one unnecessary gray whale death.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1263	e_Hudnall_5-11-15	Aside from future potential problems the gray whales may face without any present human understanding, there is a current problem associated with the proposed kill which NMFS cannot resolve. The killing of any gray whale along this coast may cause the death of a "friendly" gray accustomed to approaching skiffs and people for play and touching, or at the very least, the killing of a gray whale which summer-feeds south of the Bering Sea. Some of these whales feed just across the Strait from Cape Flattery and up the coast of Vancouver Island. Referred to by NMFS as the "Pacific Coast Feeding Group (PCFG), these whales can be identified by photo, but NMFS cannot guarantee that in the heat of a hunt	Comments noted. All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.

Sort #	Commenter Code	Comment	Response
		such a whale will be recognized and spared. These whales are the ones which bring joy to summer visitors and money to the whale-watching industry.	
1264	e_Hudnall_5-11-15	In overview, we have learned about the sentient and intelligent nature of the large-brained elephants, but we are slower to recognize and respect the thinking processes of gray whales, perhaps because they are aquatic beings. From what we do know, they care for their young as carefully as we do, are very clever in their navigation, feeding and fighting strategies, and are quick to analyze bays and inlets for safety. Thank you. James Hudnall	Comments noted.
1265	e_Huelsbeck_7-28-15	Dear Mr. Stelle, I write in strong support of the Makah Tribe's preferred alternative. Whaling is a cornerstone of Makah Cultural identity. It is important in subsistence, in social organization, and in the spiritual life of the Makah People. Taking a limited number of whales per year will not affect the Gray Whale population. Any whales not harvested as part of the Makah quota can be harvested by the Chukota Natives. The probability of killing an endangered WNP whale is essentially zero. The probability of killing a PCFG whale is very small, too small to harm this potential population except in the most wildly speculative scenarios. However, should the extremely unlikely happen, IWC annual review and MMPA would prohibit the NMFS from issuing permits to the Tribe even if the waiver is granted. In short - much good for the Makah People will follow if alternative 2 is selected, with no risk to the Gray Whale populations. Alternative 1 perpetuates the attack on Makah Culture and Makah treaty rights. Alternatives 3, 4, 5, and 6 move whale hunting further away from traditional Makah Culture. Sincerely, David R. Huelsbeck	Comments noted.
1266	e_Huey_4-22-15	I fully support Traditional Hunting of Gray Whales by the Makah Tribe. Traditional Hunting is cedar canoes, handcrafted harpoon, wooden paddles, traditional clothing, and towing the carcass into shore without motorized assistance. Traditional Hunting is not checking the weather on the web before the hunt, wearing PFDs, clothing not made of materials available 200 years ago, cellphones, recovery beacons in case of capsizing, Coast Guard rescue, corrective eye glasses, heariing aids, etc. Thank you for the opportunity to comment.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1267	e_Huntington_5-2-15	I am writing to express my strong opposition to issuing the Makah a permit to kill up to five gray whales a year for "cultural reasons." As one who has had close contact with gray whales, touching them and looking them in the eye at very close range, I am aware that all humans have a "cultural" and moral responsibility to protect this species. Today there is unquestionably an incredible interspecies connection between humans and gray whales--call it cultural, if you will, on a grand scale. This should supersede any historical "cultural" relationship that your	Comments noted.

Sort #	Commenter Code	Comment	Response
		Makah may have had. Please, can''t we humans demonstrate our intelligence by doing the right thing and denying this permit? If not, I will truly be embarrassed to call myself human. Sincerely, peace, Wendy ~~~~~~~~~~ Wendy L. Huntington	
1268	e_Irwin_4-20-15	I see absolutely no justification for issuing permits to kill gray whales. I just returned from being in San Ignacio Lagoon, a breeding ground of these magnificent creatures. Anyone who has looked in the eyes of these gentle (and forgiving of humans) creatures will find it unconscionable to kill them.	Comments noted.
1269	e_Irwin_4-20-15	Furthermore, it is no longer essential to the way of life or sustenance of Native Americans or First Nations people to do so. Please deny any requests to hunt gray (or any other) whales. Sincerely, Carol Irwin	Comments noted.
1270	e_Irwin_4-27-15	I am writing to express my strong opposition to your issuing the Makah a permit to kill up to five gray whales a year for "cultural reasons." As one who has had close contact with gray whales, touching them and looking them in the eye at very close range, I am aware that all humans have a "cultural" and moral responsibility to protect this species. Today there is unquestionably an incredible interspecies connection between humans and gray whales--call it cultural, if you will, on a grand scale. This should supersede any historical "cultural" relationship that the Makah may have had. Please, can't we humans demonstrate our intelligence by doing the right thing and denying this permit? If not, I will truly be embarrassed to call myself human. Sincerely, Carol Irwin	Comments noted.
1271	e_Irwin_5-5-15	I have already submitted one comment to you on this issue, and would like to add the following. How many wrongs can make a right? Native Americans in the United States, as well as the First Nations in Canada and other indigenous peoples around the world, have been treated horrifically. How can anyone argue with that? But can we assuage our collective guilt by permitting the killing of gray whales by the Makah in 2015? That won't work for me, and I doubt that it will work for others. The pain I feel for what was done to native peoples runs too deep. It seems to me that we must come up with a 21st century solution, not driven by guilt but by science. Is it not true that Native Americans have long seen themselves as living in harmony with the natural world, as having a deep respect for the earth? For having this wisdom, they have been deeply admired. Native Americans have understood that people must use earth's resources wisely so they can be enjoyed by generations to come, and they practiced this belief by taking only what they needed from the earth. "Treat the earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our Ancestors, we borrow it from our Children." Ancient	A non-lethal hunt alternative was considered in the DEIS but eliminated from detailed analysis (see Subsection 2.4.1, Non-lethal Hunt) because its effect on the human environment would not be different from the No-action Alternative and its analysis would provide no additional information for the public or decision-maker.

Sort #	Commenter Code	Comment	Response
		Indian Proverb. Chief Seattle, There was a time when taking only what they needed from the earth was true for the Makah who hunted gray whales. I can't help but think, however, that a Makah child today, who is surely exposed to conservation issues in school and in the media that abounds, will be profoundly affected by the taking of a whale life, when they will be wise enough to know that it is not necessary for physical sustenance. Not now in 2015. Will the act of killing a whale to honor the Makah cultural tradition feed their collective souls? I doubt it. My dream would be that the Makah could transform their strong cultural connection to gray whales into a new paradigm in which they are stewards and protectors of this magnificent animal. If only they could be exposed to whales in a new way, they way some of us have had the luxury of being exposed. For example, if they could be involved in doing migration whale counts off the coast, or be taken out to see whales at close range. Whale watching rather than whale killing. Get the children involved and have them become spokespersons for this whale that has been such a part of their culture, not by killing it, but by protecting it. I know this sounds like pie-in-the-sky, but I have had some experience in teaching wildlife conservation and know that the way to achieve change is often through the children. This transformation would take some hard work and education and cooperation. "Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect." I think a first step would be to deny issuing permits to the Makah tribe to kill gray whales. Would NMFS or NOAA would be in any position to implement any of my suggestions for ways to re-direct the Makah tribe's involvement with gray whales? Most sincerely, Carol Irwin	
1272	e_James_3-18-15	The oceans and the sea creatures are under attack on so many levels today. Traditions can be taught and remembered. When it comes to killing and risking a species, traditions should not take precedence. Many cultures move on and recognize when a tradition is destructive. It appears that the Makah did move on for quite some time. They should tell stories, learn about how their ancestors lived, but they should not start up a tradition that has no place in this world today. The oceans are sick, they are polluted, and there are many that are over fishing the seas. All cultures must change with the environment or risk destroying their world.	Comments noted. Please also see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1273	e_James_3-18-15	Culture does not outweigh the environment, the fact that most whale has high levels of mercury, and there may be a risk moving forward from the Japanese Nuclear Plant disaster.The fact that many of the grey whales species were over	Comments noted.

Sort #	Commenter Code	Comment	Response
		hunted and are extinct now or nearly depleted. The Eastern North Pacific grey whale is finally doing better. Let's not undo their recovery and lose our final species. They are facing a very hostile, unhealthy environment going forward. Hunting should not be allowed.Sincerely,Joy James Buffalo, NY 14217	
1274	e_James_5-26-15	The oceans and the sea creatures are under attack on so many levels today. Traditions can be taught and remembered. When it comes to killing and risking a species, traditions should not take precedence. Many cultures move on and recognize when a tradition is destructive. It appears that the Makah did move on for quite some time. They should tell stories, learn about how their ancestors lived, but they should not start up a tradition that has no place in this world today. The oceans are sick, they are polluted, and there are many that are over fishing the seas. All cultures must change with the environment or risk destroying their world. Culture does not outweigh the environment, the fact that most whale has high levels of mercury, and there may be a risk moving forward from the Japanese Nuclear Plant disaster. The fact that many of the grey whales species were over hunted and are extinct now or nearly depleted. The Eastern North Pacific grey whale is finally doing better. Let's not undo their recovery and lose our final species. They are facing a very hostile, unhealthy environment going forward. Hunting should not be allowed. Sincerely, Joy James Buffalo, NY 14217	Comments noted.
1275	e_Jenny_K_7-29-15	It is not necessary and we need to protect these beautiful animals!!!! Endangered is endangered, no matter who wants to hunt them .... Please stop The great pleasure of a dog is that you may make a fool of yourself with him and not only will he not scold you, but he will make a fool of himself too. - Samuel Butler A dog is not almost human, and I know of no greater insult to the canine race than to describe it as such. - John Holmes	Comments noted.
1276	e_Jensen_3-7-15	Please do not allow the tribe(s) to continue or reinstate hunting whales. It is an outdated practice. I don't think it matters that it is for subsistence and ceremony; those are such old needs and traditions.	It is up to the Makah Tribe, as a sovereign nation, to decide which traditions it continues or revives, within the bounds of the law.
1277	e_Jensen_3-7-15	Whales are so majestic and such an icon of the PNW. Animals cannot speak for themselves; we must be their voices. This practice is inhumane and unnecessary. Thank you, ~Jocelyn	Comments noted. Please also see the responses to frequent comments # 1 regarding the humaneness of a hunt and 3.
1278	e_Johnson_3-7-15	To Whom it Concerns @ NOAA.GOV: My name is Russell Johnson. I am a member of the Lower Elwha S'Klallam Tribe of Port Angeles Washington. I am on the Hunting Committee Board for our tribe and have been for 12 years now. I am 55	Comments noted.

Sort #	Commenter Code	Comment	Response
		years old and have been hunting for the past 35 years. With that I am writing to you in regards to the Makah People of Neah Bay Washington. They are wanting to hunt Grey whales again off the coast of their land. As stated in a local paper the Makahs voluntarily gave up the right at the time to hunt whales because of the decline in population. The tribe was not responsible for the decline in the whale population at that time. White whalers of the time were decimating the population of all whales then. Since that time the grey whale population has recovered to an extremely healthy population that migrates still past the Makah's home. So, being a hunter and also being active on wildlife management with my tribe, I believe there is enough whale population to validate Action 2. There should be no problem harvesting 5 whales a year. It should be done the way it was in 1999. First strike out of a canoe by a tribal member then killed as humanly as possible and retrieved as fast as possible also. My opinion is that alternative 2 is the best choice for the Makah People. Please allow them to hunt once again and take pride in themselves and their culture. They are at the "End of the World" where they live and the Whale provides them with food, culture and a Spirituality that is a tremendous boost to the people there. Thank you for your time. I attended the celebration when the whale in 1999 was harvested and the Makahs celebrated with everyone what they had done. It was an Incredible experience and whale is a delicious meal. Russ Johnson PO BOX 1047 Kingston WA 98346	
1279	e_Johnson_3-11-15	This is an urgent message to stop the hunting of the grey whales!!! We simply have NO Right to massacre these creatures. We are to be stewards of the sea not destroyers!! Kathleen Johnson 5200 Lincoln Drive Minneapolis MN 55436	Comments noted.
1280	e_Johnson_7-15-15	Abysmal in this day and age I have to write emails to ask you to PROTECT AND NOT ENDANGER ANY LONGER....this is outdated and if it is called Tradition IT IS WRONG TRADITION ...HOW LONG DOES THE HUMAN RACE HAVE TO IGNORE POLICY THAT IS COMPLETLY OUTDATED AND DESTROY OUR EARTH AND EVERYTHING IN IT!!!!!!!!!!!!!!!!!!!!!!!!!!! Sincerely Julie Johnson	Comments noted.
1281	e_Karen_3-11-15	STOP THE ASSAULT ON OUR PLANET! You will be held accountable, you can never escape YOUR karma.....	Comments noted.
1282	e_Kastel1_7-18-15	My family and I support Alternative 1, the no-action alternative. The Makah Tribe does not have a subsistence need for whales and, therefore, shouldn't be allowed to hunt gray whales. The Makah Tribe cannot demonstrate a continual traditional dependence on whales or whaling and cannot demonstrate either a nutritional or subsistence need for whale meat and other products and,	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
		therefore, doesn't qualify for an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC).	
1283	e_Kastel1_7-18-15	If the United States allows the Makah to whale it will effectively establish a new form of Aboriginal Subsistence Whaling with significant precedential impact to gray and other species of whales if other US Native American tribes or other aboriginal groups around the globe express interests in whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1284	e_Kastel1_7-18-15	The Makah's cultural need to whale is questionable since there is no evidence that a single whale needs to be killed in order for the Makah to continue to celebrate its historical connection to whales and whaling. Aboriginal people around the world continue to honor their past traditions without actually engaging in the practices which may no longer be socially acceptable, legal, or culturally appropriate.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1285	e_Kastel1_7-18-15	Any hunt that results in the potential killing of a resident or Western North Pacific gray whale— populations that are both imperiled—cannot be permitted. With only approximately 209 and 140 whales in these populations, respectively, the intentional killing of a single whale is unacceptable and could be disastrous for those populations.	Please see the responses to frequent comments 16 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1286	e_Kastel1_7-18-15	All gray whales, including the Eastern North Pacific migratory gray whales, are subject to a gauntlet of threats in their summer feeding areas and throughout their migratory corridor from Alaska to Mexico. Such threats include climate change, ocean noise, oil and gas exploration and development, pollution, coastal development, contaminants, by catch, and ship strikes. As some of these threats, like climate change, are completely transforming Arctic ecosystems with unknown short and long-term impacts on gray whales, allowing the intentional killing of any gray whales by the Makah Tribe is biologically reckless.	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1287	e_Kastel1_7-18-15	Whaling is inherently cruel. To quickly kill a moving whale from a moving vessel in a moving ocean is nearly impossible. In this case, given the inexperience of Makah whalers using harpoons or 50 mm shells, there is even less chance that any whale will be quickly or humanely killed.	Please see the response to frequent comment # 1 regarding humaneness of a whale hunt.
1288	e_Kastel1_7-18-15	The National Marine Fisheries Service (NMFS) has failed to consider a reasonable range of alternatives in the Draft Environmental Impact Statement (DEIS). These alternatives include the development of a whale-watching operation and the provision of land, funding, or services that would permit the Makah to humanely reconnect to whales and provide for the social and physical needs of the Makah people.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
1289	e_Kastel1_7-18-15	A nonlethal use alternative such as the development of Makah-operated whale-watching tours would allow the Makah to humanely use and reconnect to the gray whale, bring revenue to the tribe, educate visitors about whales and marine conservation, and introduce visitors to the culture and traditions of the Makah Tribe.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1290	e_Kastel1_7-18-15	NMFS has failed to adequately evaluate the full range of threats to gray whales in the DEIS, as required by federal law. These threats include climate change impacts to their habitat (particularly in the Arctic); ship strikes; contaminants; bycatch (through net entanglements); pollution (including from oil spills and a proposed massive phosphorous mine in Mexico); and ocean noise (including seismic and sonar), in US, Canadian, and Mexican waters.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1291	e_Kastel1_7-18-15	NMFS has failed to properly consider in the DEIS the cumulative impact of past, present, and reasonably foreseeable actions undertaken by federal, provincial, or state agencies or individuals throughout the range of the gray whale, including various activities that NMFS has permitted throughout the gray whale's US range.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1292	e_Kastel1_7-18-15	The Makah Tribe's historic use of whales and the significance of whales to the tribe's culture is important and should be acknowledged, but times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah Tribe's relationship with gray whales should change to one of humane, nonlethal use. DIANE M. KASTEL AND FAMILY WHEATON, IL UNITED STATES	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1293	e_Kastel2_7-18-15	In March, the Nati onal Marine Fisheries Service (NMFS) initiated its latest effort to permit the Makah Tribe of Washington to hunt gray whales by releasing a Draft Environmental Impact Statement (DEIS) for public review and comment. This is an opportunity for you to express your thoughts on the DEIS and the government's efforts to allow the Makah the kill gray whales. We are advocating for the gray whales and opposing the proposed hunt. With the exception of a single gray whale killed in 1999 and another whale killed illegally in 2007, the Makah have not hunted whales for nearly 90 years. Consequently, the tribe cannot demonstrate a subsistence or nutritional need for whaling or whale products. Such a need is a requirement to secure approval from the International Whaling Commission to engage in aboriginal subsistence whaling, and should be a prerequisite for NMFS' approval of the hunt. Despite the absence of this need, this is the fourth attempt by NMFS to authorize Makah whaling since 1997. Previous efforts have either been scuttled by court rulings or terminated by the agency.	Please see the response to frequent comment # 3 regarding the Makah Tribe's cultural or subsistence need for whale products.

Sort #	Commenter Code	Comment	Response
1294	e_Kastel2_7-18-15	The proposed hunt could jeopardize two imperiled populations of gray whales: the resident Pacific Coast Feeding Aggregation and the Western North Pacific, which number only 209 and 140 animals, respectively.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1295	e_Kastel2_7-18-15	While the main Eastern North Pacific gray whale population is much larger (nearly 21,000 animals), they and their habitat are subject to threats like climate change, contaminants, ocean noise, ship strikes, and net entanglement throughout their summering, wintering, and incredibly long migratory range (from Alaska to Mexico), 'and shouldn't be subject to a new threat posed by a hunt.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1296	e_Kastel2_7-18-15	Furthermore, whaling is inherently cruel since it involves trying to kill (using harpoon and bullets) a large, moving animal from a moving boat on a rolling ocean by (in this case) individuals with little to no whaling experience—a sure recipe for cruelty and suffering. DIANE M. KASTEL AND FAMILY WHEATON, IL UNITED STATES	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1297	e_Kate_N_7-15-15	Good morning, It has come to my attention that NOAA is considering allowing whale slaughter to resume in response to a request by the Makah tribe. I am writing as a US citizen, to voice my opposition to allowing this practice to occur. Whaling is not only environmentally damaging and an example of extreme animal cruelty, but also entirely unnecessary. As I understand it, the premise for this request is that whaling is a tradition for the Makah tribe. Simply being a tradition does not in any way give merit to a cruel act. There are a myriad of examples in the world today, of "traditions" that are abhorrent and incomprehensible to most of us here in the US. I don't believe classifying an act such as whaling as "tradition" negates its inherently cruel nature. It is my opinion that whaling should not be permitted in the United States. Our oceans, and the animals in them deserve to be fiercely protected. I hope you will consider denyin'g the tribe's request to resume whaling. Thank you for your time. Respectfully, Kate N.	Please see the responses to frequent comments # 1 regarding the humaneness of a hunt and 3.
1298	e_Keacher_6-11-15	The Makah continue their pursuit to hunt gray whales for "subsistence and cultural" purposes. Gray whales's have made a comeback from near extinction (due to a ban on whaling) however some populations are still endangered. In 1999 the Makah had permission to kill one gray whale and set out for their fist whale kill in 70 years. A juvenile female approached the boat expecting a pleasant social experience as she had experienced during her lifetime and was met with a harpoon ….. the from here is more graphic and disappointing as two 50 mm shots into the whale did not end her life quickly. Another whale was illegally killed in 2007. The Makah who killed that whale were ultimately charged	Comments noted.

Sort #	Commenter Code	Comment	Response
		with misdemeanors while steadfastly maintaining their right to hunt whales and demonstrating a violation of whaling laws. There is no doubt that First Amercan's were given a 'bill of goods' in the treaties and taking of land that occurred at that time. It's the question of amends that stalemates everyone into a chicken or egg quandary and makes it difficult for anyone on either side to move forward.	
1299	e_Keacher_ 6-11-15	Our knowledge of gray whales and their behaviors has changed in the 160 years since the Makah treaty was enacted. Gray whales have close contact with humans at their birthing grounds in Baja California. People in both Baja and Puget Sound enjoy the presence of Gray's, such as Patch, who return to the same waters year after year. What we are facing is a culture clash were the Makah as whalers is being reenacted while the subsistence need no longer exists.	Comments noted.
1300	e_Keacher_ 6-11-15	Alberta Thompson, a Makah elder who opposed the 1999 whale hunt stated that very few of the cultural traditions of a hunt were in the 1999 kill. In fact, the Makah have many cultural requisites that maintain their culture including a continued presence on the ocean for fishing, a beautiful heritage museum and the isolated, but stunningly beautiful northwest coast. Lacking the subsistence necessity but pursuing the killing of gray whales presents the Makah with an economic backlash. In this age of technology the taking of these intelligent social creatures turns the marine sanctuary on the Olympic coast into a 21st century "Killing Coast" that will sabotage even the Makah's best efforts at 'culture' in the modern technological world. We know better ……. and so should they.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1301	e_Keacher_ 6-11-15	This is no longer a simple matter of a treaty right …… it is an indication of whether you have the backbone to 'do the right thing' not just do what has been done before. This is especially true for the Makah, which have pinned all their arguments on a time gone by and in which they are no longer living.I support alternative 1 which is that no changes be made to Makah whaling in Washington's water …… That whaling continue to be prohibited.Respectfully submitted,Susan Keacher good.day@isomedia.com Snohomish County, Washington	Comments noted.
1302	e_Keacher_ 6-11-15	P.S. As a personal comment, I believe this is already a "done deal." When the lead NOAA representative to the IWC is visiting the Makah on the night and time that public comment is being solicited in Seattle, it shows that the permit is mere inches away from handoff and this is just a process, not meant to mean anything in reality.	Comments noted.
1303	e_Keacher_ 6-11-15	If you allow whaling, then I suggest that you also verify and document the eating and usage of all whale meat to account for the 'need' as has been maintained by the Makah. This would require a full time non tribal affiliated person to	Regulations governing a Makah hunt would describe various enforcement-related aspects, including take

Sort #	Commenter Code	Comment	Response
		document and account for every part of every whale that is killed. If you are going to allow killing, then you are responsible for what is killed and how it is handled after death. This is the essence of marine management, to prevent waste or abuse of this permit and immediate and full prosecution of any permit violations.	authorizations, prohibited acts, and requirements for monitoring and reporting (including the disposition of whale products).
1304	e_Kenitzer_6-6-15	I support the Makah right to hunt whales. I prefer Alternative 3, since I feel Alternative 2 much and Alternatives 4 and 5 are too restrictive in hunting dates. Rolland D. Kenitzer 341 Hidden Valley Road Port Angels, WA 98362	Comments noted.
1305	e_Kew_4-7-15	to whom it may concern, I say no hunting of whales be allowed in our society. or the natives of Canada. Whales need not be killed to be eaten, or killed for research. whales can teach us what they know, and we can learn, not by eating them, or the natives, eating them, but by watching and learning through interaction, they can save The planet. thank you Donna Kew	Comments noted.
1306	e_Kinkead_3-21-15	For five years, I lived in far northern Alaska in small villages along side Native Inupiaq. These people have been whalers for thousands of years, and through the IWC, have maintained their right to harvest limited numbers of whales based on the size of their village (many around 300 people). In the village of Kaktovik located in ANWR, the Inupiaqs were permitted to harvest only three whales in the month of September as the bowhead were traveling to their summer waters. Humane hunting rules were required. These people ate nearly every part of the whale. I attended the Captain's Feast and witnessed the entire process for the hunt. Scientists were on hand to harvest the eyeball for age/health, along with other critical parts. The muktuk (blubber) and meat were harvested on the beach and delivered throughout the village to Elders, captain's family/crew, and all other villagers, who put this gift of food in permafrost ice cellars. This harvest sustained them through the year, used at Thanksgiving, Christmas and funerals and celebrations. When planes could not land with food, whale meat was their food. They follow strict traditional prayers of thankfulness. The bones and unusable parts are hauled to a 'bone yard' for polar bears, arctic fox, grizzly bear and wolves to gnaw on for their own survival (these scavenger animals were never hunted at the bone yard). Special prayers are offered to the whales who they believe 'gave themselves so humans might live' and whose spirits return to the waters. These people have never lost their need for and taste of whale. I have no problem with the Inupiaq people and their traditional ways. I do have a problem with the Makah's desire to whale. I was a school principal in Forks when the first whale was harvested in about 2003-4. It was a spectacle, not a reverence of life. People came from far and near to watch the slaughter. The whale meat	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		was mostly wasted. The Makah do not have centuries' long history of continued whale eating, nor do they remember the traditional and appropriate ways to harvest (piluk) the whale using traditional tools as the Inupiaq do. That one harvest seemed more a ploy for tourism and a focus for physical activity than a harvest for much needed food.	
1307	e_Kinkead_3-21-15	I am opposed to any Makah whaling, No Action. If I had to choose a different Alternative, it would be have to be Alternative 5 for these reasons: Strictly limit the dates of whaling (I prefer only one 21-day opening just as the Inupiaq have from IWC)Total avoidance of endangered Pacific gray whales (many Makah will not know the difference in the blood-heat of the hunt)Allow only ONE whale whether struck or landed (the population of the Makah is small, and a senseless waste of food would be limited)Make sure scientific and governance observers are present on the boats and at the shore for all days of open huntingClose the tribal lands to all other outside visitors to avoid a spectacleRequire a 5 mile 'safe zone' from shore for initial strikes I hope this is helpful to NOAA and the NMFS who are overseeing this process. I felt a bit of background from my experiences in Alaska would make me seem a more reliable source of comment SHELE KINKEAD 360-374-6145 HOME	Comments noted.
1308	e_Klazmer_7-22-15	Dear NOAA,I am writing to advocate number 1, no whaling because there is not enough information in the deis with regards to ocean acidification, climate change, and how it will effect the whales food source.	Comments noted.
1309	e_Klazmer_7-22-15	Also, the Eastern North Pacific grey whale needs to be protected as a complete separate stock.	ENP gray whales are recognized as a population stock under the MMPA.
1310	e_Klazmer_7-22-15	There is not enough oversight if there are numerous strikes in the harvesting. This includes taking any by-products off the reservation. We do not want the state of Washington to be declared a whaling state or country.	All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.
1311	e_Klazmer_7-22-15	It will set a dangerous precedent as other First Nations are watching this closely as well as the rest of the world.Sincerely, Blake Klazmer	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1312	e_Klock_4-27-15	We would like to express our concerns on the Makah (gray) whaling proposal, we are strongly opposed to any whale hunting as we believe it is not necessary. It is not a essential food source for the Makah	Comments noted.
1313	e_Klock_4-27-15	and we fear if the Makah obtain the right to hunt it would open the potential of other nationalities wanting the same.	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
			precedential effect of a waiver internationally and domestically.
1314	e_Klock_4-27-15	We who live here along the coast have seen the gray whale population go from the endangered species numbering 2,000 back in the early 1960's (by my husband and his father) to the now estimated 20,000 taking a full generation to recover. Now more than ever they are under pressure with the increased marine traffic and public use, let them be and let them live.We believe there is much money produced by the whale in tourism, benefitting the state of Washington and the costal communities from our state to California and Hawaii. We feel that this population could be hunted out within 4 to 5 years. The public would rather see them in whale watching and with scenic pictures instead of wholesale slaughter for other countries to purchase.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1315	e_Kohler_3-17-15	Dear Sir or Madam,please oppose the plan to slaughter whales by the Makah: The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1316	e_Kohler_3-17-15	If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young "whale"name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1317	e_Kohler_3-17-15	If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1318	e_Kohler_3-17-15	The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation. Thank you for your consideration. Sincerely Amala Kohler	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.

Sort #	Commenter Code	Comment	Response
1319	e_Kozlovich_3-14-15	Please do not grant the Makah tribe any whaling rights. "Culture" and "tradition" are often used as excuses to justify the subjugation and murder of women, minorities, and animals. I believe these are the facts in this case: 1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the desire of the Makah Tribe to revive its whaling tradition.
1320	e_Kozlovich_3-14-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1321	e_Kozlovich_3-14-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1322	e_Kozlovich_3-14-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1323	e_Kozlovich_3-14-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1324	e_Kozlovich_3-14-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales The WCA and

Sort #	Commenter Code	Comment	Response
			MMPA prohibit commercial whaling by U.S. citizens.
1325	e_Kozlovich_3-14-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe
1326	e_Kozlovich_3-14-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1327	e_Kozlovich_3-14-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1328	e_Kozlovich_3-14-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1329	e_Kozlovich_3-14-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1330	e_Kozlovich_3-14-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
1331	e_Kozlovich_3-14-15	12. Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. Respectfully, Carol Kozlovich Redondo Beach, CA	Comments noted.
1332	e_Kraus_3-9-15	TWIMC at NOAA: I am writing in strong protest against any allowance of killing of gray whales, no matter what a tribal cultural tradition may have been. Historically the whale products were essential for survival, when tribes were isolated, which is no longer true, of course. Killing wasn't to honor, it was to use every body part for survival's sake. It is not a tradition essential to tribal identity, and I studied Pacific Northwest Aboriginal cultures in depth last year before a trip to Haida Qwaii.	Comments noted.
1333	e_Kraus_3-9-15	Additionally, scientific studies have now found that Cetaceans, the whale and dolphin family, are possibly or even probably as cognitively advanced as we are, merely limited in showing us this by their life in the sea. Studies to this effect are summarized in a recent book by Virginia Morell (a highly regarded National Geographic, Science, and Smithsonian science writer), ANIMAL WISE, Crown Publishing Group, 2013, which I highly recommend to you and to the tribal elders of all Pacific Northwest First Peoples. It may certainly change the way they think about this sadistic endeavor. As you may know, gray whales are unique in that they bring their young to boats of people visiting to see them in the lagoons of Pacific Baja Sud, Mexico. They demonstrate what can only be construed as curiosity and an eagerness to connect with mammals of another species in some way, to show and receive affection. It is an extremely moving experience, and one which you and some Elders might consider embarking upon someday (google: R.O.W. and look for Gray Whale Expeditions in Baja). I would make a contribution to an Elder's participation if it were with the understanding that it might impact their tribal position on this "cultural harvesting" of these magnificent and already stressed (by loss of the ice pack in the far North) mammals.	Comments noted.
1334	e_Kraus_3-9-15	The grey whale current numbers are deceptive, of course. Their food source will be dwindling without question, as the ice pack melts and undermines the plankton availability, and as such they are facing starvation conditions. Do not assume that their numbers are stable. Do not assume we can afford to kill any of them. Their breeding rate is slow, and perhaps a third or more of the young perish in their 5000 miles migration up to the Bering Straits. They are also imperiled by orcas, whose habit of killing the young is growing. With all of this in mind, the killing of any of this species, deliberately, is not only cruel, which it surely is, but highly unwise if we are to respect our own humanity and the state	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		of the world. Respectfully, Jennifer Katze Kraus MD 4708 Keswick Rd. Baltimore, MD 21210-2323 410-235-7733	
1335	e_Kronen_3-27-15	My name is Eva Kronen. I live in Eugene, OR. I am opposed to the killing of gray whales by anyone and in this case, a few individuals of the Makah Nation. I believe that their culture and traditions will be stronger if they in turn become stewards of Mother Earth and protect the great whales from harm. They do not need whale meat for sustenance.	Comments noted.
1336	e_Kronen_3-27-15	I have done much reading and it appears that many Makah are also opposed to this hunt. Whaling is illegal yet continues. It is time that the US does what it is supposed to do in protecting these animals and the environment they live in. No to allowing the Makah to hunt the gray whale. Respectfully,Eva Kronen	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1337	e_Kronen_6-15-15	To Whom it May Concern,I would like to comment against allowing the Makah Tribe to resume killing Grey Whales off the coast of Washington.I have been fortunate enough to visit the birthing grounds of these whales and have experienced the phenomenon of some of the whales coming up to the boat I was in and appearing quite curious about us and seemingly wanting to have contact. These whales exhibit an intelligence that can be compared to humans. These whales would be hunted.	Comments noted.
1338	e_Kronen_6-15-15	Whales, all whales, still risk an uncertain future: global warming, acidification of the oceans, human pollution, all take their toll. The recent oil spill is Santa Barbara Ca. is an example of the constant threats to these creatures.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1339	e_Kronen_6-15-15	I respect the Makah's wish to resume their ancient tradition. However, cultures in order to continue to thrive need to be responsive to changing times.	Please see the response to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1340	e_Kronen_6-15-15	Although these whales may be off the threatened list, they are still threatened and there is no way to know which Gray whale is going to be harpooned and tortured until it dies. I believe that your organization can support the Makah to become stewards of these majestic creatures, show us how to protect their environment, teach the whales history and share it with the world.	Comments noted.
1341	e_Kronen_6-15-15	They can start whale watching businesses instead of killing them. They can be the stewards, not the slaughterer. Thank you for your consideration of my comment, Eva Kronen	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1342	e_Kuba_7-16-15	"tradition will reconcile people to any atrocity". George Bernard Shaw. To persecute, terrorize and murder any species of creatures for tradition or custom	Comments noted.

Sort #	Commenter Code	Comment	Response
		is not different than the persecution of other humans because of their race, origin, etc. It is even more absurd and ridiculous to claim that such barbarism is for survival when many alternatives are available. Furthermore, It is inexcusable to continue the unnecessary and extremely violent blood shed of innocent creatures to whom we share the earth with to treat them in such disrespect and contempt. Whales have been hunted and murdered for centuries and for all kinds of human traditions and customs. It is time to put an end to such barbarism, it is time to evolve and seek and replace this savage and horrific acts with non violent, humane alternatives which exist. Please ban permanently the horrific and monstrous murder of whales by Makah tribes and any other tribes. The animals of the world don't belong to any exclusive tribe or people to do what they wish with them. The whales need protections from this and all others who wish to harm them. Do not allow or give any particular group or tribe, "special privileges" to harm and murder whales while the Majority of Americans oppose this savage atrocities. We no longer live in primitive times. Defend Animals Coalition Alfredo Kuba, President 650-965-8705 defendanimals@gmail.com	
1343	e_Lam_5-4-15	To whom it may concern, As a tax paying citizen of Canada, i am very concerned about the precedence that may be set in allowing special interest groups to kill whales. As you well know we narrowly avoided extinction of the species in question in the past. This needs to remain an issue of conservation and NOT of politics. All i can do is ask that you tell the NOAA Fisheries to issue a 'No-Action' ruling for the request from the Makah tribe to resume whaling. The deadline for public commenting is on the 11th of June! In then end this choice to preserve marine mammals will benefit everyone including the Makah tribe. Please think of everyone and not play favourites or cater to special interests, our environment is under constant attack and we have a duty to protect it. Kindest regards, a very concerned citizen of the earth and tax paying Canadian. o..	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1344	e_Lambert_3-13-15	I am opposed to allowing the Makah tribal members a variance on the moratorium. I feel the reasons for actually killing a whale by the tribe have long since become untenable. If the tribal members feel they need to have a connection to hunting whales they could vary the outcome to a radio tagging expedition using traditional methods. this would be a win-win situation for both environmental interests and the Makah traditionalists. i do understand the perceived need to preserve traditions and culture but realize that an actual killing of numerous whales is not subsistence related. -- Ken Lambert	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1345	e_Larsen_5-26-15	NO to the gray whale hunt!!! Bodil Hegnby Larsen, Rimini - Italy	Comments noted.

Sort #	Commenter Code	Comment	Response
1346	e_Larson_5-27-15	Good evening. I attended the public meeting on the Makah's request in Port Angeles on April 29, 2015. I'm asking you to deny their request to hunt, and to adopt alternative 2.3.1, No Action.	Comments noted.
1347	e_Larson_5-27-15	There are too many moving parts in play now for hunting to be a safe and reasonable option; the effect of climate change and warming waters alone is an enormous unknown. The reasons behind the unprecedented gray whale deaths between 1999 and 2001 are still unknown, and could certainly come into force again. The health of the population seems tenuous and fragile; this doesn't seem like the right time to deliberately reduce it. Thanks for your attention. Kate Larson Port Angeles, WA 98363	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1348	e_Lee_4-30-15	Thank you for consideration of this appeal attached below, my testimony in-full from the April 29th Port Angeles hearing. Gary M. Lee 4-29 hearing.txt ** Aloha Ahiahi to all the careing attendees & nobel Administrators. My name is GARY MICHAEL LEE, and I voyage here ..... on this grand & wonderful day, from the Garden Island of Kauai, in the Ancient Kingdom of Hawaii. Holding only appreciation for your clean & peaceful forum, where even those of differing views, may assemble with intelligence, each having equal freedom to speak, and their passion be heard. As a visitor here, it is not my place to argue or to judge. I can however, offer an authentic experience, that you may find valuable? As the Honorary Konohiki, of the Auwai on the Delta of Wainiha, that it was in service to the Waters, that truly made a man of me. We struggled at the base of Waialiali for over a decade, transforming a mosquito-infested swamp into a lush botanical garden, efficient enough to not only restore irrigation to farmers, but a healthy enough habitat to support the return of critically-endangered species. Amongst those Akamai in Polynesia, the native peoples who hold themselves out as the great makaainanana, the "Caretaker's of the Land", do so without face. The claim now only be a pretence hoisted upon the mistakes made by their Ancestors. Long ago, when the Captains Vancouver & Cook engaged in the sandalwood trade through these very straights, it was with eager complicity by the Hawaiian tribes. The deal was, ... tropical trees in exchange for .... guns. And all the sanctimonious stewardship? .... be damned. They nearly entirely clear-cut their old-growth hardwood forests on every island, for weapons to advantage their in-fighting. Today when tourists visit expecting "paradise", they are shocked, and ask ..... "where is the teak, the Koa, what happened to the picture-postcard jungles?" A lonely Banyon stands in the town square, with young/brittle Albizia in the hills. Gone are the Ironwood, the Kukui, the Ebony and so many forgotten floral species. Mostly only skinny palms to be seen, all lined up in orderly rows. The few	Comments noted.

Sort #	Commenter Code	Comment	Response
		giants of trees that were spared, are DEEP in the interior, ONLY because the early Hawaiians didn't have chainsaws & tractors. THIS is the legacy that can never be undone with misleading stories & false legends. I implore the First Nations of the Pacific Northwest to not make a similar mistake. Mahatma Gandhi so eloquently stated .... "The greatness of a Nation can be judged by the way it's animals are treated". Clans of sensitive Empaths around the globe are in a time of severe crisis. We reach out to the vestige of the natural world, to attempt a reconnection with our genuine humanity within. We can traditionally find this resonance via reminders from allied TOTEMS. For whatever particular reasons, the contemporary global consciousness has selected a handful of internationally-recognized creatures, to symbolize a focal point, in which we can collectively relate & gather around, to revive our lost sense of qualities like strength, family, grace, and compassion. The Elephant, the Rhino, the Albatross, the Wolf, the Pangolin, the Eagle, the Turtles, the Dolphin, and , the Ancient Sacred Whales, embody the essential/elemental characteristics that may very well hold the guidance that saves US from extinction. THAT is but one of the reasons why it is SO VERY important, that the origination of respect for the lives and rights of the Animals, is drawn from the same well that quenches the thirst for respect, that we need foster in human affairs! NATURE is where TRUELY spiritual people LOOK & LISTEN for inspiration & light, when the all-around horrific behaviour of other faith-based beliefs tear our souls down into certain division and darkness. The very survival of endangered/loveing PEOPLE hinges upon being able to find respite & harmony amongst majestic/old trees, pristine Waters, and precious wildlife. THIS preservation is the only hope for many. The befallen fate of even ONE on the iconic Totem, is a blow more egregious to worldwide sympathizers, than the now commonplace/daily reports of slaughter of COUNTLESS innocents in on-going wars. After all, that's just what primitive humans DO. Right? So why should we sever TRADITION? Views on the Cetaceans however, ... have somehow risen to the position of "Chosen Animal". The Makah will NEVER AGAIN be able to stand tall with the integrity and respect you've long-n-hard EARNED, if you engage in a path of short-sighted blunder, without regard to the longer term consequences, same as your Hawaiian brothers & sisters. Today, ALL things authentically Hawaiian lay in desecrated ruins. Plastic & radiation in the surf. Sugar-cane & pineapple plantations as far as the eye can see. Monsanto's ground-zero for GMO testing, and the Navy's sonar drills WITHIN the Humpback whale's sanctuary. No amount of ceremonial ritual comforts the tortured land & creatures. Blessings serve only to pacify & rationalize otherwise appalling	

Sort #	Commenter Code	Comment	Response
		perpetration's. I would never be so presumptuous as to tell ANYONE what they should do. The best I can do, is often to simply float a contemplative question. For when the wrong question is asked, all the wordy answers matter not. So in conclusion, I humbly pose that the question of the hour, is NOT "what are the numbers of Leviathans that can withstand a sustainable take", any more than a civilized culture would ask ..... "how many of our 1st-born children should we sustainably sacrifice?" I have no magical insight as to WHEN the magnitude of human-caused pain & suffering will reach a tipping-point, only that it is obvious to those who are aware, that we collectively, ALL OF US, are teetering on the edge. I beg your thoughtful consideration ..... that the eras when ugly violence could go unseen & unfelt, are now history. Today for example, the whole world sees, and lumps ALL the Japanese to shame for the "traditional cultural practice" that is the atrocity in the Taiji Cove. BECAUSE, the dolphin has risen to stature on the International Totem! Today, global boycotts are mounted against the Chinese for their hideous pursuit of ivory. BECAUSE, the Elephant is recognized as divine on the International Totem! When things once genuinely sacred, become commodified, as is whaleing, the rational for plunder & killing on EVERY front is given license to just go on and on with hardly any human pause or reflection. But the Earth reflects. I assure you, ... the Earth is reflecting. It is with righteous aspirations that the Makah Tribe , (or ANY peoples) want out from under ANY heavy hand of outside rule. But is the resumption of whale hunting, the best way to demonstrate your independence? Just because one is able, does not always mean the wisest choice, is that one should. I appeal to this august Board to sense your heart-of-hearts highest calling. Mahalo Nui Loa. And, I salute the valiant defenders of the gentle beings who's crys are drowned-out by brute force. Krup Jai LiLi Duhh. Chog Li Duhh . CHOG LI DUHH to evolved Kindreds & the magnificent Natural World! Sincerely, Good Luck!	
1349	e_Lee_7-31-15	To whom it may concern: Please, honor the treaty and that allows the Makah tribe to hunt the hump-back whale. But should any whale be killed simply for the sake of killing such that the meat and/or carcass of any Makah harvested whale is left to rot; for such disrespect I would support reducing their self-imposed quota by one each upon each whale taken in waste. Please also be advised that this comment is coming from a US citizen who is also a citizen of the Cherokee Nation of Oklahoma. -- Stephen Lee	Comments noted.
1350	e_Lemieux_5-18-15	Dear Mr. Stone, We need more time to read the 1,300 plus pages for comments and digest the contents. Many thanks, ~Leah Lemieux I'm writing to urgently	Please see the response to frequent comment # 16 regarding the amount

Sort #	Commenter Code	Comment	Response
		request a much needed 60 day extension on the comment period for the Makah DEIS.	of time allowed to comment on the DEIS.
1351	e_Lenton_3-10-15	Dear NOAA, My name is Ashley Lenton and I am a resident of Seattle. I'm begging you to spare the lives of the Grey Whales in our shared waters. Here is some information points that hope you will consider: 1.Tradition and culture must never be a justification for the killing of whales and dolphins or for violating international conservation law.	Comments noted.
1352	e_Lenton_3-10-15	2. In 1998, Sea Shepherd exposed documents released under the Freedom of Information Act that exposed negotiations between the Makah and the Japanese whaling industry that would have sold meat from the "traditional" hunt to the Japanese market (The Japanese did not sent their whaling fleet to the Antarctic this year).	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
1353	e_Lenton_3-10-15	3. As Makah Tribal Elder Alberta Thompson said at the time, "This is not tradition. It was part of our culture to weave baskets and to pick berries in the mountains. It was part of our culture to speak our language. No one want to weave baskets or to speak Makah. What they want to do is to kill a whale with an anti-tank gun and that has never been a part of Makah culture."	Comments noted.
1354	e_Lenton_3-10-15	So, in short....killing in the name of culture is still killing... and in this case, for profit. We all rely on the health of our Oceans to survive. By allowing the killing off those that inhabit the waters, we can ensure our own demise is not far off. Please ask yourselves this: Are the Whales not entitled to live out their lives as best they can like the rest of us ??? My answer to that question is, YES. No reason given will EVER justify a necessity to take an innocent life. Thank you and I know in your heart of hearts, YOU KNOW what the right thing to do is.Sincerely,Ashley Lenton	Comments noted.
1355	e_Leon_4-25-15	To whom it may concern. As a concerned American citizen, I am writing today in opposition to any future whaling by the Makah tribe. The International Whaling Commission specifically allows aboriginal whaling when tradition of whaling is "unbroken", which in the case of the Makah tribe, they have voluntarily broken their tradition.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1356	e_Leon_4-25-15	There is no longer a need for whale meat for food purposes.	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
			Tribe's desire to revive its whaling tradition.
1357	e_Leon_4-25-15	The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. This is not culture. The US cannot allow trade of whale meat to a country who is breaking international law by the continuation of whaling in the Southern Ocean. How can the Makah tribe consider this culture? We cannot join in with whaling nations such as Japan, Norway and Iceland. We need to be the voice of conservation, not the voice of slaughter.	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
1358	e_Leon_4-25-15	Whales should be protected not slaughtered for any reason whatsoever. These highly intelligent mammals need our continued protection as a precious gift to our Earth, not a resource to be used as we see fit. We have to evolve and realize that protection of these species should be of the utmost importance. I firmly oppose any future whale slaughter by the Makah tribe. Sincerely, Chemaine Leon	Comments noted.
1359	e_Levine_6-1-15	Please stop the whale hunt. Animals have a right to live on earth and in our oceans without being threatened, slaughtered/killed/hunted. People use religion and culture to kill, and slaughter animals, please stand up and be a voice to the gray whales who are part of our ecosystem and matter. Their life matters, please say no to the request of whoever wants permission to kill them. Murder is murder, life is what matters, and the gray whale has a right to live. Respectfully Submitted, Jacqueline Levine	Comments noted.
1360	e_Lewis-Smith_3-8-15	Whales should not be killed. I support option 1	Comments noted.
1361	e_Lopuszynski_3-14-15	Dear Sir or Madam, I would like to register my opposition to any level of gray whale hunting by the Makah tribe. I believe that all people in this century have the responsibility to protect wildlife and their habitats. There is no evidence that gray whales will have better conditions in the future without every possible protection, both for them and their habitat. There is evidence that gray whales have struggled for survival in the past. The Makah tribe should join the community of people trying to improve the whales' chances for future survival rather than trying to resurrect a practice that was only appropriate in the past, when whaling was tied to their diet and contributed to their sustenance. Many other tribes have demonstrated their willingness to actively protect the environment.	Comments noted.

Sort #	Commenter Code	Comment	Response
1362	e_Lopuszynski_3-14-15	Because there is evidence that the Western Pacific grays have been known to migrate to areas off the coast of Washington, any hunting could not guarantee that endangered whales would be protected. Allowing whale hunting will be bad for the whales and bad for the tribe. Thank you.Barbara Lopuszynski 812 Edgecliff Dr Langley, WA 98260	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1363	e_Lord_5-6-15	It's sick and wrong! Times have changed. Those whales do not deserve to die. Especially not for "ceremonial" purposes.	Comments noted.
1364	e_Loucks_6-10-15	I am writing to express my total opposition to permitting Makah to kill grey whales in the Pacific Ocean off of Washington. Whaling has not been part of this culture for 90 years, which means that no Makah currently alive ever engaged in it as part of their tribal culture.	Comments noted.
1365	e_Loucks_6-10-15	It is the 21st century, and I am sure the Makah avail themselves of the conveniences of the day. They don't need to kill whales!	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1366	e_Loucks_6-10-15	They would benefit themselves much more economically if they pursued whale watching and other tourist friendly/educational activities related to their environment and history.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1367	e_Loucks_6-10-15	Two of the three populations of grey whales in the area suffer shrinking numbers. There is no way the Makah "hunters" could distinguish which are which.	Comment noted.
1368	e_Loucks_6-10-15	In addition, their illegal kill of a whale a few years ago resulted in prolonged suffering for the whale, plus they failed to even haul it in, proving that they lack skill, and that they would not only be killing these highly intelligent creatures, but would be causing horrendous suffering.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1369	e_Loucks_6-10-15	Whales are under threat, as are all marine mammals, from pollution, noise, and the effects of climate change. Adding another completely unnecessary source of stress for them is unconscionable. You are supposed to protect marine wildlife! Please do so! Cynthia Loucks Prescott, AZ	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1370	e_Lukins_7-8-15	Dear Steve Stone, I am writing in an effort to call attention to the great service our grey whales provide to the world we live in. These giants provide untold and un - understood value to the oceans that they live in and to the wider world. When the Makkah Tribe historically hunted these defenseless creatures, they had no idea of the wider impact that their killing had. We now have more knowledge. We should use this knowledge to ensure health to our whales, our oceans and our world. The killing should stop. It is time to develop traditions that harmonize	Comments noted.

Sort #	Commenter Code	Comment	Response
		with the modern world. Thank you and sorry that this email is past deadline. Most Respectfully Yours, Sue Lukins Bainbridge Island, WA	
1371	e_Mahina_7-30-15	Dear Noaa, "The greatness of a nation and its moral progress can be judged by the way its animals are treated." - Mahatma Gandhi I am adamantly OPPOSED to allowing the Makah tribe to hunt whales for any reason. I urge you to choose this: A no-action alternative - continue to prohibit whaling. On July 7, 2013, a group of scientists from The University of Cambridge declared non-human animals as conscious. For that reason, alone, we should allow these beings to live free and without human indignities (such as being hunted/slaughtered), and rather, take measures to protect them and their families to live out their lives in peace. http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf We declare the following: "The absence of a neocortex does not appear to preclude an organism from experiencing affec ve states. Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviors. Consequently, the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness. Nonhuman animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates." Thank you, Jenna Mahina	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1372	e_Mann_4-18-15	Dear Mr Stelle, 2015 MAKAH DEIS I wish to strongly object to the Makah Tribe request to resume hunting gray whales. I understand there is a provision under the Draft Environmental Impact Statement not to authorise the Makah gray whale hunt, which is listed as Alternative 1. I have travelled on many occasions to the West Coast especially to witness the majesty of gray whales off the coasts of Mexico, California and Vancouver Island and fully appreciate that I am lucky to be able to do so after they so narrowly survived being hunted to extinction. The spectacle of the gray whale migration now forms the basis of a benign multi-million dollar whale watching industry. The proposed hunt by the Makah would be contrary to the Marine Mammal Protection Act and would add an unnecessary threat to the recovering gray whale population.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1373	e_Mann_4-18-15	In addition, there is the very real potential for an individual from the critically-endangered Western Pacific gray whale population, estimated to number fewer than 100, to be killed. The hunt would also threaten individuals from the rare Resident Pacific Coast Feeding Group population.	Please see the responses to frequent comments # 12 regarding risks to WNP gray whales and # 13 regarding risks to PCFG whales.

Sort #	Commenter Code	Comment	Response
1374	e_Mann_4-18-15	The Makah Tribe are invoking their Treaty of Neah Bay in order to start killing whales. Article 4 of the Treaty With The Makah 1855 allows for "The right of taking fish and of whaling or sealing at usual and accustomed grounds... in common with all citizens of the United States". Clearly the right to go whaling in 1855 then applied to all citizens of the United States, not just the Makah, however, whaling for almost all U.S. citizens has since been prohibited by the Marine Mammal Protection Act. In this case, in this day and age, the MMPA should also apply to the Makah.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1375	e_Mann_4-18-15	To put that in context, Article 13 of the Treaty states that "The tribe agrees not to trade at Vancouver's Island or elsewhere out of the dominions of the United States". I would find it hard to believe that, these days, the Makah do not trade with Vancouver Island just across the water, or even the wider outside world, despite it being forbidden by the Treaty. In other words the Treaty has been superseded. The Makah should not be allowed to resume hunting whales, gray whales should continue to be protected by the Marine Mammal Protection Act and whaling should remain outlawed. Yours sincerely, Robert Mann	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1376	e_Mar_et_al_7-21-15	Dear NOAA we vote for alt #1 for the following reasons-;1-NMFS needs a complete EIS of the endangered Western North Pacific stock of which only 140 remain. It has been noted that at least 22 follow some of the same migration path as the Eastern North Pacific stock.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1377	e_Mar_et_al_7-21-15	2- NMFS needs to complete an EIS of the 200 residents. These should be classified as two separate stocks.	Please see the response to frequent comment # 5 regarding the stock status of PCFG whales.
1378	e_Mar_et_al_7-21-15	3-There is no longer a need to hunt for subsistance as the Makah stopped when the grays were nearly extinct for 70 yrs. Also the archaeological dig at Ozette reveals 80% of the bones were from a diet of Northern fur seals.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1379	e_Mar_et_al_7-21-15	4-In April of `95 NMFS was notified by the Makah they had the option to build a processing plant & sell whale meat to markets outside US.	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.

Sort #	Commenter Code	Comment	Response
1380	e_Mar_et_al_7-21-15	5-There are no enforcements or regulations of whale meat or handicrafts taken off the reservation.	All of the action alternatives include provisions for observers and enforcement as described in Subsection 2.3.2.2.12, Other Environmental Protection Measures.
1381	e_Mar_et_al_7-21-15	6-Treaties do not address climate change, toxic blooms, oil drilling or spills. acidification, wave energy or vessel disturbance,	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1382	e_Mar_et_al_7-21-15	7-NMFS does not address the protection of the same 33 whales in the U & A (usual & accustom area) in the marine sanctuary. This includes returning mothers & calves to nurse & rest,	DEIS subsection 3.4.3.4.3 (PCFG Abundance and Trends) notes that there are, on average, 33 gray whales identified in the Makah U&A per year. These are not the same whales year after year, as is clearly stated in the DEIS.
1383	e_Mar_et_al_7-21-15	8-The 9th District Court of appeals states the treaty refers to 'in common' that establishes a relationship for our fair share that we choose for whalewatching, aesthetic values & that the whales must be of their fullest population potential.	The purpose of the DEIS is to analyze potential impacts of alternatives, to inform decision making under the MMPA and the WCA not to explore or resolve legal debates.
1384	e_Mar_et_al_7-21-15	9-In 2004 the Nat`l Congress of American Indians passed a resolution giving full support to the Makah hunt including other 'effected 'tribes. Many coastal tribes here & in Canada are watching closely. It is highly likely others will follow suit. This could expand internationally as well & set an unwanted precedence.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1385	e_Mar_et_al_7-21-15	10-In the Sept 8, 2007 hunt the whale bled to death over 20 hrs & sank. The Tribal Council was implicated by all 5 whalers yet no action was taken by the Tribal court. Thank you for your time! DJ Mar, Blake Klazmer, Monica Reid , Veronica Smith, Phylis Chinn	The DEIS describes the NMFS investigation of the illegal hunt, including allegations of tribal council endorsement (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal council cooperated with the agency as it conducted its investigation and analysis under NEPA. NMFS' Office of Law Enforcement did not find evidence that the tribal government

Sort #	Commenter Code	Comment	Response
			sanctioned the unauthorized hunt. The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.
1386	e_Marks_3-21-15	Dear Regional Administrator Stelle: Please accept the following comments on the Makah 2015 DEIS. A hard copy has also been submitted via first class mail. Respectfully submitted, Rick E. Marks & Bradley D. Gilman Robertson, Monagle & Eastaugh 1810 Samuel Morse Drive, Suite 202 Reston, VA 20190 Attachments: Makah 2015 DEIS Comments from Marks & Gilman, ROMEA (FINAL).doc 41.0 KB March 19, 2015 ROBERTSON, MONAGLE & EASTAUGH, PC Washington, DC and Virginia Office 1810 Samuel Morse Drive, Suite 202 Reston, Virginia 20190 (703) 527-4414 (office) (571) 313-1973 (fax) William W. Stelle, Jr. Regional Administrator National Marine Fisheries Service National Oceanic and Atmospheric Administration 7600 Sand Point Way, NE Building 1 Seattle, WA 98115-0070via first class mail and email to Makah2015DEIS.wcr@noaa.gov RE: Comments on the Makah Whaling 2015 DEIS Dear Regional Administrator Stelle: Please accept the following comments for the 2015 DEIS on the Makah Tribe Request to Hunt Gray Whales. Our staff at ROMEA shares more than 50 years of experience with natural resource issues in Washington, D.C. and around the nation, much of that dealing with the Marine Mammal Protection Act. We also work closely with the Makah, both in Washington, D.C. and in Neah Bay, on various natural resource issues. We Support Alternative 2 – the Makah Proposed Action Alternative Alternative 2, the Tribe's Proposed Action Alternative, embodies a conservative, MMPA/WCA/ICRW-consistent approach that recognizes the Treaty of Neah Bay which expressly secures the Makah right to hunt whales. Specifically, Alternative 2 -- ● Protects Makah reserved rights to resume traditional hunting of gray whales ● Protects gray whales as a functioning element of the ecosystem ● Provides for public safety, enforcement, and observers ● Enhances scientific data collection, monitoring, and gray whale management ● Provides training, certification and permit processes for tribal whalers ● Implements certain restrictions on gray whale product use/distribution ● Strictly limits hunt time/area, protects mother/calf pairs, WNP, & PCFG whales ● Strictly limits the number of whales that may be struck &	Comments noted.

Sort #	Commenter Code	Comment	Response
		harvested ● Provides consistency with the IWC-approved gray whale catch limit ● Permits hunting of gray whales only and is designed to maintain OSP ● Will have negligible impacts on the overall marine environment	
1387	e_Marks_3-21-15	We Recommend Summary Table ES-1 be Removed from the Document We are concerned that Table ES-1, included in the Executive Summary (pp. ES-4 to ES-8), does not accurately reflect the narrative contained in Section 4: Environmental Consequences. We consider the inclusion of this table an unforced error by the Agency and it should be removed from the document because it is misleading to the public. Specifically, we believe the Agency's categorical statements contained in the "Impact and Magnitude Relative to No-Action Alternative" portion of the table are not accurate for three "Resources" categories – "Marine Waters"; "Pelagic Species and Communities"; and "Benthic Species and Communities". In each of these cases, the Agency concludes that "all action alternatives are likely to increase the risk of adverse impacts" and in two of the cases that "Alternative 2 would likely have the most impact". These over-simplified conclusions are misleading and provide no new information when compared to the actual content of the detailed narrative and thus, reflect poorly on the Makah Action Alternative 2. In the case of "Marine Waters" – the narrative contains the following conclusive statements (at p.4-43): "These effects would extend over a relatively short period (likely several hours) and would have a very low probability of affecting the marine environment in any detectable manner for more than a day or two" and "the expected impact to the marine environment from carcass disposal would be negligible in any given year or over a period of years." In the case of "Pelagic Species and Communities" – the narrative contains the following conclusive statements: "Because any disturbance would be minor, localized and short term, it would be unlikely to result in an appreciable change in the presence, distribution, or abundance of fish and other pelagic species in the project area, compared to the No-action Alternative (p. 4-55); and "Given that consumption of pelagic prey by gray whales is not likely a significant factor in structuring pelagic communities, as described above, even this outcome would not affect pelagic communities in the project area." (p. 4-56). Finally, for "Benthic Species and Communities" – the narrative contains the following conclusive statements: "the high capacity of these species for growth and recolonization suggests that hunt-related disturbance effects, if any, would be short-lived. Similarly, any direct disturbance to kelp rafts would likely be negligible relative to the background physical processes affecting the generation and distribution of kelp rafts in the project area." (P. 4-56 to 4-57) Based the inconsistencies detailed	We disagree with the suggestion to remove the table and its characterization as an "unforced error." CEQ regulations (e.g., sections 1502.14, and 1502.16) require an EIS to include a succinct summary of the differences in impacts among alternatives The specific sections highlighted by the commenter as misleading are in fact accurate – while Alternative 2 would have minor impacts on these resources, the impacts would be greater than under the other action alternatives.

Sort #	Commenter Code	Comment	Response
		above we recommend the summary Table ES-1 be deleted, and readers directed to the more accurate and comprehensive Table 4-15. Summary of Effects of the Various Alternatives (pp. 4-274 to 4-296).	
1388	e_Marks_3-21-15	We Request Amending the DEIS Narrative to Accurately Reflect Passage of the Concurrent Resolution (H. Con. Res. 267) Expressing the Sense of Congress Upholding Makah Treaty Rights The DEIS as currently written does not reflect the bipartisan action taken by the full House Committee on Resources on October 19, 2005. At that time, the Committee voted 21 to 6 in favor of H. Con. Res. 267, "Expressing the Sense of the Congress Upholding the Makah Tribe Treaty Rights". This resolution was favorably reported to the full House of Representatives in the 1st Session of the 109th Congress. The omission of H. Con. Res. 267 in the narrative is particular disconcerting in light of the fact that the Agency does include reference to a prior 1996 action taken by the House Committee on Resources opposing Makah whaling (DEIS p. 1-31). We feel it is appropriate for the Agency to fairly, accurately and transparently reflect the current status of the Congress on this issue.	Comments noted. We will consider adding the information cited.
1389	e_Marks_3-21-15	We Urge You to Expedite the Initial Waiver Determination MMPA Section 101(a)(3)(A) provides your office with the authority to issue the initial waiver determination provided the decision meets specific criteria related to best scientific evidence, consultation with the Marine Mammal Commission (MMC), consideration of the needs of gray whales, and consistency with Section 2 of the MMPA. After 20 years of Makah and Agency efforts on this issue (including 10 years since the Tribe submitted the waiver request in February 2005), substantial revisions and a second DEIS specifically designed to reflect updated scientific information, input from the MMC, continued IWC approval of the aboriginal subsistence gray whale catch limit (most recently for the period 2013 to 2018), and federal trust responsibilities pursuant to the Treaty of Neah Bay -- it is abundantly clear you are on firm ground to issue an initial and favorable waiver determination. We urge you to take such action, consistent with MMPA Section 101, and as quickly as you possibly can. We appreciate the opportunity to comment on the Makah 2015 DEIS and look forward to your responses to our concerns. We also look forward to working with you and your staff to support the treaty-reserved whaling rights of the Makah people. Rick E. Marks Respectfully submitted, Bradley D. Gilman	Comments noted.
1390	e_Martinez_7-30-15	NOAA officials, I respectfully request that you allow ZERO whales to be killed by the Makah tribe. If this is not an option, then please choose the option with the	Comments noted.

Sort #	Commenter Code	Comment	Response
		permit that allows the least amount of whales to be murdered. Thank you, Jennifer Martinez Annandale, Va	
1391	e_Massebeau_3-7-15	Dear NOAA, I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines. In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1392	e_Massebeau_3-7-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
1393	e_Massebeau_3-7-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver.
1394	e_Massebeau_3-7-15	and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching.
1395	e_Massebeau_3-7-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason. It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Kirsten Massebeau	Comments noted.
1396	e_McCallum_3-7-15	It is my opinion that the hunting of gray whales by tribal people, or any other people, should not be resumed. It is a cruel and painful act for the whales, is beneath human dignity, and would contribute the vast and tragic marine crisis we find ourselves in today.	Comments noted. Please also see the response to frequent comments # 1 regarding the humaneness of a hunt and 3.
1397	e_McCallum_3-7-15	Further, it is not a sustainable process and is no longer nutritionally necessary in this day and age.	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
			Tribe's desire to revive its whaling tradition.
1398	e_McCallum_3-7-15	It would be as if the ritual slaughter of bears with arrows, as formerly practiced by the Ainu people of Japan, was reinstated. It may have been a spiritual practice for the Ainu, but the cruel and barbarous nature of the act denigrates both the animal and the humans involved, and its spiritual component does not justify the killing of the animals.	Comments noted. Please also see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1399	e_McCallum_3-7-15	Especially with the whales, there is also the question of their diminished population. We have had a long struggle to stop Russia and Japan from killing whales. If we open whale hunting back up to tribal people, other groups will be emboldened to press their case of resumption of whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1400	e_McCallum_3-7-15	We are killing the oceans with carbon and toxins, the overall fishing industry is suffering due to over-fishing, and huge numbers of unintentional marine deaths occur as collateral damage. Approval of any measure that adds to this marine crisis should be stopped. Tracy Stephen McCallum Port Angeles, Washington	Comments noted.
1401	e_McCallum_4-22-15	Without wishing to disrespect native traditions, I feel it necessary to recommend that the permit be denied. All whales should benefit from a permanent moratorium on whale hunting by anyone. The Makah must realize that environmental conditions are such that the life of any single whale is important to the health of the marine world.	Comments noted.
1402	e_McCallum_4-22-15	The killing of whales is not at this time necessary for food, nor is it necessary to other purposes. Whales must be given the same protections as eagles and other threatened species. Tracy McCallum Port Angeles, WA	Comments noted.
1403	e_McEnerney_6-10-15	To NOAA, a governmental agency representing the citizens of the United States of America. It has been a struggle, as I have pondered what to write in this public comment letter regarding the reinstitution of allowing the Makah to begin whaling again. Knowing that this comment period is required by law, but wondering if what I say will make a difference (or even be read), I will simply forge on and compose my comment. America is NOT a whaling nation. America is a member of the International Whaling commission. These are the facts. In our country, people go whale watching and are awed by the spectacular displays seeing these gigantic mammals frolic in our waters. When whales wash up on beaches, people try to get them back into the waters so they will live. When a dead whale washes up, it is studied to find out what could have caused its' death. How do we then, think it is okay, for a tribe of Indians to kill them? Do they really have that right when they only want to do it because they "used too?"	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1404	e_McEnerney_6-10-15	From what I have read, the Makah elders are the ones who think it will make their children behave better if their culture is revived. I know from raising my own children that all children go through the 'terrible teens' when we think, as parents, that we'll not survive these years, but we do because they grow up and become responsible citizens, as the Makah children will and do. These behavior problems are certainly not unique to the Makah. So why, oh why, should whales have to lose their lives because of normal teenage behavior problems.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1405	e_McEnerney_6-10-15	When the Makah say it's also for the health of the tribe - obesity, diabetes is rampant in this entire country and eating whale meat is simply not going to solve these issues. Whale meat is not really fit for human consumption in our waters as in industrialized countries such as ours', we have polluted our oceans. We are killing and polluting our marine life. And it a known FACT, that when the Makah killed their first whale, they left it to rot on the beach because they didn't like the taste of it so why would like they like the taste of it now, one has to ask?	Please see the response to frequent comment # 11 regarding the safety of gray whale products for human consumption.
1406	e_McEnerney_6-10-15	The Makah tribe do not live in a remote area where the need to kill whales is necessary to sustain the survival of the tribe - that was then, this is now. They go to the grocery store and buy food. They adamantly do not need whale meat to survive, as they once did.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1407	e_McEnerney_6-10-15	I am a citizen of the these United States and I have the right to pursue happiness the same as the Makah, but seeing these wonderful mammals being killed for no logical reason vastly makes it impossible for me to be happy. The Makah can honor their culture by thanking the whales in tribal ceremonies for their contribution in sustaining them and cherish them by protecting them because the need to kill them no longer exists. It is time they 'gave back' to the whales! Now I am sure you have heard from people saying the same things I have, and do I think my words will make a difference, probably not. But they make a difference to me. So you can register my letter as a NO MORE WHALING, PLEASE, PLEASE, PLEASE. I know the government of the United States and your organization can find a way to say no. Please do it. Whaling is illegal in so many highly evolved countries and it should be illegal in the United States of America as well. Forward - Not Backward! Respectfully, Rebecca McEnerney 26421 Kingsview Loop NE Kingston, WA 98346	Comments noted.
1408	e_McLane_5-23-15	I support the NO ACTION op on. MMPA must hold for all marine mammals. The Tribe's argument for the cultural/traditional importance (of whale killing) is simply archaic. If applied universally, this cultural/traditional argument would logically justify slavery, men's exclusive right to vote, and other anachonistic policies. Democratic societies evolve, amend their constitutions, and with the	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		evolving social awareness of changing times develop new cultural norms. The Makah whale killing belongs to history, just as slavery and the men-only vote. I urge NO ACTION, no divergence from existing national policy on marine mammals. Laurene McLane	
1409	e_McLaren_ 5-31-15	Hello and thank you for taking the time to review my concerns regarding the Makah Tribe hunting the Gray Whales off the coast of Washington State. The National Marine Fisheries Service (NMFS) needs to conduct a complete Environmental Impact Statement (EIS) with regard to the Western North Pacific stock, of which there are an estimated 140 individuals remaining. A percentage (at least 22) of this vulnerable whale population follow the same migratory path as the Eastern North Pacific stock, which the Makah are seeking to hunt. An explanation of how the whalers will be educated to determine which whales they are hunting should be required as a part of this permit process. This will go towards ensuring that they are not taking a whale from a small population that needs protection.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1410	e_McLaren_ 5-31-15	The NMFS also needs to complete an EIS of the 200 Gray Whales that are residents of our local Washington waters. These whales should be classified as two separate stocks, and should not be allowed to be hunted. Some of these individual whales are in long-term studies by local biologists, and they provide important data to help us understand them.	Please see the response to frequent comment # 5 regarding the stock status of PCFG whales.
1411	e_McLaren_ 5-31-15	There is increasing evidence (such as the recent findings in Qzette) that indicates that the ancestral Makah Tribe hunted Northern Fur Seals, which likely supported their culture at a much higher percentage than did the Gray Whales. As Americans, our history includes many things that we should not return to simply because our ancestors participated. Because, as a civilization, we can now see the errors of our ways, and can understand that these behaviors are no longer necessary for survival. There is no need for subsistence hunting for the Makah, and part of the evidence for this fact is that they ceased hunting the Gray Whales for 70 years while the whales were nearly extinct.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1412	e_McLaren_ 5-31-15	The USA should not support any group of people that violates the International Whaling Commission's regulations. There are no enforcements in place to prevent parts of the whale, or whale meat from leaving the reservation. The Commission's regulations clearly state that this is not allowed if it is to qualify as subsistence hunting: "The taking of gray whales from the Eastern stock in the North Pacific is permitted, but only by aborigines or a Contracting Government on behalf of aborigines, and then only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines."	We agree that if hunting is authorized there would need to be measures in place to ensure appropriate possession, use, and distribution of whale products.

Sort #	Commenter Code	Comment	Response
1413	e_McLaren_5-31-15	Many environmental changes have occurred since the treaties were signed that impact the populations of whales, and their long-term survival rates. Climate change, toxic bloom increases, oil drilling and oil spills, acidification of the ocean and an increase in large vessel traffic. These all have the potential to greatly disturb the population, and quite frankly, could decimate the population of any species at any time. We cannot predict these changes in all cases, and so we should be cautious not to take more than we truly need. If there were only 10 Gray whales left would it be the right thing to do to continue to honor the treaty as it was written, without regard for future, unseen developments?	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1414	e_McLaren_5-31-15	The NMFS needs to address how they intend to protect the 33 whales in their Usual & Accustomed area in the marine sanctuary. This number includes mothers and calves returning to nurse & rest.	DEIS subsection 3.4.3.4.3 (PCFG Abundance and Trends) notes that there are, on average, 33 gray whales identified in the Makah U&A per year. These are not the same whales year after year, as is clearly stated in the DEIS.
1415	e_McLaren_5-31-15	I believe the US needs to set an example in how we handle requests such as these. Make no mistake, there are others watching and will make their own requests based on the outcome of this case. We should not set such a dangerous precedent, but rather be leaders and show that we recognize this is not a subsistence hunt, and is not required in any way for a modern society.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1416	e_McLaren_5-31-15	If there were to be a hunt, it should be required that the whale be killed quickly and humanely. In the illegal hunt that took place on September 8, 2007, this was not the case. The whale bled to death after 20 hours and then sank. This was a complete waste, and was cruel in the process as well. These whales are acclimated to humans, and many are the same whales that are greeted enthusiastically by people in Baja. They are not mindless objects, with no nerve endings that cannot feel pain. Respectfully, Justis McLaren Long time resident of the State of Washington	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1417	e_McLean_3-15-15	It is up to the Makah people when, where, how, and how many whales they wish to hunt in THEIR coastal waters. Joanna and Brian McLean, Hoko Ozette Road	Comments noted.
1418	e_McManus_7-31-15	Please for the love of life, community, humanity, conservation, civilisation and kindness to all peoples, do not allow a whaling permit for further slaughter of whales. These guys behave like triumphant oppressors not people who kill to feed families. Those who derive this pleasure from killing are not a service to the advancement of humane society. And that is before we even get to the whale	Comments noted.

Sort #	Commenter Code	Comment	Response
		issue which is blatantly apparent. Think before you act. HopefullyAnne -- anne mcmanus www.heartlovesart.com	
1419	e_McQuillen_5-1-15	I am writing to ask you to support the Makah's proposal to be allowed to return to whaling! Please approve your Alternative #2 for the Makah People. Terri McQuillen 269082 Highway 101 Sequim WA 98382	Comments noted.
1420	e_Miles_4-24-15	To whom it concerns: I am resubmitti ng a comment. I originally made an online comment on April 23rd at regulations.gov, but it does not appear. I'm afraid I don't have the tracking number, however the name and email address remains the same. Please consider this my final comment. · As a credentialed sociologist I have deep concerns about the so-called cultural subsistence aspect, this is not for subsistence but for a skewed view of 'culture,' please see below · Further concerns regarding the harassment of Makah elders and others opposing the hunt, and · Finally environmental and scientific concerns highlighted by NOAA's contemporaneous proposed whale humpback delistings. Culturally this is what we face: · Modern large caliber 50 caliber Howitzers, and ammunition easily-purchased, · Commercially available 'hunters' to kill the whales (more than one was killed last time, I saw the other dead one the day before the final kill, many people did but we were silenced) · Plastic-ridden, diseased, struck whales struggling in a collapsing ecosystem, being harassed and shot at with large weapons (again many shots were fired last time and certainly 2 were maimed and killed) · Makah beaches piled high in plastic and toxic debris not cleaned up by the people, I have cleaned the beaches on occasion so feel able to observe, wouldn't protecting ocean life be mre in keeping with Makah beliefs and values?	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 15 regarding the use of modern weapons.
1421	e_Miles_4-24-15	· Makah speaking out against this falsity are harassed and threatened and have needed to seek protection; clearly this agenda is being pushed by some against the interests of the people	Comments noted.
1422	e_Miles_4-24-15	I fail to see where this provides cultural definition or continuity, and certainly not subsistence. This appears to be more of the modern American questionable 'sportsmans' culture than Makah.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1423	e_Miles_4-24-15	NOAA's concurrent proposed delisting of other baleen whales, not scientifically or ecologically sound, raises doubt as to the veracity of these proposals. I'm gravely disturbed by the Department of Commerce, the parent agency, and NOAA's proposals. Endangered species listing has been about the only environmental hope in my lifetime, and these cavalier proposals to claim population, biological, ecological, sociological and scientific dramatic policy shifts	Comments noted.

Sort #	Commenter Code	Comment	Response
		is – shifty. Please don't further embarrass my country on the global stage. We need to move forward as ecological and environmental leaders, not questionable unscientific proposals for apparent commercial ends. Thank you for this opportunity to comment, and best of luck,S Rulifson Miles MSC Sociology 1983	
1424	e_Milligan_4-26-15	Whale hunting for any reason whatsoever must come to an end. Non-native citizens have stopped this hunting and so should the Makah. When the whales are completely extinct, the Makah Nation will have to give this right/ritual up, so they can give it up now in order to save the whale population. Just like the non-native citizens of the country, Makah nation has to adjust to the new realities. No whale hunting by any citizen or group ever again whatsoever -- there are enough other challenges such as climate change and pollution impacting marine animals. We can give them a chance for survival by forbidding any outright slaughter. Thank you for receiving my comment. Patricia Milligan Langley, Washington	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1425	e_Milliren_3-24-15	Recognizing that I am not a tribal member, here is my personal opinion: I believe that the killing of a whale should be a sacred and uncommon privilege, one that one must work extraordinarily hard to be allowed to do, that one must hone oneself spiritually and physically to be able to do. Such an event should be prepared for over several years, and the killing should happen at most every 3-5 years (hence once a whale is sacrificed, another hunt would not occur for another 3-5 years). I support the idea of counting strikes as well as kills--it is a privilege. I recognize that the hunting periods might have to be changed according to whale migration (which could change with climate change?), but not by incidental weather. I support the hunting of whales ONLY as a sacred cultural activity for the Makah, but I also want to ensure that every bit of the sacrificed whale is used by the tribe--not sold for money. As I review the Alternatives in the PDN newspaper, it appears that Alternative 5 most closely fits my beliefs, with a limit of 0.27 whales a year, although I am not clear whether a hunt would be allowed both seasons and every year even if a whale were to be killed each season or year (I would not support this). Obviously I have not read the draft study. I appreciate being able to comment on this most difficult issue. Patricia A. Milliren 1703 W. 8th Street Port Angeles, WA 98363	Comments noted.
1426	e_Minachelli_7-16-15	Dear to whom it might concernplease do all you can to stop whaling in usa and everywhere..please help to save the whales ..most of them are threatened species ..they keep the ocean healthy ..please help them to survive ..thank yousincerely susanna minacheili karakasi 80 greece	Comments noted.

Sort #	Commenter Code	Comment	Response
1427	e_Minahili_ 5-27-15	Dear to whom it might concern ,please protect the whales and please dont let anyone to hunt and kill them .in 2015 there is no reason to kill whales,please protect themsincerely susanna minacheili 54453 thessaloniki greece	Comments noted.
1428	e_Moore_3-23-15	Dear Mr. Stone: WEST COAST SEAFOOD PROCESSORS ASSOCIATION 1618 SW First Avenue Suite 318 Portland, OR 97201 503-227-5076 March 23, 2015 The following comments are submitted on behalf of the West Coast Seafood Processors Association (WCSPA) regarding the Request for Comments on a Draft Environmental Impact Statement Regarding the Makah Tribe's Request To Hunt Eastern North Pacific Gray Whales which was published in the March 20, 2015 Federal Register. WCSPA represents fish processing companies, fishermen, and associated businesses located on the west coast. Collectively, our members have worked with the Makah Tribe on a number of fisheries issues over the last 10 years. Aside from being good fishermen, the Makah Tribe takes pride in their conscientious use of natural resources. They, along with those of us in the non-tribal fisheries, take appropriate steps to avoid bycatch and refrain from overfishing. We see no reason that they should be arbitrarily constrained in their pursuit of their ceremonial and subsistence rights, especially given the record high numbers of grey whales that are present on the west coast. We fully support tribal alternative number 2 (Tribe's Proposed Action).	Comments noted.
1429	e_Moore_3-23-15	Further, we believe that there has been far too long a delay already and that NMFS should expedite the approval process. Thank you for your consideration of our comments. Sincerely, Rod Moore Executive Director	Comments noted.
1430	e_Moore_5-8-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why	These introductory comment are noted; specific responses are provided below. Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	
1431	e_Moore_5-8-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1432	e_Moore_5-8-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1433	e_Moore_5-8-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1434	e_Moore_5-8-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	
1435	e_Moore_5-8-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1436	e_Moore_5-8-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Bethany Moore 1628 Hilton Head Ct 2234 El Cajon, CA 92019-4519	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1437	e_Morin_3-7-15	ABSOLUTELY NOT!!! The Makah tribe is Americanized and have jobs (those within the tribe that choose to work for a living). They do not need to hunt the gray whale for food or ceremonial traditions. What happened to "NO IS NO". Whaling has been banned since 1986 to increase the whale population regardless of the 20,000 gray whale numbers. This is great news, and their numbers need to increase even more!	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1438	e_Morin_3-7-15	This should not even have come up for discussion/debate/comments and certainly not to bend the law "Just for the Makah Tribe".	Comments noted.
1439	e_Morris_7-14-15	I am born and raised in Washington and I do NOT support any whale hunt. I can't even believe this is coming up again. We are killing off so many species at an unfathomable rate it's a damn shame. I beg you to say no to the request to resume whale hunting. Sincerely, Michelle R Morris North Bend, WA. 98045	Comments noted.
1440	e_Morris_7-31-15	Dear NOAA: I want to quote a tribal elder of the Cowlitz tribe: "The ancient people of this land consider the next seven generations coming before making a serious decision." In the far past other coastal tribes hunted whales and now do not. They recognize that the need to kill the whale for subsistence is no longer necessary nor is it a strong unifying cultural tradition now or for the next seven generations. I urgently implore the Makah council to withdraw their request to	Comments noted.

Sort #	Commenter Code	Comment	Response
		chase, harpoon, and kill the gray whale. I oppose any effort to allow the gray whale hunt.	
1441	e_Morris_7-31-15	For decades the gray whale has only been peacefully watched from boats all a long the west coast from Baja north to Alaska. The whales' behavior has changed. They have even interacted with whale watchers.It is disheartening to think they may be subject to brutal chasing and long painful deaths. There is no way to kill a gray whale without extensive fear, pain, and suffering. In the Sept 8, 2007 hunt the whale bled to death over 20 hrs & sank. The five Makah whalers were implicated in this tragic death of the gray whale, yet no action was taken by the Tribal court.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1442	e_Morris_7-31-15	The Makah hunt has no place in today's world where human impacts upon the Earth are an increasing threat to gray whales and ecosystems. A treaty writt en in 1855 will not change this reality.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1443	e_Morris_7-31-15	There is too much change in the ocean environment: our oceans are seriously in danger of ecological collapse. Climate change, increased acidity, unpredictable food sources for marine species including the whales, and new disease threats to any population of whales are making population predictions speculative at best; the gray whale has distinct populations and all threats have not been addressed in the DEIS.	Comments noted, however it is unclear which specific threats the commenter recommends addressing in the DEIS.
1444	e_Morris_7-31-15	NOAA has totally failed, as well as the Makah people, to take into account the impact of the escalating Naval weapons training and new weapons experimentation off our west coast that will impact the gray whale populations as well as many marine species. This includes cumulative effects of Naval sonar along with other underwater noise, ship strikes, and subsequently increasing contamination of marine waters.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1445	e_Morris_7-31-15	The Makah people themselves should be very concerned about this escalation of weapons testing by the United States Navy rather than be concerned over a treaty from 1855, when an entirely different world and ecosystem existed. Today the oceans are under serious threat. To help save what we can will take concerted effort from all cultures including our own governmental agencies such as NOAA.	Comments noted.
1446	e_Morris_7-31-15	To reiterate: = Briefly from the DEIS, the National Marine Fisheries Service (NMFS) is failing to account for "takes" by harassment as defined by the Marine Mammal Protection Act (MMPA) during Makah whale-killing attempts. In the	The DEIS notes that the Makah's tradition of whale hunting dates back at least 1,500 years. It is unclear whether the commenter is referring to

Sort #	Commenter Code	Comment	Response
		DEIS, it is noted there is a clear history of the Makah chasing and harassing gray whales.	Makah hunters pursuing gray whales prior to the enactment of the MMPA in 1972 (when "take" was defined and prohibited) or during the 1999/2000 authorized hunts which were subject to a cooperative management agreement between NMFS and the Makah tribe or in relation to their proposed future hunt. In either case the DEIS addresses this issue, for example in Subsection 4.4.3.2.3, Change in Abundance and Viability of PCFG Whales; 4.4.3.2.4; Change in Numbers of Gray Whales in the Makah U&A and OR-SVI Survey Areas; and 4.4.3.2.5, Welfare of Individual Whales.
1447	e_Morris_7-31-15	= The Makah do not have a subsistence need to kill gray whales. The Makah tribe cannot demonstrate a subsistence or nutritional need for whaling or whale products. They have not whaled for over 90 years with the exception of the wasteful disastrous hunt of 1999 and the illegal hunt of 2007.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1448	e_Morris_7-31-15	= Regarding the executive summary of the DEIS, I support only Alternative 1, the No-action Alternative that would not authorize a Makah gray whale hunt.	Comments noted.
1449	e_Morris_7-31-15	= Whale watching is a meaningful and economically lucrative alternative that helps maintain the gray whale's iconic role in numerous cultures. Other Native American cultures along the Northwest coast support this endeavor instead of killing the gray whale.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1450	e_Morris_7-31-15	There should be a worldwide moratorium on killing whales. No culture can sustainably kill whales and at the same time truly recognize the current devastation of our oceans with all the threats facing the marine life and us. We must unite from the heart to face these environmental and societal induced threats. We need to heed the valued Native American wisdom of basing our decisions on how they will impact the next seven generations. Let us have a world free of killing whales regardless of culture.	Comments noted.
1451	e_Morris_7-31-15	Finally please consider that when traditions control us, they have out lived their reason to exist. All humanity needs to abide by a new tradition of the 21st century -- that the whales in the oceans live free of harassment and killing by	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
		humanity from any culture anywhere on the planet from now to the end of time. Thank you, Nancy Morris	Tribe's desire to revive its whaling tradition.
1452	e_Morrison_3-8-15	As a society's expectations have come to understand the sensitivity and intelligence of other creatures we share this planet with. We are the voices of those who cannot speak for themselves. We have evolved as a society and as such have done away with the notion of human and animal sacrifice. Whaling as a form of religious ceremony is animal sacrifice. Once any group is allowed to reinstate these practices, others are sure to follow. What other groups in the US wish to conduct sacrificial ceremonies? The thought is actually a truly sickening one. I hope this is considered long and hard, for the door it opens. In closing, I live on Puget Sound and can tell you, I do NOT want to witness anything like this!!! Thank you for the opportunity to give input. Anne M.	Comments noted. Please also see the response to frequent comment # 4.
1453	e_Mroczek_6-23-15	Please do not allow a waiver to the Makah tribe for hunting of gray whales. Please.Whales suffer greatly in what becomes slow death - how terrible!	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1454	e_Mroczek_6-23-15	Gray whales are already enmeshed in multiple perils.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1455	e_Mroczek_6-23-15	Some of their numbers are already too sparse.	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status.
1456	e_Mroczek_6-23-15	The whales can be confused with similar populations passing through the area that are critically endangered.Oh pleaseThere is no need in 2015 to hunt animals that have a very hard enough time as it is.Thanks, humansPLEASE HELP ANIMALSNancy Mroczek PhD	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1457	e_Muckleshoot_6-9-15	RESOLUTION NO. 15-O94 TO SUPPORT THE MAKAH INDIAN TRIBE'S EXERCISE OF ITS TREATY RIGHT TO HARVEST WHALE WHEREAS, the Muckleshoot Indian Tribal Council is the duly constituted governing body for the Muckleshoot Indian Reservation by the authority of, and is herein acting solely pursuant to, its constitution and by-laws approved May 13, 1936, by the Secretary of the Interior, as amended June 28, 1977, and not pursuant to its Indian Reorganization Act Corporate Charters; and, WHEREAS, in the mid-1850s the United States entered into five treaties with the Indians of Western Washington in which they ceded	Comments noted.

Sort #	Commenter Code	Comment	Response
		most of theirs lands, reserving small reservation homelands and the right to continue fishing, hunting, and gathering outside of those reservations; and, WHEREAS, the Muckleshoot Indian Tribe is a successor in interest to certain tribes and bands that were party to the Treaties of Point Elliott and Medicine Creek which reserve such fishing, hunting, and gathering rights; and, WHEREAS, Makah Indian Tribe is a party to the Treaty with the Makah; and,WHEREAS, these Treaties, collectively known as the Stevens Treaties, are self-executing; and, WHEREAS, in the Treaty with the Makah, the Makah people expressly reserved the right to continue the harvest of whale; and, WHEREAS, the Makah Tribe has requested the National Marine Fisheries Service take action to support the exercise of the Makah Tribe's treaty right to harvest gray whales in the coastal portion of the Tribe's usual and accustomed fishing grounds; and, WHEREAS, there is no conservation reason to deny the Makah Tribe the limited harvest of gray whales that it has proposed; and, WHEREAS, the United States and its constituent agencies have a solemn trust responsibility to support the full exercise of the treaty rights of each of the Indian tribes that are party to the Stevens Treaties; NOW THEREFORE BE IT RESOLVED by the Tribal Council of the Muckleshoot Indian Tribe that the Muckleshoot Indian Tribe supports the Makah Indian Tribe's effort to exercise its treaty right to harvest gray whales and requests that the National Marine Fisheries Service fulfill its trust responsibility by approving the Makah Tribe's requests for authorization under the Marine Mammal Protection Act and the Whaling Convention in a manner consistent with the Treaty with the Makah. CERTIFICATION As Secretary of the Muckleshoot Indian Tribal Council, I hereby certify that the above resolution was adopted at a regular meeting of the Tribal Council on the 8th day of May, 2015, held on the Muckleshoot Indian Reservation, Auburn, WA, at which a quorum was present by a vote of 4 for, 0 against, and 0 abstentions. Charlotte Williams SecretaryVirginia Cross Chairperson	
1458	e_Murphy_7-29-15	Mr. Stelle, I am writing to request that the Makah Tribe's request to resume hunting gray whales be denied. The hunting of gray whales is no longer necessary. The hunt should only be considered if there are no other viable options for meat or other resources. However, the tribe has plentiful other resources without the killing of gray whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1459	e_Murphy_7-29-15	Gray whales are an important part of the local ecosystem. Approving this unnecessary hunting permit could potentially interrupt the balance of the entire ocean, especially if a limit of "take" is not set.	All of the action alternatives have a maximum limit for the number of harvested, struck, and struck and lost whales (see Table 2-1, Primary

Sort #	Commenter Code	Comment	Response
			Differences Among Alternatives). The DEIS evaluates the impacts of each alternative on the marine environment, including pelagic and benthic habitats and species (see Subsection 4.3.3, Evaluation of Alternatives).
1460	e_Murphy_7-29-15	There is no reason why this permit needs to be approved. The hunt is an old tradition that is no longer necessary and hasn't been practiced in decades. Heather Murphy, Editor Ocean Advocate News http://www.oceanadvocatenews.com/ Facebook Twitter	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1461	e_Nolte_3-8-15	I am totally against the Makah tribe being allowed to kill another whale just because it's part of their culture back in the 1800's when this law was written. Do you think the Department of Fish and Wildlife would allow them to go to Yellowstone Park and kill some buffalo? They used to do that too. It's 2015 and time we protect our wildlife. The 1800's agreement needs to be repealed. Please do not allow the Makah Tribe to do this. John M. Nolte Blaine, Washington	Comments noted.
1462	e_Okerlund_5-26-15	Please stop the Makah Whale killings this year. Thank you, Pat Okerlund 332 Bartell Drive Chesapeake Virginia 23322	Comments noted.
1463	e_Oliver_3-22-15	Please find attached my letter in favor of Alternative 2 -- the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. Thank you! Jeanne Oliver Vesuvius, VA Attachments: MAKAH DEIS SUPPORT LETTER.docx 15.8 KB Dear Mr. Stelle: Please accept my comments in favor of Alternative 2 -- the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. It is my understanding that DEIS Alternative 2 will allow for both adequate protection of Eastern North Pacific gray whales and responsible use by the Makah Tribe of Washington State for their cultural and subsistence needs. This seems to be a reasonable solution. I encourage you to pursue this course of action. Furthermore, I support the Federal Government's (and your Agency's...) responsibility to the Makah Tribe and their treaty. I urge you to expedite the approval process since 10 years is far too long to make this Tribe wait for a fair decision from our government. Respectfully submitted, Jeanne Oliver Vesuvius, VA	Comments noted.
1464	e_Olson_5-2-15	John Olson 741 Geissler Rd. Montesano, WA 98563 Please authorize the tribe to take up to 5 whales per year and research nordic seal skin & meat markets.	Comments noted.
1465	e_Owen_3-12-15	I would like to voice may objection to the Makah' idea of hunting whales. Life should not be taken for tradition- times change. Do the whales belong only to the	Comments noted.

Sort #	Commenter Code	Comment	Response
		tribe? Thank you for having this comment time where the public can be part of this discussion. Sincerely, Joan Owen P. O. Box 65301 Port Ludlow, WA. 98365	
1466	e_Padgett_3-9-15	Being part Native American I say to my Makah kin, if you want to hunt the Gray Whale that's all f ine and dandy, but give-up living off of what you buy at Walmart, etc., home improvement centers, and hardware stores. Be true to your historical use of the whale, the whole whale: it fed you, clothed you, gave you components for building your shelters, tools and weapons; use the whole whale you kill in the same way as you traditionally used the whole whale, not some "cherry-picking" way that still allows you to go down to your local "7-11'' afterwords for a beer where you meet some shady character from China or Japan and sell the carcass for white-man "wampum." No! Give-up your modern indian ways if you are going to sacrifice such a magnificent animals life for the sake of long not practiced traditions and start fully practicing your traditional use for the whale$ you are now so anxious to kill. And woe unto any Makah found selling whale meat, parts, etc., for profit...that was not part of your traditional use of the Gray Whale!	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1467	e_Padgett_3-9-15	Hey Makah kinfolks, how about establishing a new tradition by reviving an old one: count coup! Using only traditional human power (paddles), in traditional native built canoes out of a single cedar log, not outboard motor driven, fiberglass boats, make your way out on the ocean, paddle like heck, like you traditionally had to do, up real close to your targeted mature Gray Whale, one that is not pregnant, or with a calf!, and touch the whale's flank (counting coup). OK, you can make it more dramatic by, first, using only traditional pigments, have the hand you are going to touch the whale with covered with fresh white, or red, "paint" so where you touch you leave your hand print, semi-permanently on the whale's side for all to see how brave you are...heck, the whole boat full of brave Makah warriors can each take a turn leaving their own hand print on the whale's side. This way everybody gets to go home with pride for the brave Makah deeds you've just done, the whale gets to live for another day...win-win situation. But, if behind all your clamoring for Native American Rights you carry a dark secret reality that the real reason you want to kill some whales is so you can sell their meat, and other parts for profit, you are a shame on the Makah name, and embarrassment to your Makah ancestors, and in truth nothing more than a profiteer masquerading as a Native American.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1468	e_Patton_3-14-15	To whom it may concern, I support the resumption of Makah whale hunts. The alternatives allowing for a hunt, including Alternative 2, are appropriate, responsible, and fair. In particular, the proposals take into account the health of	Comments noted.

Sort #	Commenter Code	Comment	Response
		the specific whale population and include built-in safeguards and a commitment to keeping the population at a healthy level. I trust reasonable minds to arrive at the right decision on which alternative to pursue. Overall, based on the variety of numbers provided in the DEIS, the public outcry against the resumption of Makah whale hunting far outweighs the actual impact it would have. I realize this would not ring true for someone who finds it morally reprehensible to hunt a whale, but that's not the point we're being asked to comment on here. While I do fall on the side of the Tribe in giving weight to the cultural and spiritual impacts that could come from whale hunting, that's also beside the point. Respectful conversations about the meaning of the hunt are important, but this is not the venue, nor the question. There is a treaty. There is a process. Let's respect the former, continue to follow the latter -- and cut through all the noise to make a fair decision. Thank you, Melissa Slager Patton Everett, Wash.	
1469	e_Pedersen_5-11-15	My name is Heidi Pedersen. I attended and spoke at the Port Angeles meeting 4/29/15. I live in Port Angeles, WA. I consider myself an environmental conservationist. I have worked as a wildlife biological field technician for much of my life. I find it embarrassing that I have a right to comment on a subject that I believe should be decided between the Makah tribe and gray whale population experts. The Makah have a treaty right to hunt whales that should be honored given that the whale population is stable. I support the option 2, that the Makah proposed. What the Makah do with their rights is a decision that should be made by the tribe. There were comments about global threats to the gray whales and lack of understanding of their population dynamics. There is a Polar Pioneer oil rig in Port Angeles harbor on its way to drill oil offshore in the arctic as I write this. No one gave me the opportunity to comment about its potential danger to the gray whale population...and hundreds of other wildlife species. Makah tribal hunts are not a threat compared to this and yet, I, a citizen that knows nothing about treaty rights or whale population dynamics gets to have an official record of comments about my opinion of giving the Makah their right to hunt whales. My opinion is that the Makah do as they please with their rights and that we as a multicultural team of humans on the planet do more about more serious threats to the whales, like ocean acidification, shipping strikes, commercial hunting of whales, entanglement with marine debris, whale ingestion of toxins produced by humans, etc., etc. Thank you for reading and considering my comments. Heidi 211 E. Simmons Rd. Port Angles, WA 98362 360-461-0443	Comments noted.

Sort #	Commenter Code	Comment	Response
1470	e_Pendleton_4-6-15	Please do not kill whales. Humans are destroying everything that's good and pure about the planet. This behavior must stop before it's too late! Sincerely, Pam Pendleton Cincinnati, OH, USA	Comments noted.
1471	e_Phare_5-7-15	Dear Trustee, Did the Makah People reserve their right to whale in their treaty with the U.S. Govt.? Did they voluntarily forego their whales for decades because of endangered populations, due to over-whaling by non-treaty holders? I'd say the answer whether Makah can whale as they've proposed, is clear. NOAA's job as a trustee to treaty-holding tribes, is to protect the tribe's treaty rights, not to ask the public if NOAA, and the rest of the Fed. Trustees, should uphold the tribe's treaty rights. The treaties are the "law of the land" as noted by case, and SCOTUS decisions. Darrell Phare	Comments noted.
1472	e_Phipps_5-11-15	I oppose any permit to allow the Makah to hunt whales in any way. How dare humanity think so highly of ourselves amidst all of the slaughter? This exception for the Makah will be another chip-off in the weakening of the MMPA, and set a precedent which in the future will lead to the slaughter of all marine mammals around American shores. Greed, ignorance, self-serving individuals, and political correctness rule the day that find this hunt to be acceptable. Shame. NO to the Makah tribe request for waiver from the MMPA.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1473	e_Pieper_4-26-15	It is important that all of us protect the grey whales. I vote no on making an exception for anyone to kill the grey whales. Anne Pieper	Comments noted.
1474	e_Player_4-6-15	Please do not allow any whales to be killed by the Indians in Washington State or any place for that matter. There is so much peril for all whales in the oceans today, we do not need to let a tribe kill any of them. Please do not allow the killing of any grey whales by this group. They do not need to eat or kill them, they have other sources of food to live on. Sincerely, Ms. Shannon Player 337 f Avenue Coronado CA 92118	Comments noted.
1475	e_Pollard_5-18-15	Dear Mr. Stone, I note that June 11, 2015 is the deadline by which comments can be made regarding the Makah tribe's request to resume whaling and the proposal to take up to 24 gray whales in 6 years. I would like to request that the June 11 deadline be extended in order to allow more time to study the lengthy DEIS document. Regards, Sandra Pollard Author of Puget Sound Whales for Sale: The Fight to End Orca Hunting (The History Press) https://historypress.net/catalogue/bookstore/books/Puget-Sound-Whales-for-Sale/9781626196025	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1476	e_Pollard_5-22-15	To: NMFS (NOAA) With regard to the request by the Makah tribe to resume whaling and to take up to 24 gray whales over 6-years, I would like to comment as follows:- The DEIS document is a lengthy tome - I would like to request that	Please see the response to frequent comment # 16 regarding the amount

Sort #	Commenter Code	Comment	Response
		the comment period ending June 11, 2015, be extended for allow more people the opportunity to fully absorb the contents of the document.	of time allowed to comment on the DEIS.
1477	e_Pollard_5-22-15	The DEIS gives six options with regard to the Makah's request to resume hunting gray whales. Option 1 - No Action is my choice. Although there are estimated to be around 20,000 Eastern North Pacific gray whales and that this represents sufficient recovery to remove them from the list of threatened and endangered species, there is a small population of endangered Western North Pacific stock (only 140) of which at least 22 follow the same migration path as the Eastern North Pacific stock. How is a whaler going to be able to tell the difference between the Eastern and Western North Pacific stock? Not enough is known about the Western North Pacific stock to risk allowing them to be hunted along with the Eastern North Pacific stock. More study of this stock is needed.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1478	e_Pollard_5-22-15	There is also the Pacific Coast Feeding Group and the Northern Puget Sound population of gray whales which frequent our local waters (I live on Whidbey Island, Washington State). These should be declared two separate distinct stocks. I have seen some of these regular visitors, which feed on the ghost-shrimp around Whidbey Island for around 2-months of the year from early March-early May, close to shore on many occasions. Some have names (e.g. Patch, Dubknuck, Little Patch) as well as official numerical designations. Their presence enhances our community and enriches the lives of many people, both local and visiting, providing educational and aesthetic pleasure. To risk losing any of these gentle giants to such an unnecessary and outdated tradition is pure sacrilege.	Neither of the groups of whales cited in this comment are recognized as stocks under the MMPA and the SAR process. Please see the response to frequent comment # 5 regarding the stock status of PCFG whales.
1479	e_Pollard_5-22-15	In this day and age of plenty, the Makah do not need to eat gray whales for subsistence. They have survived for many years without the gray whale in their diet, and an archaeological dig at Ozette showed that 80% of the bones which formed part of their diet came from the Northern fur seal.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1480	e_Pollard_5-22-15	If the hunt is allowed to proceed it risks dividing the tribe again (as happened previously), and provoking the wrath of environmentalists and animal rights' activists with potentially lethal consequences. I request that NMFS do not allow hunting of gray whale by the Makah, or any other tribe, to proceed. It would be far better for the Makah to follow the example of their neighbors, the Quileute tribe, and adopt whale watching instead of whale hunting. Sandra Pollard Author of Puget Sound Whales for Sale: The Fight to End Orca Hunting (The History Press)	For an examination of the impacts of the authorization or denial of the Tribe's request on social relations, see Subsection 4.8, Social Environment.
1481	e_Pruett_3-24-15	Please be advised that Catherine Pruett and Brett Sommermeyer of Sea Shepherd Legal will attend the April 27 and April 29, 2015 public hearings pertaining to the Request for Comments on Draft Environmental Impact	Comments noted.

Sort #	Commenter Code	Comment	Response
		Statement Regarding the Makah Tribe's Request To Hunt Eastern North Pacific Gray Whales. We appreciate the opportunity to participate in this matter. Catherine Pruett Executive Director Sea Shepherd Legal +011 541-418-1780 www.seashepherdlegal.org	
1482	e_Public_3-20-15	public comment on federal register - stop killing the whales 3 million whales were killed in twentieth century - a holocaust of huge magnitude the makah tribe are americans and all Americans have to adjust for changed conditions. this country and our ocean is not what it was in 1900. our ocenas are much less. no makah should get any right to kill any whales. none. nor should any other amrican citizen. and we should be urging the world to recognize the precariousness of this species. there should be zero exemptions and zero waivers from a no kill policy. this comment is for the public record. please receipt. jean public On Fri, Mar 20, 2015 at 9:20 AM, jean public wrote: its time to protct - the federal agencies use the word "conservation" to avoid protecting anything at any time - federal gancies are sneaks at language they try to fool the American public and that's dqangerous and disgusting.	Comments noted.
1483	e_Public_5-23-15	I AM WRITING TO THE US GOVT NOAA TO STOP THE PERMIT TO BE GIVEN TO MAKAH TRIBE TO KILL 42 WHALES BECAUSE OF SOME OLD TREATY. IT APPEARS TO ME THAT SINCE WE ARE ALL AMERICANS, NO AMERICAN SHOULD BE KILLING ANY WHALES AT ANY TIME.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1484	e_Public_5-23-15	WHEY ARE ENDANGERD. THEY NEED PROTECTION. NO AMERICAN INDIAN OR NOT SHOULD BE ISSUED ANY PERMIT TO KILL ANYWHALE SPECIES OF ANY KIND. NO GRAYS. NO ANY KIND AT ALL. THIS COMMENT IS FOR THE PUBLIC RECORD. PLESE RECEIPT. JEAN PUBLI	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994. See Subsection 1.1.3, Summary of Gray Whale Status.
1485	e_Ratchford_5-3-15	To whom it concerns, my vote is, none of the alternatives are acceptable! the tribes premises is, it is our right through old treaty 's to take whales! to them it is a cultural thing, a tradition? we if we go on that course, let me point out other traditions that maybe should be reserected. It was widely known that many Indian tribes, would take scalps, Christians burned so called "witches and heretics at the stake! aboriginal natives would kill and eat their openents, to take on the enemys strength, I could go on and on! So, should we go back to those practices? we are (supposedly) civilized today? I question that? the past is the past, the South had slaves, that was their right as they saw it, should we go back to slavery?.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1486	e_Ratchford_5-3-15	Today, with all of the federal government help, the casinos income, the tribe does not need the whale meat! it was widely reported, that the modern tribal members don't have a taste for blubber, and with last kill the majority of the meat was fed to the dogs, and discarded into, from w hence it came, this boils down to testosterone, young men showing the prowess and being the God over the lowly unassuming harmless whale.	Comments noted.
1487	e_Ratchford_5-3-15	My God we are destroying our planet in many ways, take for instance the Blue Whale, less than 3000 survive today, from 100 and thousands! because of man, and his poor practices, pollution, over fishing, mismanagement, do we want to hasten the demise of the gray whale species, for EGO?, I urge you to deny all permits for whaling,	Comments noted. ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals. See Subsection 1.1.3, Summary of Gray Whale Status.
1488	e_Ratchford_5-3-15	if you allow this other country's will find cultural reasons to start whaling again! but you should also consider, if the tribe feels it is their right to kill, we, the countries who are party to the anti whaling treaty, have rights too, and I think the overwhelming majority would agree that treaty certainly outweighs the Maka treaty! John Ratchford Port Townsend WA	DEIS Subsection 3.17.3.2.2 (Aboriginal Subsistence Whaling) and Subsection 4.17 (Regulatory Environment Governing Harvest of Marine Mammals) address the precedential issue raised in this comment.
1489	e_Ray_3-15-15	Thank you for taking public comments. It is very difficult for me to understand why the Makah Tribe may be granted rights to hunt whales. We know so much more than we once did about whales and whaling, their intelligence and awareness. Man y species were hunted recklessly in the past. That does not justify continuing doing what was done before. how does "subsistence" enter into the equation? We all have many choices about what we eat now. Eating whales is very unnecessary in our present time.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1490	e_Ray_3-15-15	The unauthorized hunt by the Makah where the poor whale took two and one hours to die is a horrible example of what can happen. What a terrible death, to slowly die in agony and terror. It is such a sad statement that anyone would even consider it. Customs can evolve over time and change for the better. Please let's not allow us to go backwards but move ahead to greater empathy for those who share this world. Sincerely, Valerie Ray	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1491	e_Read_3-17-15	To Whom It May Concern, I am not an expert, but I do read a lot and try to keep informed about whale populations, our oceans and our climate. I live in the Seattle area and I am absolutely opposed to allowing the Makah to begin killing whales again, The United States is an International voice for whale conservation;	Comments noted.

Sort #	Commenter Code	Comment	Response
		how can we then condemn the illegal and possible increased illegal actions of countries such as Norway and Japan if we allow this? BELOW are just a few of my reasons why we should NOT allow the slaughter of these socially complex, intelligent animals:	
1492	e_Read_3-17-15	*The Makah no longer have a tradition of killing whales for subsistence. The whale killed in 2007 largely went to waste in dumpsters, it does not taste good, they really didn't know what to do with it. Their main justification: INVALID and ILLEGAL because it is no longer a cultural tradition.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition. For a discussion of the Tribe's use of the whale harvested in 1999, see DEIS Subsection 3.10.3.5.1, Makah Whaling. The whale killed in an unauthorized hunt was not landed.
1493	e_Read_3-17-15	*The Makah have admitted in the past to wanting to increase quotas of killing more palatable whales, namely Humpbacks, Minkes and Orcas, and they have stated that allowing whaling of gray whales will open the door to killing of other whale species.	The request currently being considered by NMFS is a hunt only by the Makah Tribe and only of ENP gray whales (see Subsection 2.3.2.2, Gray Whale Hunt Details). Hunting of any marine mammal species other than ENP gray whales would require a separate rulemaking process. Before the Tribe could receive a permit to hunt any other species of whale, the United States would have to request a quota on behalf of the Tribe and present a needs statement to the IWC, which would have to approve a catch limit in light of that request.
1494	e_Read_3-17-15	* There may be 20,000 estimated gray whales, however, there are subgroups and the Western subgroup is less than 150 whales. They don't wear labels saying "I'm still a threatened population". Because we cannot protect this threatened group, easy answer: DO NOT ALLOW SLAUGHTER, it can not be regulated which sub group of whales they slaughter.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1495	e_Read_3-17-15	* Because of global warming, the stresses upon all the whales will increase, we really don't know the outcome of this. It could cause the food supply and range to shrink, less food would cause unhealthy whales, and possible extinction.	The DEIS evaluates the implications of various hunt scenarios and uncertainties associated with climate change and ocean acidification, including changing climate and

Sort #	Commenter Code	Comment	Response
			conditions in the Arctic (see Subsection 3.4.3.6.11, Climate Change and Ocean Acidification).
1496	e_Read_3-17-15	*The whales already have other natural predators.	The DEIS evaluates potential scenarios for the future of the gray whale population in Subsection 5.4, Gray Whales, taking into consideration the cumulative effects of factors such as predation by orcas, as well as ship strikes, fisheries, increased vessel traffic (e.g., oil spills), oil and gas exploration, aboriginal harvest in Russia, military exercises (e.g., sonar), predation by orcas, and global climate change.
1497	e_Read_3-17-15	This list could go on. Really, how can you do this!!!! It is 2015, we know better, we know how many animal species are now threatened with extinction due to global warming and over-population and over-fishing. Your job is to be the guardians of these magnificent animals for the future generations. I hope you take a very deep look at why the Makah want to do this.	Comments noted.
1498	e_Read_3-17-15	I do not even think the treaty is legal anymore as whaling is outlawed so why should they have special privileges? PLEASE look at the long term welfare of everyone, not just the Makah, the world does not work like this anymore, there are too many factors that say THIS IS WRONG. Sincerely,Molly M Read 10416 129th Ave NE Kirkland, WA 98033	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1499	e_Reding_3-7-15	I am writing to favor the no-action alternative. We have been learning that whales are highly intelligent creatures, and this sort of hunt inflicts considerable pain on them. In addition, they are highly sociable, which means that killing or maiming one whale profoundly affects other whales in their social group.	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1500	e_Reding_3-7-15	I am sympathetic to aboriginal treaty rights, but only when the treaty right to a hunt is carried out using aboriginal methods. In this case, that would mean oar-driven aboriginal canoes and hand-thrown spears. But that is not the technique used by today's Makah, who instead use modern techniques - such as power boats and elephant guns. Modern methods do not even afford the whales a sporting chance, and involve none of the traditional human bravery that was part of the historic Makah culture. So I would recommend drafting an additional	Please see the response to frequent comment # 15 regarding the use of modern weapons

Sort #	Commenter Code	Comment	Response
		alternative, an alternative allowing hunts to resume only if they are constrained to aboriginal methods.	
1501	e_Reding_3-7-15	In addition, I recommend that whatever alternative is adopted exclude all whales that enter the Strait of Juan de Fuca. There is a small population of gray whales that summers in the vicinity of Whidbey Island. In the last (illegal) hunt, a group of Makah killed an individual in the Strait that was presumably from this group. Since the group is small to begin with, the loss of even a few individuals could threaten its continued existence, effectively removing gray whales from Puget Sound and the Salish Sea. There is no element of heroism or sport in targeting this small population of whales. They are merely targets of opportunity because they are easier to reach in the nearby and relatively calm waters of the Strait of Juan de Fuca, rather than having to brave the more challenging waters of the North Pacific to reach the Alaska migrants. Andrew Reding Senior Fellow, World Policy Institute (NY) Bellingham, WA	None of the DEIS alternatives contemplate a hunt in the Strait of Juan de Fuca. Cascadia Research Collective's website notes that "The North Puget Sound gray whales, also known as the "Sounders," represent roughly a dozen individual whales, part of the larger population of the Eastern North Pacific gray whales. They are also sometimes referred to as the Puget Sound Regulars of the Saratoga Grays. During their northern migration from Baja California, these individuals break off of the migration route to feed on ghost shrimp for 2-3 months each spring (approx. March-May) in the North Puget Sound waters. They then continue north to the Bering and Chukchi seas for summer feeding." [http://komonews.com/news/local/gray-whales-make-annual-visit-to-puget-sound]. A report by CRC (Calambokidis et al. 2009) identified the whale killed in the 2007 illegal hunt as a member of the PCFG, however previous sighting locations of this whale do not indicate it was part of the "Sounders" as suggested by this commenter.
1502	e_Reis_7-13-15	Please stop the massacre of these beautiful, magnificent animals. They are intelligent and they feel emotion when not with their pods! Just stop the senseless killing! Stop being murderers and find your compassion! Thanks!	Comments noted.
1503	e_Reiss_6-19-15	I would like to add my voice to the protests against whale hunts, a cruel and prehistoric behavior.	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the

Sort #	Commenter Code	Comment	Response
			Makah Tribe's desire to revive its whaling tradition.
1504	e_Reitz_3-9-15	Dear sirs:I am voicing my opposition to the proposed whale hunt by the Makah tribe IN ANY FASHION! The fact that they were NOT hunting with any urgency or necessity prior to their first hunt in 1999 puts to rest their rights to renew doing so again. These whales are NOT the exclusive property of the tribe,	Comments noted.
1505	e_Reitz_3-9-15	are NOT necessary for the tribes sustenance, nor critical to any tribal operation. The fact that they shot one and lost it aft er many hours of agony for the creature belie their assertion of necessity and show complete disregard for the species. Demonstration of, or need for, activities to imbue the young members of the tribe with a sense of self, or manhood can be achieved in other ways, such as the canoe journeys intrinsic to many of the NW tribes. I urge you to deny their request now and in perpetuity. Diana Reitz resident of WA.	Comments noted.
1506	e_Renyard_3-22-15	To whom it may concern, I am emailing today to express my disgust regarding the Makah Tribe's proposed grey whale hunt. We should not allow the tribe to interfere with the grey whale population, regardless of their cultural arguments. We have allowed Native Canadian tribes to overfish sockeye salmon to the detriment of the species. Giving the same privileges to hunting grey whales (a creature that produces far fewer offspring and lives for many decades), would be a mistake.	Comments noted.
1507	e_Renyard_3-22-15	The hunt is NOT life sustaining, as the tribe has access to other traditional foods, and will only interfere in a wild marine species that should be wholly left alone. Please do not allow this horrible act to happen. We need to be responsible enough to preserve our beautiful marine environment for generations. Thank you, Amanda Renyard New Westminster, BC	Comments noted.
1508	e_Reppy_7-31-15	I strongly support alternative 1 of the DEIS – NO ACTION. The Makah tribe have no subsistence need for Gray whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1509	e_Reppy_7-31-15	Whale watching is the proper way for them to proceed to honor their tradition with Gray Whales. And Whale Watching has been shown to be the sustainable way and a more lucrative way, and the humane way to interact with gray whales.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1510	e_Reppy_7-31-15	The people of the Unites States no longer support killing whales. This is a relic of the past and deserves to be depicted in a museum, not in a cruel, bloody spectacle of killing on the water. Please make the proper decision on this issue, Thank you, Michael Reppy	Comments noted. The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the

Sort #	Commenter Code	Comment	Response
			hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).
1511	e_Reynolds_ 6-4-15	When the treaties were drafted whale-hunting was practiced by many societies, including the whites. Over the years consciousness has risen so that only a few societies, e.g. Japan & Iceland, continue this barbaric practice.	Comments noted.
1512	e_Reynolds_ 6-4-15	The Makah no longer need whales for subsistence, which was the original purpose of the treaty rights.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1513	e_Reynolds_ 6-4-15	Whales, and all marine life, are under increasing pressure from pollutants, including the disastrous and ongoing radioactive releases from Fukushima. We need to set an example for other nations of conscientious stewardship of Nature, not continued ruthless and bloodthirsty exploitation. The Makahs claim to be people of the whale can best be demonstrated by taking the lead in ending this horrific slaughter, and they can become the whales spokespeople, demonstrating their superior morals and ethics as an example to the world's few remaining whale killers. Seek the highest path, not the lowest common denominator. Rik Reynolds Joyce, WA -- Taking the road less traveled can provide a convenient excuse for being late.	Comments noted.
1514	e_Rik_3-7-15	The tribes historically practice slavery, and, reputedly, cannibalism. What's next in their tradition-recovery? Have they eaten all the last whale they killed, a friendly young female who approached them out of curiosity? They didn't use that meat for sustenance, but for putting on a big party to show all the other tribes what mighty hunters they are. They don't like the taste of whale anyway, and would prefer a steak or even salmon.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1515	e_Rik_3-7-15	It's not the absence of whale meat in their diet that causes so many health problems but the adoption of the Standard American Diet (SAD) with lots of wheat, processed and polluted foods. Whale meat is heavily contaminated with chemicals anyway, so they're not doing themselves any good. If they built community gardens with greenhouses for year-round harvest of organic veggies they'd be better off. Instead they'd rather buy the processed food that sickens the rest of us. Eating whale meat won't compensate for that and will likely make it worse.	Comments noted.

Sort #	Commenter Code	Comment	Response
1516	e_Rik_3-7-15	The lack of respect of doing back-flips off the dead young female's corpse, and the hypocrisy of "reestablishing traditional ways" while blasting away with a .50 caliber rifle from a high-powered boat is further hypocrisy. When they paddle out and have the guts to harpoon a whale at close range where the whale might actually strike back at them, then ride it until it tires, jump overboard to tie the mouth shut so it won't sink, and tow it back to the village under paddle-power alone then at least their claim of maintaining tradition will have some credibility. -- Taking the road less traveled can provide a convenient excuse for being late.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1517	e_Ringgaard_3-13-15	1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1518	e_Ringgaard_3-13-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1519	e_Ringgaard_3-13-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1520	e_Ringgaard_3-13-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1521	e_Ringgaard_3-13-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
		and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	precedential effect of a waiver internationally and domestically.
1522	e_Ringgaard_3-13-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
1523	e_Ringgaard_3-13-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse- trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1524	e_Ringgaard_3-13-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1525	e_Ringgaard_3-13-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1526	e_Ringgaard_3-13-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1527	e_Ringgaard_3-13-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1528	e_Ringgaard_3-13-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution. Sincerely, Line Ringgaard	
1529	e_Ringgard_5-26-15	I'm strongly opposition Whaling In The USA. Sincerely, Line Ringgaard	Comments noted.
1530	e_Roberts_7-16-15	I am writing to urge that hunting gray whales be rejected. As a physician I am bound to end suffering and feel this duty extends to all sentient beings, including whales. Please do not allow this heinous activity to occur. Drucilla J. Roberts, M.D. Massachusetts General Hospital Department of Pathology 55 Fruit Street WRN 219 Boston, MA 02114	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1531	e_Rsiefken_3-9-15	To whom it may concern: I don't believe the Makah tribe should be allowed to "hunt" whales now or in the future. This is not a subsistence issue. They did without hunting whales for a number of years and did just fine. As for ceremonial, I'm sure they have other ceremonial practices that keep their culture alive for the next generation.	Comments noted.
1532	e_Rsiefken_3-9-15	The treaty was signed in 1865- many things that were allowed then aren't allowed now . The idea of whale hunting as acceptable in 2015 is antiquated and appalling!	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1533	e_Rsiefken_3-9-15	It's time we look after our oceans and the wildlife that live there-be better stewards and give all of our oceans time to recover from misuse.	Comments noted.
1534	e_Rucki_3-7-15	Hello, I believe that the tribes do have a right to the little that was granted to them after the contact period. I understand that with time, changes need to be made, and extinction threatens the whales in today's world, as it will in the future. However, considering the fact that if the Makah are not granted access to the whales the First Nations will gain access to these whales, the main point (saving the whales) will not be achieved. I believe that there needs to be increased international dialogue, and the tribes have every right to the whales, and they should not have to suffer the consequences of what seems to be a lack of communication between governments. Thank you! Sophie	Comments noted.
1535	e_Ruiz_7-22-15	Dear Mr. Stone, I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not	These introductory comment are noted; specific responses are provided below.

Sort #	Commenter Code	Comment	Response
		adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. I am also concerned that human safety could be jeopardized by the whale hunts, because of the planned weaponry and the hunts taking place so close to shore and in a populated area.	
1536	e_Ruiz_7-22-15	Consequently, I support Alternative 1, the no-action alternative.	Comments noted.
1537	e_Ruiz_7-22-15	The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	Please see the response to frequent comments # 2 regarding the ASW status of the Makah Tribe and 3.
1538	e_Ruiz_7-22-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1539	e_Ruiz_7-22-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	Chapter 4 of the DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1540	e_Ruiz_7-22-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species'	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these threats were adequately evaluated in the DEIS.	ENP gray whale population in the face of climate change and other threats.
1541	e_Ruiz_7-22-15	It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1542	e_Ruiz_7-22-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1543	e_Ruiz_7-22-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1544	e_Ruiz_7-22-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1545	e_Ruiz_7-22-15	The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3

Sort #	Commenter Code	Comment	Response
		because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	regarding the Makah Tribe's desire to revive its whaling tradition.
1546	e_Ruiz_7-22-15	The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1547	e_Ruiz_7-22-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC. Thank you for considering my views. Paola Ruiz 9207 Stone River Place Riverview, Fl 33578 Par289@gmail.com	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1548	e_Rush_7-31-15	Hello, Please do not approve the permit to allow the Makah tribe to resume hunting Humpback whales. They do not need the whales to survive.	Comments noted.
1549	e_Rush_7-31-15	The whale meat is full of toxins and should not be consumed by humans. Thank you, Robin Rush	The DEIS discusses the presence of persistent and potentially toxic contaminants in whale meat and blubber and allowable consumption rates for humans, based on health concerns, noting that contaminant concentrations often are lower in freshly harvested whales than in stranded whales and also lower in baleen whales than in toothed whales because of their different food sources (see Subsection 3.16.3.2, Environmental Contaminants in Gray Whales). The DEIS notes that under the action alternatives, individual tribal members would be exposed to higher levels of certain contaminants as a result of eating more whale products (Subsection 4.16.3.2, Alternatives 2 through 6).

Sort #	Commenter Code	Comment	Response
1550	e_Russell_5-8-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	These introductory comments are noted; specific responses are provided below.
1551	e_Russell_5-8-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1552	e_Russell_5-8-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
1553	e_Russell_5-8-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1554	e_Russell_5-8-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1555	e_Russell_5-8-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1556	e_Russell_5-8-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Paulinha Russell 127 Sunnydale ST APT 405 Jacksonville, TX 75766-3366	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 10 regarding response of gray whales to being hunted.
1557	e_Russom_7-16-15	Please, WE MUST STOP DESTROYING OUR PLANET, AND THE CREATURES THAT LIVE HERE! I Urge NMFS to Deny Makah Permission to Hunt Gray WhalesNational Marine Fisheries Service! All gray whales, including the Eastern North Pacific	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the

Sort #	Commenter Code	Comment	Response
		migratory gray whales, are subject to a gauntlet of threats in their summer feeding areas and throughout their migratory corridor from Alaska to Mexico. Such threats include climate change, ocean noise, oil and gas exploration and development, pollution, coastal development, contaminants, bycatch, and ship strikes. As some of these threats, like climate change, are completely transforming Arctic ecosystems with unknown short and long-term impacts on gray whales, allowing the intentional killing of any gray whales by the Makah Tribe is biologically reckless. Respectfully, Rich Russom Concerned World Citizen Illinois, USA I Urge NMFS to Deny Makah Permission to Hunt Gray WhalesNational Marine Fisheries ServiceSome of the Issues To Address:I support Alternative 1, the no-action alternative.	ENP gray whale population in the face of climate change and other threats.
1558	e_Russom_7-16-15	The Makah Tribe does not have a subsistence need for whales and, therefore, shouldn't be allowed to hunt gray whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1559	e_Russom_7-16-15	The Makah Tribe cannot demonstrate a continual traditional dependence on whales or whaling and cannot demonstrate either a nutritional or subsistence need for whale meat and other products and, therefore, doesn't qualify for an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC).	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1560	e_Russom_7-16-15	If the United States allows the Makah to whale it will effectively establish a new form of Aboriginal Subsistence Whaling with significant precedential impact to gray and other species of whales if other US Native American tribes or other aboriginal groups around the globe express interests in whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1561	e_Russom_7-16-15	The Makah's cultural need to whale is questionable since there is no evidence that a single whale needs to be killed in order for the Makah to continue to celebrate its historical connection to whales and whaling. Aboriginal people around the world continue to honor their past traditions without actually engaging in the practices which may no longer be socially acceptable, legal, or culturally appropriate.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1562	e_Russom_7-16-15	Any hunt that results in the potential killing of a resident or Western North Pacific gray whale—populations that are both imperiled—cannot be permitted. With only approximately 209 and 140 whales in these populations, respectively, the intentional killing of a single whale is unacceptable and could be disastrous for those populations.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1563	e_Russom_7-16-15	All gray whales, including the Eastern North Pacific migratory gray whales, are subject to a gauntlet of threats in their summer feeding areas and throughout	Comments noted. Please also see the response to frequent comment # 14

Sort #	Commenter Code	Comment	Response
		their migratory corridor from Alaska to Mexico. Such threats include climate change, ocean noise, oil and gas exploration and development, pollution, coastal development, contaminants, bycatch, and ship strikes. As some of these threats, like climate change, are completely transforming Arctic ecosystems with unknown short and long-term impacts on gray whales, allowing the intentional killing of any gray whales by the Makah Tribe is biologically reckless.	regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1564	e_Russom_7-16-15	Whaling is inherently cruel. To quickly kill a moving whale from a moving vessel in a moving ocean is nearly impossible. In this case, given the inexperience of Makah whalers using harpoons or 50 mm shells, there is even less chance that any whale will be quickly or humanely killed.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1565	e_Russom_7-16-15	The National Marine Fisheries Service (NMFS) has failed to consider a reasonable range of alternatives in the Draft Environmental Impact Statement (DEIS). These alternatives include the development of a whale-watching operation and the provision of land, funding, or services that would permit the Makah to humanely reconnect to whales and provide for the social and physical needs of the Makah people.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1566	e_Russom_7-16-15	A nonlethal use alternative such as the development of Makah-operated whale-watching tours would allow the Makah to humanely use and reconnect to the gray whale, bring revenue to the tribe, educate visitors about whales and marine conservation, and introduce visitors to the culture and traditions of the Makah Tribe.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1567	e_Russom_7-16-15	NMFS has failed to adequately evaluate the full range of threats to gray whales in the DEIS, as required by federal law. These threats include climate change impacts to their habitat (particularly in the Arctic); ship strikes; contaminants; bycatch (through net entanglements); pollution (including from oil spills and a proposed massive phosphorous mine in Mexico); and ocean noise (including seismic and sonar), in US, Canadian, and Mexican waters.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1568	e_Russom_7-16-15	NMFS has failed to properly consider in the DEIS the cumulative impact of past, present, and reasonably foreseeable actions undertaken by federal, provincial, or state agencies or individuals throughout the range of the gray whale, including various activities that NMFS has permitted throughout the gray whale's US range.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1569	e_Russom_7-16-15	The Makah Tribe's historic use of whales and the significance of whales to the tribe's culture is important and should be acknowledged, but times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah Tribe's	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		relationship with gray whales should change to one of humane, nonlethal use. -- Richard D. Russom	
1570	e_Ruth_5-26-15	Dear sir, Do not let the Makah Tribe resume hunting whales,,Killing is not tradition. it is murder of these majestic creatures!yours sincerely, susie syrigonakis	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1571	e_Ryerson_6-10-15	Dear Mr. Stelle I must write to express my absolute horror while reading the barbaric draft environmental impact statement prepared to address the Makah Indian Tribe's request to resume treaty based hunting of our gray whales. Not every tradition should be carried forward into the future. Certainly whale hunting must remain in the past where it belongs. In an attempt to spare you pages of outrage, suffice it to say that I adamantly oppose whale hun ng of any kind. Please mark me down as choosing Alternative 1, the No-action Alternative. Sincerely, Charlene Ryerson 34625 183rd Ave. SE Auburn, Wa. 98092	Comments noted.
1572	e_Sala_3-13-15	Dear Sirs, I'm writing because my deep concern about the resumption of whaling by the Makah. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1573	e_Sala_3-13-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1574	e_Sala_3-13-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1575	e_Sala_3-13-15	Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely, cetacean have the status of person in India....this is called	Comments noted.

Sort #	Commenter Code	Comment	Response
		CIVILIZATION! Hope you'll take the right decision and will speak for these incredible intelligent sentient beings that have no voice for defend themselves. Thank you for your attention, kind regards Emanuela Sala	
1576	e_Sanchez_3-12-15	I am writing to inform you, my opposition to authorize Makah whale hunt The Makah had not killed a whale for nearly a century and they did not meet the International Whaling	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1577	e_Sanchez_3-12-15	Alberta Nora Thompson telling, that this was not about Makah culture, it was simply about a small group of young Makah wanting to kill whales and that it was instigated by the Japanese Whaling Industry.	The DEIS notes a discussion between the Makah Tribal Council and Sea Shepherd wherein the Council "reportedly assured Sea Shepherd that they did not intend to sell whale meat to Japan."
1578	e_Sanchez_3-12-15	An she alto tell this “Yes, my people once killed whales and yes the whale is important to us.” She once told me. “But now it’s time to repay the whales for what they gave to us in the past, now is the time to protect them, not to kill them. The whale was once the salvation of the Makah. We now need to be the salvation of the whale.” Yours faithfully, Carmen Martinez Sanchez Spain	Comments noted.
1579	e_Saracini_4-7-15	To whom it may concern, I do not believe that the killing of gray whales can be justified. I think it would be a horrible infraction against the Marine Mammal Protection Act. These may even be some of the "friendlies" that swim up to the boats in Baja, CA. Please do not allow permitting to kill these gentle, intelligent creatures for any reason whatsoever. Thank you for considering this comment. Deborah Saracini Del Mar, CA	Comments noted.
1580	e_Sawastynowicz_7-22-15	Dear NMFS,I am greatly disturbed about the possibility of more hunts of the Gray Whales allowed by the Makah Tribe. I support Alternative 1, the no-action alternative.	Comments noted.
1581	e_Sawastynowicz_7-22-15	The Makah Tribe does not have a subsistence need for whales and, therefore, shouldn’t be allowed to hunt gray whales.The Makah Tribe cannot demonstrate a continual traditional dependence on whales or whaling and cannot demonstrate either a nutritional or subsistence need for whale meat and other products and, therefore, doesn’t qualify for an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC).	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1582	e_Sawastynowicz_7-22-15	If the United States allows the Makah to whale it will effectively establish a new form of Aboriginal Subsistence Whaling with significant precedential impact to gray and other species of whales if other US Native American tribes or other aboriginal groups around the globe express interests in whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1583	e_Sawastynowicz_7-22-15	The Makah's cultural need to whale is questionable since there is no evidence that a single whale needs to be killed in order for the Makah to continue to celebrate its historical connection to whales and whaling. Aboriginal people around the world continue to honor their past traditions without actually engaging in the practices which may no longer be socially acceptable, legal, or culturally appropriate.	It is up to the Makah Tribe, as a sovereign nation, to decide which traditions it continues or revives, within the bounds of the law.
1584	e_Sawastynowicz_7-22-15	Any hunt that results in the potential killing of a resident or Western North Pacific gray whale— populations that are both imperiled—cannot be permitted. With only approximately 209 and 140 whales in these populations, respectively, the intentional killing of a single whale is unacceptable and could be disastrous for those populations.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1585	e_Sawastynowicz_7-22-15	All gray whales, including the Eastern North Pacific migratory gray whales, are subject to a gauntlet of threats in their summer feeding areas and throughout their migratory corridor from Alaska to Mexico. Such threats include climate change, ocean noise, oil and gas exploration and development, pollution, coastal development, contaminants, bycatch, and ship strikes. As some of these threats, like climate change, are completely transforming Arctic ecosystems with unknown short and long-term impacts on gray whales, allowing the intentional killing of any gray whales by the Makah Tribe is biologically reckless...Thank you for your time and consideration.Sincerely, Maril Sawastynowicz	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1586	e_Sayre_7-25-15	Dear Official, Asserting that some behavior is a cultural tradition, is not adequate justification in and of itself to give it either legal or societal legitimacy. If that were a valid standard, then female genital mutilation, hunting of elephants for ivory and rhinos for horn, as well as Japanese dolphin hunts and north European whale hunting would all need to be accepted immediately, both by governments and by the societies they represent. Rather, there is a pertinent standard at issue, of objective need for the behavior, and of potential harm caused by it, both based on material fact. In this case, we are lucky that whale populations are slowly recovering from the decimation of the 19th and 20th centuries. It is time for the Makah to relegate the parts of their culture constituted by whale hunting to their history books. The fundamental rights of whales as living things, as well as their part in the ecosystem, are more important, and should be given priority in regulation. Thank you for your consideration, Johannes Sayre	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1587	e_Schaefer_3-11-15	Public comment regarding the Makah Whale Hunt; I believe Makah Tribal members should be granted a permit to hunt Gray Whales to honor the Treaty we signed with them. Makah have a unique marine heritage among Native	Comments noted.

Sort #	Commenter Code	Comment	Response
		Americans that all Americans should embrace and encourage. Thank you, Marsha L Schaefer 760 E Thornton Road, Shelton, WA 98584 360-432-2271	
1588	e_Schmidt_ 7-31-15	With the exception of a single gray whale killed in 1999 and another whale killed illegally in 2007, the Makah have not hunted whales for nearly 90 years. Consequently, the tribe cannot demonstrate a subsistence or nutritional need for whaling or whale products. Such a need is a requirement to secure approval from the International Whaling Commission to engage in aboriginal subsistence whaling, and should be a prerequisite for NMFS' approval of the hunt. Despite the absence of this need, this is the fourth attempt by NMFS to authorize Makah whaling since 1997. Previous efforts have either been scuttled by court rulings or terminated by the agency.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1589	e_Schmidt_ 7-31-15	The proposed hunt could jeopardize two imperiled populations of gray whales: the resident Pacific Coast Feeding Aggregation and the Western North Pacific, which number only 209 and 140 animals, respectively.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1590	e_Schmidt_ 7-31-15	While the main Eastern North Pacific gray whale population is much larger (nearly 21,000 animals), they and their habitat are subject to threats like climate change, contaminants, ocean noise, ship strikes, and net entanglement throughout their summering, wintering, and incredibly long migratory range (from Alaska to Mexico), and shouldn't be subject to a new threat posed by a hunt. Barb Schmidt USA	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1591	e_Schuette_ 3-8-15	Thank you for the opportunity to voice my opinion on this very important subject. I hope that the powers that be, continue to prohibit the hunting of any whales, for whatever purpose or ceremonial rites. This may be a tradition of the Makah, and other native American tribes, but we are now a much more advanced society. We now know the consequences of threatening a species, and how near extinction has happened in the past.	Comments noted.
1592	e_Schuette_ 3-8-15	I think allowing this killing of the majestic ocean wonders will just open a door that will be hard to close in the future. How can you allow one group to hunt whales and not allow all the native American tribes to do the same?	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1593	e_Schuette_ 3-8-15	We don't live in those barbaric times any more, where the killing of our fellow Earth inhabitants, for sustenance or for ritual, is a necessity. Please do not allow anyone to hunt our whales. Respectfully, Dianne Schuette	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1594	e_Schulz_5-9-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	These introductory comments are noted; specific responses are provided below.
1595	e_Schulz_5-9-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1596	e_Schulz_5-9-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
1597	e_Schulz_5-9-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1598	e_Schulz_5-9-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1599	e_Schulz_5-9-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1600	e_Schulz_5-9-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Maria Schulz Intrarea Sabinei, nr.3 Timisoara, Outside US 300424	Please see the responses to frequent comments #3 and #10.
1601	e_Scott_3-7-15	To whom it may concern, I vehemently oppose the proposed reinstatement of any whaling by the Makah Tribe. After years of waving the banner of "practicing traditions and culture," the Makah whaling effort should be shown for what it	Please see the response to frequent comment # 15 regarding the use of modern weapons

Sort #	Commenter Code	Comment	Response
		is—the baseless, pointless slaughter of a mammal already facing myriad environmental challenges. If granted the opportunity to slaughter grey whales, the Makah do not and will not hunt whales in their stated traditional way. As stated in the recent PDN article, the last legal whale taken by the Makah had one harpoon thrown into the whale, followed by the use of a modern fishing boat and rifle to chase down and shoot the whale multiple times.	
1602	e_Scott_3-7-15	The guise of tradition and culture is propaganda and utter garbage. This is politics, with the slaughter of grey whales being used as pawns to achieve a political statement of defiance.	Comments noted.
1603	e_Scott_3-7-15	Humans, of all cultures and traditions, have survived because they evolved their ways of life to best fit the environment in which they exist. It's far past the time for the Makah to evolve their collective thinking on whaling. The Makah have zero plausible reasons to hunt whales and this effort is nothing but a matter of pride for the tribal members. The wounded pride of humans should not be rectified through the wanton slaughter of innocent mammals. Furthermore, the access to protein is plentiful on the Peninsula and in the surrounding waters. The Makah and the residents of the Peninsula are better than this.	Comments noted.
1604	e_Scott_3-7-15	With whale watching businesses and eco-tourism expanding in the area, the Peninsula and the Makah should not be scarred and soiled by the disgusting decision to allow whaling on the Olympic Peninsula. Please do not allow the Makah Tribe to selfishly indulge in their useless lust for slaughter simply to score a small political victory. This is not about food and this is not about culture or tradition—this is about the selfish resistance to federal regulations. Please do not indulge the Makah's willful ignorance by allowing them to pointlessly slaughter grey whales and tarnish the strong commitment to conservation shared by the majority of residents on the Peninsula. Thank you, jared scott Port Angeles, WA	Comments noted.
1605	e_Scroggins_4-30-15	Why is there such an uproar about a group of people doing what their ancestors have done. We are forced to recognize other cultures and religions throughout the US as this is the land of the free. This is their culture and should be allowed to practice, celebrate and cherish it!	Comments noted.
1606	e_Scruggs_7-16-15	Why does the NMFS keep trying to allow our grey whales to be killed by the Makah Tribe of Washington? They have not hunted whales for 90 years! Public sentiment has changed a lot in those intervening years. Whale watching has grown into a HUGE industry and each whale brings such joy to the many who are privileged to see it. I am opposed to your efforts to allow the Makah Tribe to start whaling again for the following reasons: 1) It cannot be justified for traditional, subsistence, or necessity reasons.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1607	e_Scruggs_7-16-15	2) Our grey whales are worth more alive than dead. Whaling is a dead (literally and figuratively) industry. The whale watching industry in the U.S. and Mexico is thriving. I love going whale watching in boats and from the coast and taking visitors to see wild whales. We cannot allow the Makah to return to the brutal past. They should be encouraged to tap into the wildly popular whale watching industry instead.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1608	e_Scruggs_7-16-15	3) Killing these intelligent, beautiful, social, sentient beings is morally wrong. These whales belong to all the people who live along their migration route and everyone else.	Comments noted.
1609	e_Scruggs_7-16-15	4) Whaling is one of the most brutal, cruel, sadistic actions that man has devised. Even with exploding harpoons, whales suffer horrifically--often for a long time--before they succumb to drowning in their own blood. Whatever tools and experience, or lack thereof, that the Makah's use, these beautiful gentle creatures will suffer an agonizing, slow death. Whaling needs to stay in the past--not sanctioned. Sincerely, Tena Scruggs PO Box 3131 Escondido, CA 92033	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1610	e_Seal_Army_7-31-15	I strongly oppose the proposed Makah whale hunt. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1611	e_Seapy_3-21-15	I see absolutely no justification for issuing permits to kill gray whales. I just returned from being in San Ignacio Lagoon, a breeding ground of these magnificent creatures. Anyone who has looked in the eyes of these gentle (and forgiving of humans) creatures will find it unconscionable to kill them. Furthermore, it is no longer essential to the way of life or sustenance of Native Americans or First Nations people to do so. Please deny any requests to hunt gray (or any other) whales. Hopefully, the intent of this message has been repeated by many across the nation. Roger Seapy	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1612	e_Shelton_3-7-15	I am part of an ever-growing group of whale-watchers. We are blessed to have these majestic beings so close that we can watch them from shore. I have also enjoyed many whale watching trips and enjoyed viewing the gray whales. It saddens me to see that the Makah tribe has asked that this barbaric hunt be resumed. These whales face countless obstacles as it is! Ship strikes, pollution, noise, lack of food, and I can go on and on.	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1613	e_Shelton_3-7-15	Resuming the hunt will only encourage others to do the same.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1614	e_Shelton_3-7-15	It is time to embrace these whales! Hunting and spearing whales has no place in our society today. It is barbaric and should never be started! Please say NO to the whale hunt!Tammy Shelton, Sea Shepherd Conservation Society, Seattle Chapter	Comments noted.
1615	e_Sickles_5-15-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. Consequently, I support Alternative 1, the no-action alternative. The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	These introductory comments are noted; specific responses are provided below.
1616	e_Sickles_5-15-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1617	e_Sickles_5-15-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		history and culture. Such a solution would be beneficial to all involved, including the gray whales.	
1618	e_Sickles_5-15-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of of these threats were adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1619	e_Sickles_5-15-15	The proposed hunt is inherently cruel: It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1620	e_Sickles_5-15-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. Thank you for considering my views. Sincerely, David Sickles 1337 E 342 Street Eastlake, OH 44095-3014	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1621	e_Sims_4-30-15	Please deny the request for a permit for the Makah people to again begin whaling. The past is past - long past - and there is no valid reason to resume this practice. They can honor their heritage in numerous other ways and not have to resort to killing these great animals. Thank you. Dr. Michael Sims Former Professor, Peninsula College 707-845-2605	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1622	e_Sinkakas_5-18-15	Dear Mr. Stone, I am respectfully requesting a 60 day extension on the comment period for the Makah DEIS. While I am enclosing my comments, a 60 day extension would allow others time to read the extensive 1,300 page document and then be able to submit proper comments.	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1623	e_Sinkakas_5-18-15	NMFS needs a complete EIS of the endangered Western North Pacific stock of which only 140 remain. It has been noted that at least 22 follow some of the same migration path as the Eastern North Pacific stock. NMFS needs to complete an EIS of the 200 residents . These should be classified as two separate stocks.	The DEIS evaluates impacts of the alternatives on WNP whales (Subsection 4.4.3.2.2, Change in Abundance and Viability of the WNP Gray Whale Stock 82)

Sort #	Commenter Code	Comment	Response
1624	e_Sinkakas_ 5-18-15	There is no longer a need to hunt for subsistnance as the Makah stopped when the grays were nearly extinct for 70 yrs. Also the archaeological dig at Ozette reveals 80% of the bones were from a diet of Northern fur seals.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1625	e_Sinkakas_ 5-18-15	In April of `95 NMFS was notified by the Makah they had the option to build a processing plant & sell whale meat to markets outside US.	Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling. The Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber.
1626	e_Sinkakas_ 5-18-15	There are no enforcements or regulations of whale meat or handicrafts taken off the reservation.	If a waiver is granted to the Makah to hunt gray whales, specific regulations regarding the sale or transfer of whale products (including enforcement) would be developed as part of the waiver process. The Makah Tribe's proposed action would limit the use of whale products to ceremonial and subsistence purposes and prohibit the commercial sale or offer for sale of any whale products, except for traditional handicrafts made from non-edible whale parts within the United States.
1627	e_Sinkakas_ 5-18-15	Treaties do not address climate change, toxic blooms, oil drilling or spills, acidification, wave energy or vessel disturbance. NMFS does not address the protection of the same 33 whales in the U & A (usual & accustom area) in the marine sanctuary. This includes returning mothers & calves to nurse & rest.	DEIS subsection 3.4.3.4.3 (PCFG Abundance and Trends) notes that there are, on average, 33 gray whales identified in the Makah U&A per year. These are not the same whales year after year, as is clearly stated in the DEIS.
1628	e_Sinkakas_ 5-18-15	The 9th District Court of appeals states the treaty refers to 'in common' that establishes a relationship for our fair share that we choose for whale watching, aesthetic values & that the whales must be of their fullest population potential.	The purpose of the draft EIS is to analyze potential impacts of

Sort #	Commenter Code	Comment	Response
			alternatives, not to explore or resolve legal debates.
1629	e_Sinkakas_ 5-18-15	In 2004, the Nat`l Congress of American Indians passed a resolution giving full support to the Makah hunt including other 'effected' tribes. Many coastal tribes here & in Canada are watching closely. It is highly likely others will follow suit. This could expand internationally as well & set an unwanted precedence.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1630	e_Sinkakas_ 5-18-15	In the Sept 8, 2007 hunt the whale bled to death over 20 hrs & sank. The Tribal Council was implicated by all 5 whalers yet no action was taken by the Tribal court. Thanks so much for your time and attention to this important issue. I look forward to hearing back from you. Sincerely,Nora Sinkankas Oklahoma City, OK	The DEIS describes the NMFS investigation of the illegal hunt, including allegations of tribal council endorsement (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal council cooperated with the agency as it conducted its investigation and analysis under NEPA. NMFS' Office of Law Enforcement did not find evidence that the tribal government sanctioned the unauthorized hunt. The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct.
1631	e_Sinner_8-2-15	Dear Sir or Madam, grey whales are majestetic animals and should not be slaughtered in reasons of tradition!!! We all have to protect them! Pls. take care of them!!! Best regards Ilona Sinner	Comments noted.
1632	e_Slagle_5-4-15	I attended the April 29, 2015 meeting to review the "2015 Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Grey Whales in Port Angeles." My name is Roger Slagle and I live in Sequim, Washington. I am not affiliated with any organization or tribe. General comments: Most of us eat animals. We kill them by the millions; they are all sentient beings that want to live. To believe that one animal is less worthy than another according to our arbitrary values is as misguided as believing that one race is less valuable than another. A chicken is as much God's creature as a whale. It is hypocrisy to defend one while eating the other. A hundred and sixty	Comments noted.

Sort #	Commenter Code	Comment	Response
		years ago the Makah signed a treaty with the federal government ceding their claim to 300,000 acres of prime timber land on the Olympic Peninsula in exchange for whaling and fishing rights. As was often stated at the meeting, if they don't get their treaty rights they want their land back. This is not unreasonable. Ninety five years ago they stopped hunting whale because the whale population was in decline. They responsibly stopped doing what they had given up their land for...to protect the whale. They suspended their birthright...to protect the whale. They are more concerned with the health and prosperity of the whale than many at the April 29 meeting. A thousand years from now they will still be advocating for the whale. Twenty one years ago these gray whales were removed from the endangered species list. As long as the gray whale population is prospering, there is no good reason the Makah should not be able to exercise their treaty rights, and resume whale hunting. You asked for feedback on the effect of this issue on people: It was clear at the meeting that the Makah are profoundly impacted by the impediments to resuming the whale hunt. The sorrow in that room was palpable and will endure over generations yet to come if the treaty rights are not restored. I am sure you are aware of the deep cultural and spiritual impact this issue has on them. The opponents to whaling are also very motivated and aroused by the issue, and I have no doubt of their sincerity. However, unlike the Makah, the outcome of this decision will have no direct impact on their lives. For them a setback on this one issue is somewhat akin to their team losing a run-up game, the social and cultural impacts are significantly less profound. My comments on the various alternative proposals: Alternative 1 is just a place-holder. No one can seriously suppose that doing nothing will support anyone's rights or the dignity of this nation. The only one that makes any sense is Alternative 2. All the others are designed to insure that there are no whales to hunt, or that the whales are so far offshore that if the tribe does get a whale that it will likely sink before they can get it to shore. Or limit the season to times of such dangerous sea conditions that there will be few days when anyone can safely to go to sea. All the other alternatives except 2 just allow claims that rights have been restored when in fact they have not. PCFG: Everyone, including the Makah, understands the importance of sheltering the less populated PCFG stock. And care should be exercised in hunting while PCFG are present. Perhaps an observer skilled in identifying these whales could be deployed in a separate boat. An observer in a separate boat would be less influenced by the passion on the hunt. Finally: This comment is not founded in the kind of quantifiable values that	

Sort #	Commenter Code	Comment	Response
		these decisions rely on. I am only offering it as food for thought. It is my experience that when complicated multi-alternative solutions are required it is often because the objective in incorrectly defined. It is worth contemplating that perhaps the reason the PCFG lingers on this coast that is populated by so many former whaling tribes is that there is the kind of symbiotic relationship that is observable at every level of the natural environment: A gift from God to provide sustenance for these people over a more prolonged period. General comments on the alternatives: The Makah should be allowed to use modern methods. As someone at the meeting pointed out "to require them to use methods in use at the time of the treaty would be like saying that the second amendment to the Constitution only refers to muskets." Canoes are beautiful and poetic. But they are dangerous if the Makah are forced by a small window of opportunity to go to sea in hazardous conditions. And they are ineffective if they have to go far out to sea. Catch limits: I would like to think that there could be some kind of monitoring that could adjust yearly takes to support the sustainability of the stock. I hope that they will be allowed enough whale to share with other whale hunting tribes by any exchange suitable to them. There should be no sunset. The hunt should continue as long as the stock can support it and still prosper.	
1633	e_Slayden_7-8-15	I am writing in support of the "No-Action" alternative in the 2015 Draft Environmental Impact Statement concerning the Makah Indian Tribe's request to hunt gray whales.	Comments noted.
1634	e_Slayden_7-8-15	The DEIS is a lengthy document and contains a great deal of scientific information about whale populations, the various sub-species, and the many impacts that a whale hunt may have. But I think that an important emerging worldwide cultural value has been lost in all that detail. I believe that any killing of intelligent wild animals is simply wrong and immoral. Whether it is poaching of elephants, slaughter of gorillas, or ceremonial hunting of whales, humanity is evolving towards a consensus that all of these actions are not compatible with the values of our global civilization. When you take the broad view of history and see how previously acceptable practices now seem impossibly barbaric, it is clear that future generations will look back on our era in amazement at how we treated our closest intellectual kin on the planet.	Comments noted.
1635	e_Slayden_7-8-15	In the year 1500, the Aztecs of Mexico practiced human sacrifice, and their Spanish conquerors inflicted brutal torture on non-Christians. It is of course unthinkable for either group to propose resurrecting these practices in the name of cultural tradition. I don't think we are too far away from a future when killing whales, as proposed, may be viewed through a similar historical prism. I am	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		aware that the issue I am discussing is perhaps too broad and general for a DEIS-based decision making process. But I do hope that the decision makers at NOAA keep these kind of moral values in mind as this process continues. Greg Slayden Kirkland, WA	
1636	e_Slezinger_3-11-15	I am very concerned about the Makah's interest in whaling. We are at a juncture in humanity where we can no longer place 'traditions' before the survival of species teetering on the brink. It's time for us as a species to reevaluate our practices and priorities. Thank you! Gymi Slezinger	Comments noted.
1637	e_Smih_7-16-15	I am sorry that people, although it has not been the Makah, have killed off too many whales, sharks and other sea creatures through ignorance, over fishing, greed, pollution, too many vessels on the oceans dumping every kind of polutant, pollution dumped into rivers that run to the ocean and on and on. STOP IT ALL NOW. The oceans and sea creatures have suffered greatly. Stop everything. They need a LONG rest, probably hundreds of years.	Comments noted.
1638	e_Smith_3-28-15	While I believe that the Makah are entitled to their beliefs and traditions, hunting whales in the 21st century is a horrible idea and should simply not be allowed.	Comments noted.
1639	e_Smith_4-22-15	If the Makah Tribe wants to maintain tradition, let them, but also let them truly maintain it by using non motorized vessels (includes towing the whale back to the beach), no use of modern weapons, using only traditional methods of killing whales, for craving up their prey, also the use of tools that were available to them during 1855. To allow them to hunt using modern methods, basically makes it a non-traditional hunt, hence violates their chief concerns of denying them their tradition. Allowing them to hunt in non-tradition basically nullifies their tradition. Thank you for your attention.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1640	e_Smith_7-26-15	At this time i am writing in support of alternative 1- no whaling. There has not been a complete DEIS of the Western North Pacific gray whale population from Sakhalin island off Kamchatka Russia.	Comments noted; the 2015 DEIS includes the best available information regarding WNP gray whales and the impacts on these whales under the various alternatives.
1641	e_Smith_7-26-15	There is insufficient data on how climate change will affect ocean acidification and their prey availability.	DEIS Subsection 3.4.3.6.11 (Climate Change and Ocean Acidification), Subsection 5.1.3.9 (Climate Change), and Subsection 5.2 (Water Quality) include our assessment of climate change impacts. In the DEIS we note that Bluhm and Gradinger (2008) examined the availability of pelagic

Sort #	Commenter Code	Comment	Response
			and benthic prey in the Arctic and concluded that pelagic prey is likely to increase while benthic prey is likely to decrease in response to climate change. They noted that marine mammal species that exhibit trophic plasticity (such as gray whales that feed on both benthic and pelagic prey) will adapt better than trophic specialists.
1642	e_Smith_7-26-15	There are no regulations in place for the distribution of whale meat and whale by-products.	If a hunt is authorized, specific regulations regarding the distribution of whale meat and whale by-products will be adopted by NMFS through a formal rulemaking process. Subsection 2.3.2.2.12, Other Environmental Protection Measures, describes enforcement measures that are common among the action alternatives. Possible enforcement measures under the permit would include criminal sanctions (e.g., fines and imprisonment) and barring violators from exercising treaty fishing, hunting, and/or whaling rights for at least 3 years.
1643	e_Smith_7-26-15	This also sets a terrible precedence as the rest of first nations around the world are closely watching.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1644	e_Smith_7-26-15	As they have just been de-listed from the endangered species list they have yet to reach a sustainable potential. - Veronica Smith -- Veronica Smith Artist - Astrologer 317.603.3950 www.soulmapmandalas.com 'It is the privilege of a lifetime to be one's self' - Joseph Campbell	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals. See Subsection 1.1.3, Summary of Gray Whale Status.

Sort #	Commenter Code	Comment	Response
1645	e_Smith_7-29-15	Dear NOAA: Please deny the Makah tribe's request to resume whaling! In regard to the draft environmental impact statement, on behalf of innocent whales that should be protected under the marine mammal protection act, please choose: A no-action alternative I trust that you work on behalf of marine mammals and their protections, not just for the greedy desires of the hunters and fisheries. Sincerely, Nancy Smith	Comments noted.
1646	e_Smith_7-31-15	We are strongly against resuming whaling. The numbers of whales is not the issue. It is a highly inhumane practice and needs to be abolished once and for all in these times. We're having a hard enough time stopping Japan from whaling. It's appalling that this is even being considered. Sincerely, Suzanne Smith Director/Teacher	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1647	e_Smothers_et_al_6-10-15	I find it disheartening that I have to be writing on the actions of a people that used to be the protectors of both the earth and the creatures that live on it. The recent petition of the Makah tribe to continue the treaty right of hunting Pacific Gray Whales is abhorrent. This is not in the days when they needed to hunt for food and survival, this is merely for profit and that is shameful.	Comments noted.
1648	e_Smothers_et_al_6-10-15	These magnificent animals are already endangered along with countless others, need they hunt them into extinction and use for the excuse the treaty rights? The Japanese who are willing to pay them about a million dollars a whale have already overfished the waters in their area until there is nothing left. It isn't as if the native tribes don't have casinos from which they can gather income, must they lower themselves to the very standards they say was done to their tribes during the take over by the Europeans? It seems how quickly they have forgotten and lost the affinity and love of nature that set them apart from those people that have plundered this country. Regards, Sylvia Smothers, Maria Perez, Jamie Lockett	ENP gray whales are no longer listed as endangered. They were removed from the U.S. Endangered Species List in 1994, and their current estimated population is well over 20,000 animals (see Subsection 1.1.3, Summary of Gray Whale Status). Also, the Tribe's proposal does not include commercial sale of whale meat or blubber, and none of the alternatives in the DEIS contemplate commercial sales of whale meat or blubber. Both the MMPA and WCA prohibit commercial whaling. The U.S. position is that the Tribe may not engage in commercial whaling.
1649	e_Sneddon_4-23-15	Dear NOAA officials: There is no real need for the Makah to resume hunting gray whales. In 1855 when the treaty was signed giving them the right to hunt whales off their reservation, there was a need for the meat for subsistence. That need no longer exists and, in fact, it has been documented that many Makahs do not like whale meat. From Washburn's general store on the reservation to super markets	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		not far off the reservation, Makahs today have access to other sources of food. It's a long drive out to Neah Bay from Seattle, but this tribe is not really isolated like the Inupiat in Barrow, Alaska, who hunt the bowhead whale for subsistence. For the Makah, whale hunting is more of a misguided show of bravado. They can honor gray whales in their art, storytelling and other ways, but have no need to kill them. What they do need is a new role for the whale in their culture. Sincerely, Sharon Sneddon Edmonds, WA	
1650	e_Sokol_3-9-15	I got a sickening, sinking feeling in my stomach when I just read in the Seattle Times that an NOAA study could set the stage of Makah whaling to resume. I just spent 8 days on Magdalena Bay in the Baja going gray whale watching, petting the baby calves and their mothers, watching the living, breathing, caring mothers interact as humans do with their babies, and observing these magnificent, loving, and beautiful mammals. I am appalled to read that there is the possibility that that the waters may once again be bloodied with the "hunting" and killing of the Pacific gray whales for tribal purposes. I am BEGGING you to PLEASE NOT LET THIS HAPPEN!!! Do NOT authorize tribal "hunting" and killing of the gray whales!!!!! Stacy and Mike Sokol 362 Tradewinds Avenue Naples, FL 34108	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1651	e_Sommer_3-10-15	To the Makah Nation and NOAA. I am a resident of kitsap county and i am writing to request that NOAA deny any permits to hunt whales in the PNW. I make this request being aware of and respecting the Salish Culture and traditions. My reason is simple..there are so many studies with regard to the killing of large whales..and we know that there is just no humane way to kill or capture an animal of this size. With the science available regarding large cetaceans we know this. We are also learning that they have their own cultures and traditions and languages..just as people do..and this in and of itself makes it immoral and unethical.. With all due respect to traditional concerns..modern science must trump this.. I believe that if the Makah tribe considered the incredible pain and suffering and trauma these animals would endure, they would find another way to honor their culture and their spiritual connection to the great whales. This is not an easy position for me as my family is coast salish and i practice native teachings but i have never been taught that we need to be cruel in a modern world to honor our ancient cultures and traditions.. and in this modern world..the hunting of great whales and cetaceans of any kind is inherently cruel...and i believe Creator understands this.. if we wish the world to change from a cruel mindset to one of compassion and honor..than the actions of the people should reflect that. Haze Sommer POulsbo, wa 360.649.5291	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1652	e_Speer_5-26-15	It appears quite clear to me that the Makah have a treaty right to hunt whales. Our U.S. Courts have muddied the issue by requiring approval of NOAA to waive the MMPA. To do other than grant waiver of the MMPA is to continue a long history of inappropriate meddling and control by the U.S. Government over native peoples' culture. We have done enough damage. Let them hunt.	Comments noted.
1653	e_Spellman_7-20-15	I support Alternative 1, the no-action alternative.	Comments noted.
1654	e_Spellman_7-20-15	The Makah Tribe does not have a subsistence need for whales and, therefore, shouldn't be allowed to hunt gray whales.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1655	e_Spellman_7-20-15	The Makah Tribe cannot demonstrate a continual traditional dependence on whales or whaling and cannot demonstrate either a nutritional or subsistence need for whale meat and other products and, therefore, doesn't qualify for an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC).	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1656	e_Spellman_7-20-15	If the United States allows the Makah to whale it will effectively establish a new form of Aboriginal Subsistence Whaling with significant precedential impact to gray and other species of whales if other US Native American tribes or other aboriginal groups around the globe express interests in whaling. The Makah's cultural need to whale is questionable since there is no evidence that a single whale needs to be killed in order for the Makah to continue to celebrate its historical connection to whales and whaling. Aboriginal people around the world continue to honor their past traditions without actually engaging in the practices which may no longer be socially acceptable, legal, or culturally appropriate.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1657	e_Spellman_7-20-15	Any hunt that results in the potential killing of a resident or Western North Pacific gray whale—populations that are both imperiled —cannot be permitted. With only approximately 209 and 140 whales in these populations, respectively, the intentional killing of a single whale is unacceptable and could be disastrous for those populations.	Please see the responses to frequent comments # 12 regarding risks to WNP whales and # 13 regarding risks to PCFG whales.
1658	e_Spellman_7-20-15	All gray whales, including the Eastern North Pacific migratory gray whales, are subject to a gauntlet of threats in their summer feeding areas and throughout their migratory corridor from Alaska to Mexico. Such threats include climate change, ocean noise, oil and gas exploration and development, pollution, coastal development, contaminants, by catch, and ship strikes. As some of these threats, like climate change, are completely transforming Arctic ecosystems with	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		unknown short and long-term impacts on gray whales, allowing the intentional killing of any gray whales by the Makah Tribe is biologically reckless.	
1659	e_Spellman_ 7-20-15	Whaling is inherently cruel. To quickly kill a moving whale from a moving vessel in a moving ocean is nearly impossible. In this case, given the inexperience of Makah whalers using harpoons or 50 mm shells, there is even less chance that any whale will be quickly or humanely killed.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1660	e_Spellman_ 7-20-15	The National Marine Fisheries Service (NMFS) has failed to consider a reasonable range of alternatives in the Draft Environmental Impact Statement (DEIS). These alternatives include the development of a whale-watching operation and the provision of land, funding, or services that would permit the Makah to humanely reconnect to whales and provide for the social and physical needs of the Makah people.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1661	e_Spellman_ 7-20-15	A nonlethal use alternative such as the development of Makah-operated whale-watching tours would allow the Makah to humanely use and reconnect to the gray whale, bring revenue to the tribe, educate visitors about whales and marine conservation, and introduce visitors to the culture and traditions of the Makah Tribe.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1662	e_Spellman_ 7-20-15	NMFS has failed to adequately evaluate the full range of threats to gray whales in the DEIS, as required by federal law. These threats include climate change impacts to their habitat (particularly in the Arctic); ship strikes; contaminants; by catch (through net entanglements); pollution (including from oil spills and a proposed massive phosphorous mine in Mexico); and ocean noise (including seismic and sonar), in US, Canadian, and Mexican waters.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1663	e_Spellman_ 7-20-15	NMFS has failed to properly consider in the DEIS the cumulative impact of past, present, and reasonably foreseeable actions undertaken by federal, provincial, or state agencies or individuals throughout the range of the gray whale, including various activities that NMFS has permitted throughout the gray whale's US range.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1664	e_Spellman_ 7-20-15	The Makah Tribe's historic use of whales and the significance of whales to the tribe's culture is important and should be acknowledged, but times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah Tribe's relationship with gray whales should change to one of humane, nonlethal use. Tara Spellman, PHR, SHRM-CP Staffing Manager Accomplish Therapy, LLC 1665 Palm Beach Lakes Blvd, Suite #100 West Palm Beach, FL 33401	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1665	e_Sreiber_4-11-15	Dear Sir, Whales are facing major threats. Due to the increase in the population the Makah Tribe in Washington State would soon re-visit their efforts to resume	Please see the response to frequent comment # 4 regarding the

Sort #	Commenter Code	Comment	Response
		whaling, claiming their Treaty rights gave them the authority to kill Gray Whales. Literally, the day after the Coalition returned from Guerrero Negro to San Diego, a new request was applied by the Makah for a waiver under the Marine Mammal Protection Act. The DEIS acknowledges that if the Makah hunt is authorized, it may lead to future regulatory changes that would in turn lead to increased hunts of whales or other marine mammals.	precedential effect of a waiver internationally and domestically.
1666	e_Sreiber_4-11-15	The DEIS is unable to ensure that the highly endangered Western Gray Whale will not be killed. Only genetic analysis would allow identification of a whale as either Eastern North Pacific, Western Pacific Whale or a member of the Pacific Coast Feeding Group. It is impossible to ID these whales as they all look alike.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1667	e_Sreiber_4-11-15	The DEIS lacks important published research on the extent of Orca predation which has been estimated at 35% of calves. Given the increase in numbers, and the ability of transient Orcas to move deeper into Gray whale habitat in the Arctic as the ice melts, the rate of predation is likely to be as high or higher than 35%. No current Russian figures or current research have been included in the DEIS.	The commenter does not identify the published research allegedly lacking from the DEIS. The DEIS includes updated and relevant material responsive to the commenter's inquiries in the following Subsections: 3.4.3.1.2, Global Distribution and Population Structure; 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.1.6, Natural Mortality; 3.5.3.1.1, ESA-listed Marine Mammal Species (Killer Whale); 4.5.2.2, Prey Availability; 5.1.3.8, Natural Mortality.
1668	e_Sreiber_4-11-15	The precedent set by granting a waiver will : - Set an unholy precedent at IWC, particularly as Japan is attempting to have its coastal communities given the same rights as the US is seeking for the Makah Tribe.- Set the wheels in motion for the killing of Humpback Whales as efforts are being made to delist the Northern Humpback Whale from the Endangered Species List. The Tribe has indicated its desire to kill Humpbacks. - Set a precedent for a significant number of Native American Indian Tribes to claim discrimination and seek the same whaling rights as the Makah.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1669	e_Sreiber_4-11-15	The Bowhead whale quota for Alaskan Inuits is a source of great controversy at IWC and within the conservation community. If a waiver is granted to the Makah, the US will have cemented its position as a whaling nation. A total reversal of a proud record of whale conservation. The Tribe proposes killing a maximum of five Gray whales per year on average and up to 24 whales in a 6 year period. The	Comments noted.

Sort #	Commenter Code	Comment	Response
		number of whales struck (and not killed) would be no more than 42 over the six year period.	
1670	e_Sreiber_4-11-15	The Makah Tribe claims hunting gray whales is a treaty right. The Tribe says the exercise of its treaty whaling rights will provide a traditional subsistence resource to the community and sustain and revitalise the ceremonial, cultural, and social aspects of its whaling traditions. An Indian magazine carries an article which demonstrates the battle those of us who want to protect whales are facing.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe, # 3 regarding the Makah Tribe's desire to revive its whaling tradition, and # 4 regarding the precedential effect of waiver internationally and domestically.
1671	e_Sreiber_4-11-15	Killing whales in the 21st Century has no place in any culture. A dead whale is a dead whale. If a waiver is granted by the Federal government, then the IWC will have to accept a new whale killing category – healing over 200 years of cultural disruption. Sincerely, Andrea Sreiber Serbia	Comments noted. Please also see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1672	e_Stateler_et_al_7-31-15	To Whom It May Concern: We are First Nations whale conservationists and marine mammal stranding responders in Washington State. Regarding the Makah Tribe's request to resume killing ENP Gray Whales, we urge NOAA Fisheries to implement the NO-ACTION ALTERNATIVE THAT PROHIBITS WHALING under the Marine Mammal Protection Act. As one tribal member stated at your hearing in Port Angeles, WA, "The government should return our land. We're asking for our rights back." We advise NOAA Fisheries and other government agencies to negotiate with the Makahs to exchange land or other resources of equivalent value, as determined by the tribe, to compensate for relinquishing the right to kill whales as specified in the 1855 Treaty of Neah Bay.	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1673	e_Stateler_et_al_7-31-15	The heinous poaching of a "resident" Pacific Coast Feeding Group Gray Whale in the Strait of Juan de Fuca by five rogue Makah whalers in 2007 thoroughly invalidated the tribe's claim that killing Gray Whales is for traditional, spiritual, ceremonial, or subsistence purposes. That whale died a cruel, protracted death and sank. Those poachers desecrated their ancestral whaling legacy, compromising it beyond redemption.	The DEIS describes the NMFS investigation of the illegal hunt (see Subsection 1.4.2, Summary of Recent Makah Whaling—1998 through 2014). The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct. For information on enforcement measures

Sort #	Commenter Code	Comment	Response
			that are common among the action alternatives, see Subsection 2.3.2.2.12, Other Environmental Protection Measures.
1674	e_Stateler_et_al_7-31-15	In addition, any risk of killing a critically endangered Western North Pacific Gray Whale is utterly unacceptable. In 2015, our federal government should not be facilitating whale killing, now universally deemed antiquated and inhumane.	Please see the response to frequent comment # 12 regarding risks to WNP gray whales.
1675	e_Stateler_et_al_7-31-15	Allowing a Makah Gray Whale hunt to resume would undermine US credibility at the IWC.	We disagree. At the request of the United States on behalf the Makah Tribe, the IWC has several times authorized a catch limit for gray whales and the United States continues to be a leader at the IWC. The comment does not explain the basis for a presumed loss of credibility.
1676	e_Stateler_et_al_7-31-15	The time is overdue for Makah elders, culture bearers and tribal leaders to reassess the viability of whaling in the 21st century. Imperiled by climate change, habitat destruction, and other monumental threats, fragile whale populations will not endure for the next seven generations if only select groups of humans commit to protecting whales, while others persist in exploiting whales. Whales are our sacred brethren – not food. Sincerely,Ann Stateler (Choctaw/Five Tribes) Odin Lonning (Tlingit) Vashon Hydrophone Project -- Native-run whale research/education/conservation in Puget Sound Vashon Marine Mammal Stranding Response 206-463-9041	Comments noted.
1677	e_Stewart_5-26-15	It would be a crime against nature if you allow the tribes to commence whaling again. Ceremonial or subsistence arguments are not valid, this is 2015. Allow this to happen and then you insist they live in wigwams and wear their traditional clothing Take away all gas driven boats and cars and powered harpoons.. You have a a duty to withhold the international treaty on banning whaling. We become the same as other countries that ignore the treaty if you allow this to commence. Martyn Stewart www.naturesound.org www.soundofcritters.com Redmond WA	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 15 regarding the use of modern weapons.
1678	e_Stokes_4-14-15	Flying S Farm 2674 Dowans Creek Road Forks , WA 98331 April 6, 2015 360-374-2444 Steve Stone National Ocean and Atmospheric Administration Dear Mr. Stone, For four years I sat on the North Pacific Coast Marine Resource Committee along with representatives of the U&A tribes including the Makah. We reviewed and commented on a wide range of environmental issues. To me, the issue of	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		modern whaling, by any Nation or ethnic group is off the table for environmental, as well as humanitarian issues. Though the full degree of Grey whales' sentence is not fully understood, they have language, protect their young and exhibit intelligence far beyond other denizens of the deep. Their capacity to feel pain and morn the loss of family is manifest.	
1679	e_Stokes_4-14-15	The Makahs associate the whale hunt with keeping their Native traditions in tact. But going out in modern vessels, wearing life jackets and killing whales with modern harpoon has nothing to do with the crazy, dangerous whale hunt with seal bladders, muscle shell harpoons and dug out boats that characterized their ancestors' hunt.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 15 regarding the use of modern weapons.
1680	e_Stokes_4-14-15	Tribal warfare with the Quileutes, taking slaves and cannibalism were other Makah traditions that would not be sanctioned today. The way back for the Makahs is their vast archeological connection through the Ozette dig and Makah Museum. The way back is through their oral history, studying their language, their basket weaving and in seeking out the wisdom of their living elders.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1681	e_Stokes_4-14-15	In Washington State, the Bolt decision makes a 50% allotment of all State fish to the tribes. The Makahs enjoy subsistence hunting rights in their Usual and Accustomed Areas. Previous whale hunts have led to wasted meat, since, the tribe has lost it's acquired taste for this peculiar flesh. Unlike yesteryear, not one First American in Neah Bay requires whale flesh to survive hunger. There is no legitimate reason to allow the Makah to disgrace their courageous ancestry by killing a highly intelligent and gentle species from a modern, safe gunship. The ONLY alternative that makes sense in light of modern facts is "No Action" (continue the 2004 protections of the Marine Mammal Protection Act). Thank you for this opportunity to comment. xxxxxxxx, chiggers stokes	Comments noted.
1682	e_Stonebraker_7-26-15	Please do not allow the Makah Whale Hunt that will kill grey whales to take place. Times are changing, they have so many threats for survival. They are subject to many ship strikes, their babies can be eaten by transient orcas plus some migrate 14,000 miles. Their numbers are dwindling and it will get worse as ocean waters change. Many organizations are trying to protect the whales and to allow this would only crush progress that has been made in convincing people that times are changing. The whale populations need to be protected, every one of them. Please don't allow the Makah Whale Hunt. Thank you, Marilyn Stonebraker Ocean Shores, Washington	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1683	e_Storey-Leonard_3-10-15	Please do not issue a permit for the Makah tribe to hunt & kill whales. If you look closely, and ask people on the reservation, the tribe's taste for whale meat	Subsection 3.10.3.5.1, Makah Whaling, explains that most of the meat and blubber from the gray whale killed

Sort #	Commenter Code	Comment	Response
		disappeared over 50 years ago..... when the whales were harvested in the 1990's the meat simply sat in the freezers not to be used.	during the 1999 hunt was consumed during a single community celebration. Some also was distributed to community households.
1684	e_Storey-Leonard_3-10-15	The method of kiling was not in keeping with tribal customs with a simple harpoon & then a gunshot to the head.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1685	e_Storey-Leonard_3-10-15	In 1999 the Grandmothers from the tribe spoke out against this killing of whales, stating that this "right" no longer applied to their tribe. They went as far as to attend the IWC that year, asking them to never support the killing again.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1686	e_Storey-Leonard_3-10-15	I cannot speak to this time, but at that juncture, Japan had "bought off" the tribal counci and people on the reservation knew this. The ones who paid the bribes were wanting the whaling to resume so they could point to the Tribe as an example of whale hunting going on outside of Japan to legitimize their own illegal behavior. Please deny the permit. Lyndia Storey Lyndia Storey-Leonard 831-251-6964 (Cell) 831-704-7369 (Office)	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1687	e_Stott_5-1-15	I am writing to express my strong opposition to your issuing the Makah a permit to kill up to five gray whales a year for "cultural reasons." If the permit is granted, will degrade the current global ethic against whaling while perhaps killing as many as 24 gray whales over a five year period. Sincerely, Richard Stott 4000 Rio Road #3 Carmel CA 93923	Comments noted.
1688	e_Sturt_5-22-15	These sentient beings do not deserve to be hunted and killed - no animal does - even if their numbers have come back from being hunted almost into extinction in the past. Each individual deserves to live his or her life.	Comments noted.
1689	e_Sturt_5-22-15	The tribe in question is not living in ancient times when hunting was necessary for survival. Things have changed. Thank you for listening. Sincerely, Pamela Fletcher Sturt	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1690	e_Sund_7-31-15	They shouldn't be able to use a gun. If they want their treaty rights they should use the technology of said treaty. I hear they say it's to be human. I don't buy it. It's an animal, for goodness sack. If they wish to use the rifle do it when death is evident. A rifle gives the tribe an advantage not forseen in treaty right and is not in their tradition either.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1691	e_Sutkiewicz_5-5-15	Sorry.. this is a horrific idea. There was a time when we did not know what whales were and that they see each other as individuals and as family. If people have to be dragged into the current century.. so be it.	Comments noted.

Sort #	Commenter Code	Comment	Response
1692	e_Sutkiewicz_5-5-15	Slavery used to be a traditional form of getting work done, women as second class citizens in almost EVERY aspect of life used to be "tradition"... that ended because those minorities and others spoke up against and fought against what was happening. The difference now... these animals have N(O voice of their own, only we can speak for them. I am begging you to make the only rational compassionate decision a modern, intelligent, EDUCATED person would make. If you wouldn't whip another human being to do your laundry or tell a wife or daughter not to vote... you shouldn't tell a being we now know is capable of love and iintelligence... you have to be horrifically killed for outdated, primitive, superstitious NONsense. Stella Sutkiewicz Fruitland, MD	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1693	e_Swain_5-11-15	You must be joking, these people have too much time on their hands, perhaps better served by learning just how sentient, social, and family oriented these creatures really are. There is so much we do not know, but what we've learned is we are so fortunate to have these lovely creatures among us. NOT so we can run out and kill them, as unfortunately, we so easily seem to justify doing. This is a native tradition - as the last one ? Good heavens, they killed a baby whale, and did it with a 50 cal. gun for god's sake. None of it was traditional, certainly not their means to kill the baby whale.	Comments noted.
1694	e_Swain_5-11-15	Why ? What is the need for this whale hunt ? There's certainly no need for whale oil, or to eat their fat(s)/blubber, I wish to heaven these folks would wake up and understand how barbaric what they are trying to do (again) really is. These are creatures who harm no one, and were once hunted close to extinction. Leave them alone. There are enough man made threats out there already they have to deal with. And certainly, it's so insulting to hear anyone say they have any kind of "right" to kill these beautiful, intelligent creatures. No one has anything even close to a need to do this sort of thing, much less a "right" !!! Let's try to learn from them, not kill them.	Comments noted.
1695	e_Sweeney_5-3-15	For far too long our society has been selling hunting licenses to kill a host of diverse wildlife. As a teenager I too was involved in this slaughter, but having matured I have come to realize that my hunting and fishing was actually an expression of mental problems I was experiencing...actually a mental illness! My killing was shielded by a complex screen of historical cultural norms that are very out of date in the 21st century. Some humans have made such progress befriending the natural population of gray whales that these animals treat them with trust and respect. What must they be thinking when a group of humans like they have come to trust in other settings inflicts injury and pain? We need to educate the people in the cultures that represent our conflicted past, not issue	Comments noted.

Sort #	Commenter Code	Comment	Response
		permits for them to continue their lives of disrespect for nature. Randy Sweeney Science Educator Http://science wonder.org -- Randy Sweeney Science Educator, Los Angeles, California Owner of Blog: sciencewonder.org Email: The more I learn... The more I realize... That there is so much more to know!	
1696	e_Swesey_3-8-15	This email is in reference to the request for public input for the Makah Whaling Draft Environmental Impact Statement noted in the March 8th Peninsula Daily News. I wish to go on record as strongly opposed to further whaling by the Makah Tribe. Even though the Makah Tribe have claimed that whaling is for cultural "enlightenment" it is difficult to justify the painfully slow and brutal death an intelligent life for one's culture.	Please see the responses to frequent comments # 1 regarding humaneness of a whale hunt and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1697	e_Swesey_3-8-15	This is not subsistence hunting and is not a physical requirement for these natives	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1698	e_Swesey_3-8-15	nor would these whales be hunted in a "culturally traditional" manner. This would most likely be done in speed boats and high powered weapons.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1699	e_Swesey_3-8-15	The true nature of Makah intentions could be summarized in the illegal machine gun slaughter of the gray whale killed on September 8th, 2007. northeast of Neah Bay. This demonstrated that no uniform or culturally ordained relationship existed between the tribe and it's culture. The members involved claimed to be within their tribal rights and showed undeniable disrespect for the laws set up to protect these animals. The tribal members involved in the killing were given only misdemeanor charges and continue to remain as tribal members. The death of an intelligent creature has higher value than cultural "enlightenment." Mike Swesey Sequim, WA	The DEIS describes the NMFS investigation of the illegal hunt (see Subsection 1.4.2, Summary of Recent Makah Whaling--1998 through 2014). The tribal members who participated in the 2007 unauthorized hunt were prosecuted in federal court and all five tribal members received judicial sentences based on the MMPA and the court's evaluation of the seriousness of their conduct. For information on enforcement measures that are common among the action alternatives, see Subsection 2.3.2.2.12, Other Environmental Protection Measures.
1700	e_Swope_3-10-15	To whom it may concern, I am strongly in favor of honoring the Makah's whaling traditions and not violating their sovereign treaty rights, as long as their whale harvest is done sustainably. I have read arguments against the hunt saying that whale are sentient, intelligent creatures and that the hunt is cruel. This type of	Comments noted.

Sort #	Commenter Code	Comment	Response
		argument against whale hunting is morally deficient if those making that argument consume red meat. I am not Makah or native. I have hunted mammals like elk and butchered animals like cows (which are sentient, intelligent creatures), and have watched them die. It is a deeply sad, spiritual, and connective act to shepard an animal from this life to sustain your own life. Uphold the Treaty which gives you the authority to regulate this hunt or relinquish full sovereignty back to the Makah. Michael Swope 206-852-2395 3201 SW Roxbury St. Seattle WA 98126	
1701	e_Sylvie_5-14-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	These introductory comments are noted; specific responses are provided below.
1702	e_Sylvie_5-14-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1703	e_Sylvie_5-14-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled	The DEIS provides a detailed analysis of impacts on gray whales and other

Sort #	Commenter Code	Comment	Response
		whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1704	e_Sylvie_5-14-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1705	e_Sylvie_5-14-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1706	e_Sylvie_5-14-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1707	e_Sylvie_5-14-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances,	Please see the responses to frequent comments # 3 regarding the Makah Tribe’s desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.

Sort #	Commenter Code	Comment	Response
		ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, sylvie C le bourg cubjac, aquitaine 24640	
1708	e_Tham_7-31-15	Dear all,Please do not allow the Makah Tribe to resume whaling. Thank youDaniel	Comments noted.
1709	e_Thibault_7-31-15	If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities. Thank you	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1710	e_Thiel_5-5-15	In 2015 there is no "need" to kill whales. The Makah Tribe has access to food, clothing and traditional history. "Tradition" is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1711	e_Thiel_5-5-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
1712	e_Thiel_5-5-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies.To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washington Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching
1713	e_Thiel_5-5-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away the protections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection Act which came about for a reason.It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challenges to survive in a modern ocean. Sincerely, Daniela Thiel	Comments noted.
1714	e_Thiersch_4-28-15	Regarding the proposed Makah whale hunt: No waiver of the moratorium is acceptable. Quaint provisions of ancient treaties are not relevant to the modern world. In this particular case, in addition to the moral and ethical reasons for not allowing any whaling hunting, there is a high likelihood that a western Pacific	Please see the responses to frequent comment # 8 regarding the Treaty of Neah Bay and # 12 regarding risks to WNP whales.

Sort #	Commenter Code	Comment	Response
		gray whale could be mistaken for an eastern Pacific gray whale and killed; the western Pacific gray whale species is still endangered and must be protected from human predation.	
1715	e_Thiersch_4-28-15	The Tribe's assertions in the "Needs" statement that they will "harvest" whales for "sustenance" is nonsense – if the Tribe's people are that much in need of food, USDA has a number of programs that will feed them, and without butchering rare mammals that are only barely off of the endangered species list. The amount of "sustenance" from 5 whales will have no meaningful impact on the dietary needs of the 2,000 or so Makah who could possibly receive any such food. i.e., The "sustenance" argument is nonsense. The barbaric practices of the past need to stay there – in the past. Tribes cannot cling to their religious beliefs as an excuse, either. There is nothing "sacred" about the proposed slaughter. No waiver of the moratorium is acceptable. NOAA must reject this application, with prejudice. Tom Thiersch Port Townsend, WA	Comments noted.
1716	e_Thomas_3-11-15	Dear Sirs and Madams, I write to you from Germany. For more than 25 years I try to enthuse people for the wonderful whales. I wrote several children's book and illustrated them by myself with artwork. I wrote a novel about orcas and did many talks in schools. I read that you think about starting to hunt grey whales again and my heart almost broke. I always respect other cultures and I learnd how bad the native people in the USA have been treated in the past. So of course I support to keep traditions as good as possible to help you to identify yourself and don't forget your precious roots. But in this case it is different. The grey whales have to deal with a mass of problems and dangers already like pollution, boat traffic. It is a species that we should protect in the best way we can. Wasn't it the aim of native people to live in harmony with nature? Just take what has to be taken. Respect other creatures? Grey whales and other whale species need this spirit now in a time when so many people just think about money, power and success. I hope you find a way to live traditions but to let the whales live. Thank you for taking time with best regards Doris Thomas Germany -- German author www.Doris-T.de	Comments noted.
1717	e_Thomas_5-18-15	Dear Mr. Stone, I would like to ask if it is possible to extend the comment period for the Makah DEIS for another 60 days. 1,300 plus pages for comments have to be proofed. It would be fantastic if people have enough time to do so. Thank you very much in advance Best regards from Germany Doris Thomas -- www.doris-t.de www.doris-t.blog.de author and artist	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.

Sort #	Commenter Code	Comment	Response
1718	e_Thornily_ 3-12-15	I believe that nobody should have special treatment when it comes to public resources. We are all eating from the same pot, and should be subject to the same rules, simple. All other policies descriminate, end of story. Steve Thorniley	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1719	e_Tibbles_4-28-15	To Whom It May Concern: I'm unable to attend the meeting so I appreciate you accepting my comments. First I would like to say that I'm not opposed to subsistence fishing and hunting that commonly occur with some native communities in Alaska, and I appreciate and recognize the spiritual and ceremonial aspect of their traditions which bring respect and reverence into their hunts. The last time the Makah legally hunted and slaughtered a whale in 1999, I was horrified to watch the said hunters' celebrations, the most appalling of which was the young man doing a backflip off the back of the whale. I ask you, does appear to be the actions of an individual exercising their spiritual and ceremonial rights? I won't even address the illegal hunt in September of 2007 in which they shot a whale and it suffered a long and terrible death.	Comments noted.
1720	e_Tibbles_4-28-15	Setting my emotional objections aside, I respectfully ask that you consider the following: The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1721	e_Tibbles_4-28-15	The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1722	e_Tibbles_4-28-15	If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale killed in 1999 was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1723	e_Tibbles_4-28-15	If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1724	e_Tibbles_4-28-15	If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1725	e_Tibbles_4-28-15	The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. I do not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
1726	e_Tibbles_4-28-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1727	e_Tibbles_4-28-15	If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1728	e_Tibbles_4-28-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1729	e_Tibbles_4-28-15	There are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.

Sort #	Commenter Code	Comment	Response
1730	e_Tibbles_4-28-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1731	e_Tibbles_4-28-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution. Respectfully, Joanne Tibbles 360.509.2215	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1732	e_Trinks_8-1-15	Sehr geehrte Damen und Herren, ich protestiere hiermit energisch, gegen Ihr Vorhaben , Grauwale zu jagen. Lassen Sie die Wale in Ruhe. Sie haben nicht das Recht diese zu bejagen. Viele Grüße D. Trinks Translated German to English: Dear Sir or Madam, I protest hereby vigorously against your plans to hunt gray whales. Let the whales alone. You have no right to hunt them. many Greetings D. Trinks	Comments noted.
1733	e_Trosper_4-3-15	To Whom it May Concern, I agree with Alternative 2, but I also like the date limitations in Alternative 4. I think it is important to place measures that help avoid killing endangered Western Pacific gray whales, but I do not agree with the limit of whale deaths in Alternatives 4-5. Thank you,-Concerned Forks Citizen	Comments noted.
1734	e_Trump_5-6-15	I'm writing in support of the gray whales. I attended the meeting in Seattle and like others who spoke, I have been to Baja and had a personal connection with those whales. They are amazingly gentle creatures who are as curious about us as we are of them. As crazy as this sounds, I witnessed many momma whales lifting up their babies to our boat to allow us to interact with them, to look them in the eye, and to pet them. I witnessed one whale who seemed to enjoy putting her nose to the side of our boat and giving us a gentle push. Another whale who we called "the spitter" seemed to enjoyed dunking down next to our boat and spraying us over and over again. The bigger reaction they got from us in the form of laughter and excitement, the more intrigued they seemed to become. These are truly incredible creatures with a personality who showed us their compassion. It would have been nothing for those enormous whales to flip our boat, but they never did (and never have, I was told) because there seemed to be a trust between us that went both ways. These are the same whales that the Makah tribe wants to hunt and kill. The mere thought of a gray whale going up to	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		a Makah boat and being greeted by a harpoon is sickening and simply WRONG. I have the utmost respect for the Native American culture and their heritage but sometimes what we have accepted in the past is no longer acceptable in the current world. To allow this hunt to take place would cause great suffering and cruelty to these whales. Not only are they asking to kill up to 24 whales, but in doing so there could be 42 other whales out there who escaped death but are injured with harpoons and/or gunshot wounds as well as 18 others who died and sank to the bottom of the ocean. This is unacceptable! Who are we as a society if we allow our government to approve the inhumane treatment of animals in our own backyards. Please disapprove the Makah application to hunt gray whales in its entirety! Not a single whale should suffer at the hands of our citizens. Thank you, Diana Trump 9821 NE Murden Cove Dr Bainbridge Island, WA 98110	
1735	e_Tuorto_5-8-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as	Comments noted.
1736	e_Tuorto_5-8-15	(1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. We must stop all of the killing in our seas. When the seas are dead, so will we be. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1737	e_Tuorto_5-8-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are	Please see the response to frequent comment # 12 regarding risks to WNP whales.

Sort #	Commenter Code	Comment	Response
		inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	
1738	e_Tuorto_5-8-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1739	e_Tuorto_5-8-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1740	e_Tuorto_5-8-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1741	e_Tuorto_5-8-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
1742	e_Tuorto_5-8-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Vicky Tuorto PO Box 324 San Quentin, CA 94964-0324	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 10 regarding the response of gray whales to being hunted.
1743	e_Turner_3-12-15	OH HELL NO! The Makah must be stopped from killing any more whales. Their culture must evolve, or perish.	Comments noted.
1744	e_Turner_3-12-15	A picture from their previous hunt speaks loudly: it shows two Makah members standing on a dead whale cheering. Disgusting. Their ancestors must be appalled.	Comments noted.
1745	e_Turner_3-12-15	On the other hand, if they are willing to hunt whales using traditional methods then I would not be as adamantly opposed. Instead of power boats and high caliber rifles, let them go out with handmade canoes & paddles & hand thrown harpoons. I'll bet they can't catch a cold. Please stop this awful insanity. Water Dragon	Please see the response to frequent comment # 15 regarding the use of modern weapons.
1746	e_Ufamily_5-8-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as	Comments noted.
1747	e_Ufamily_5-8-15	(1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	Please see response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1748	e_Ufamily_5-8-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1749	e_Ufamily_5-8-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please also see the response to frequent comment # 9 regarding non-lethal action alternatives.
1750	e_Ufamily_5-8-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1751	e_Ufamily_5-8-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	
1752	e_Ufamily_5-8-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1753	e_Ufamily_5-8-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, The U. family beth east, PA 18020	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 10 regarding the response of gray whales to being hunted.
1754	e_USDoI_6-11-15.	Dear Mr. Stone: June 11, 2015 United States Department of the Interior OFFICE OF THE SECRETARY Office of Environmental Policy and Compliance 620 SW Main Street, Suite 201 Portland, Oregon 97205-3026 The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Makah Tribe Request to Hunt Gray Whales, Washington. The Department has no comments on the document at this time. We appreciate the opportunity to comment. Sincerely, Allison O'Brien Regional Environmental Officer	Comments noted.
1755	e_VanSull_3-7-15	Please, The whales are very important in our ecosystem. If we don't stop the hunt, the oceans die and If the oceans die, we die. I WANT SAY NO TO THE GRAY WHALE HUNT BY THE MAKAH TRIBE ! WE LIVE IN THE 21st CENTURY AND THE OCEANS, OUR MOTHER IS DYING. STOP THIS ! Support Sea Shepherd please Francois	Comments noted.
1756	e_VanValkenburgh_5-3-15e_Vaus_7-26-15	While I can understand the Makah Tribe's request for a permit to harvest a small number of gray whales, I believe that approval would put the U. S. government on a slippery slope. The request of the Makah is based on certain cultural values of the tribe. But the Japanese justification for killing whales is similarly alleged to be for "cultural" reasons. The U.S. has opposed Japanese whale hunts, so how can we justify a "cultural" exception in this case? I submit that to do so would undercut our efforts to protect other whales and species at risk across the world,	DEIS Subsection 3.17.3.2.2 (Aboriginal Subsistence Whaling) and Subsection 4.17 (Regulatory Environment Governing Harvest of Marine Mammals) address the issues raised in this comment.

Sort #	Commenter Code	Comment	Response
		and strongly urge denial of the permit. Respectfully, Lee Van Valkenburgh 565 Huntington Ave Winter Park, Fl 32789	
1757	e_Vaus_7-26-15	Dear NOAA,I am writing in opposition to your granting the Makah a waiver and a permit to hunt gray whales off the Coast of Washington State. You cannot go around the Marine Mammal Protection Act (MMPA) and allow harming these whales who have come to trust humans, and are loved by whale watchers, residents, and visitors that come to Washington and Oregon Coastlines.In 2015 there is no “need” to kill whales. The Makah Tribe has access to food, clothing and traditional history. “Tradition” is not an acceptable excuse or objective reason to circumvent the Marine Mammal Protection Act as it is a subject state.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.
1758	e_Vaus_7-26-15	Objective data proves gray whales and all cetaceans to be highly intelligent beings who were almost driven to extinction because of hunting. Today the goal should be to protect and celebrate their existence not harm.	Comments noted.
1759	e_Vaus_7-26-15	If you allow the Makah to kill whales you will be breaking a law, weakening the MMPA and betraying the whales, the whale watching companies and the visitors and whale watchers that bring money into our local economies. To risk the lives of the gray whales, and the lively-hood of whale watching companies, and tourism for an outdated tradition has no place in a modern world is wrong. Gray whales are highly intelligent and know when they are being hunted. If hunting is resumed the whales may take a different route for migration negatively impacting tourism on the Oregon and Washinton Coastlines.	Please see the response to frequent comment # 17 regarding the lawfulness of a waiver. The DEIS discusses the likely impact of a whale hunt on the whale-watching industry in Subsection 4.6.2.3, Whale-watching
1760	e_Vaus_7-26-15	In closing I want to reiterate that I oppose any permit to allow the Makah to hunt whales in anyway. If you go forward you will be breaking a law and taking away theprotections for the Gray Whale and all cetaceans by weakening the validity of the Marine Mammal Protection act which came about for a reason. It is time to stop all hunting of cetaceans who science has proved are highly intelligent beings, and who already face so many challnges to survive in a modern ocean.Sincerely,Kathleen Vaus	Comments noted.
1761	e_Venney_5-14-15	Dear Mr. Stone: I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and its culture, I am strongly opposed to the proposed hunt, as	Comments noted.
1762	e_Venney_5-14-15	(1) the Makah do not have a subsistence need for whales, (2) the hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt in inherently cruel. I support Alternative 1, the no-action alternative. The Makah do not have a subsistence need for whales. As reflected in the DEIS, with	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to resume its whaling tradition.

Sort #	Commenter Code	Comment	Response
		the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling (i.e., a subsistence need)--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal. The United States should also not seek another IWC ASW quota for the Makah Tribe for this reason.	
1763	e_Venney_5-14-15	The proposed hunt could further imperil both the resident gray whale and Western North Pacific gray whale populations. If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates from NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing of these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1764	e_Venney_5-14-15	NMFS has not adequately complied with federal law in preparing the DEIS. The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A non-lethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	The DEIS provides a detailed analysis of impacts on gray whales and other species. Regarding non-lethal alternatives, please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1765	e_Venney_5-14-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS. These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these are adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
1766	e_Venney_5-14-15	In addition, NMFS has not adequately considered the cumulative impact of past, present, and future activities in US, Canadian, and Mexican waters on the gray whales and their habitat. In the US alone, NMFS routinely permits various projects that involve the use of seismic and sonar testing, oil and natural gas development, coastal construction projects, scientific research, and other activities that it acknowledges will impact gray whales and other marine species. The DEIS does not sufficiently consider the cumulative impacts of such authorizations. When combined with activities in Canadian and Mexican waters of the Pacific Ocean, it becomes evident that gray whales, including the Eastern North Pacific migratory population, are subject to numerous threats throughout their migratory range and in their winter and summer habitats.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1767	e_Venney_5-14-15	The proposed hunt in inherently cruel. It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Under such circumstances, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1768	e_Venney_5-14-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale. The tribe can continue to celebrate the whale and its culture through its traditional dances, ceremonies, and other festivities without killing a single gray whale. That would reflect a new relationship between the tribe and whales that I support, that NMFS should support, and that would benefit all involved, particularly the gray whales. Thank you for considering my views. Sincerely, Elizabeth Venney 14525 SW 290 TER Homestead, FL 33033-2936	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition and # 9 regarding non-lethal action alternatives.
1769	e_Volk_4-24-15	I strongly support the "No Action" alternative to continue the moratorium on any Makah whaling activities. No animal should be killed unless there is a need, and unless there is no waste. It is my understanding that the last whale killed by the Makah was, indeed, wasted.	Comments noted. Most of the meat and blubber from the gray whale killed during the 1999 hunt was consumed during a single community celebration (see Subsection 3.10.3.5.1, Makah Whaling).
1770	e_Volk_4-24-15	Times have changed (thank goodness!). Slavery has been outlawed. Women now vote. The days of whaling should be over as well.	Please see the responses to frequent comments # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1771	e_Volk_4-24-15	The Makah method of killing whales with 50-caliber guns and towing them to shore with motor boats and tractors does not reflect their old culture anyway.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1772	e_Volk_4-24-15	For better or worse, it seems that the tribes have effectively found their voice. They have new health clinics, new casinos, new commercial docks, new lands from our National Park to avoid tsunamis, new methods of fishing that are illegal for the rest of us, etcetera. It seems that the pendulum has swung too far of late: US taxpayers are providing too generously to these "sovereign" tribes that require our lopsided support. I really doubt that Boldt could have predicted his fishing decision to have such drastic effects on the NON-tribal fishermen. I fear that ANY allowance for the Makah to kill whales would likewise be abused in the future. Thank you for making, certainly, what will be a thoughtful decision. Carol Volk, DVM 207 Southview Drive Port Angeles WA 98363 360-928-9509	Comments noted.
1773	e_Ward_3-10-15	It's "traditional" for my "tribe" (European) to commit genocide against Native Americans. If "tradition" makes it okay for the Makah to murder whales then they shouldn't object to white people murdering them, right? I mean, after all, it's only "traditional." Joe Ward 905 Deer Trail Farmington, NM 87401 "Little garden planet, Oasis in space. Some hearts hurt, They can hardly stand The waste." – from "Ethiopia" by Joni Mitchell -	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1774	e_Watson_7-28-15	I wholeheartedly support first nations land rights. But they in no way own whales. Just because they have done something for 1500 years does not mean they need to continue or that it is just. Culture is the excuse used by many to do wrong. Modern day first nations do not live like their ancestors, nor do they hunt like them. They utilize every modern convenience and technology the rest of us do so whales are no longer crucial to their survival.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1775	e_Watson_7-28-15	In fact, whale meat is not safe to eat anyway, due to mercury and other contamination. Please do not open this Pandora's box, whaling is part of history and that is where it needs to remain. Sincerely, Lorraine Watson	Comments noted. The DEIS discusses the presence of persistent and potentially toxic contaminants in whale meat and blubber and allowable consumption rates for humans, based on health concerns, noting that contaminant concentrations often are lower in freshly harvested whales than in stranded whales and also lower in baleen whales than in toothed whales because of their different food sources

Sort #	Commenter Code	Comment	Response
			(see Subsection 3.16.3.2, Environmental Contaminants in Gray Whales). The DEIS notes that under the action alternatives, individual tribal members would be exposed to higher levels of certain contaminants as a result of eating more whale products (Subsection 4.16.3.2, Alternatives 2 through 6).
1776	e_Weinstein_4-17-15	Dear Sir/Ms., I would like to register for the Seattle hearing on April 27th. The registration is for myself, Diane Weinstein, and Dorothy Breen. Is this the correct email address and procedure for registration? Please let me know. Thank you.Diane Weinstein	Request noted.
1777	E_Weinstein_6-10-15-2	Dear Sir/Ms.: Please accept the attached comments on the DEIS Regarding the Makah Tribes Request to Hunt Eastern North Pacific Gray Whales. I would appreciate an acknowledgement that the comments have been received. Thank you.Sincerely, Diane Weinstein Attachments: DEISComments2015.docx , 27 bytes	Request noted.
1778	e_West_7-14-15	Dear Sir or MadamWe are writing to express our opposition to any kind of whaling anywhere.Please do not allow the Makah tribe to take a step backwards in the evolution of humankind and start whaling again.It is unnecessary to kill whales or any ocean being in todays world.Please encourage moving forward and reject proposals to take any more of these now endangered, sentient, intelligent ocean dwellers.I express my opinion that God placed these beings in the ocean to live freely. In the Bible it expressly forbids any eating of any being that does not have lift-able scales.Whether one is religious or not - it cannot be denied that nature has evolved these beings over millions of years and now humankind are driving them to extinction.Please do not allow whaling Please.Thank you for reading my letterYours faithfullyMrs Dawn West & West family and friends 6 PO22 9FH	Comments noted.
1779	e_Wheatcroft_7-27-15	Please do not allow any hunting of the whales. I understand that this practice has sustained the Makah for many generations but times change and we must evolve with them. Cannabalism is no longer acceptable in the world, neither should eating whales. NO HUNTING OF WHALES EVERAnn Wheatcroft Victoria Bc Canada	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1780	e_Wieczorek_3-23-15	National Oceanic and Atmospheric Administration – Bree Wieczorek started a petition on Change.org and listed you as a decision maker. Learn more about Bree Wieczorek's petition and how you can respond.NOAA: Don't Allow the	Comments noted.

Sort #	Commenter Code	Comment	Response
		Makah Tribe to Resume Hunting Whales Petition by Bree Wieczorek · Started Mar 23, 2015 On March 5th, 2015, the National Oceanic and Atmospheric Administration (NOAA) issued a press release disclosing that the Native American, Makah Tribe (located in the... Read more View the petition	
1781	e_Wieczorek_3-23-15 - Wieczorek_ Petition	2,108 Supporters On March 5th, 2015, the National Oceanic and Atmospheric Administration (NOAA) issued a press release disclosing that the Native American, Makah Tribe (located in the State of Washington), has requested to resume hunting of eastern North Pacific Gray Whales for 'ceremonial and subsistence purposes'. NOAA has opened a public comment period (via email) for 90 days, ending on June 11th, 2015. By signing this petition, you are sending a comment directly to NOAA in opposition of the Makah's request to resume whaling. Letter to National Oceanic and Atmospheric Administration Please issue a 'No-action' ruling for the request from the Makah Tribe, asking to resume hunting of eastern Northern Pacific Gray Whales, due to the following: The Makah Tribe's last whale hunt, in 1999, was met with controversy, as their 'ceremonial' whale kill, involved high powered harpoons, a .50 mm rifle, gas powered boats, cell phones, and helicopters taking live footage of the ordeal. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The use of modern technology and high powered harpoons and rifles are not reflective of Native American ceremonial whaling. Unbroken tradition/ceremony, as described by preeminent scientist Roger Payne (2014), would involve no modern weaponry or technology, and hand carved canoes and vessels, with human muscle being the only force at work. Subsistence hunting provides food for survival, and survival only.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1782	e_Wieczorek_3-23-15 - Wieczorek_ Petition	The Makah Tribe does not rely on whale meat for food; whaling for the Makah, is not a subsistence hunt, it is simply unnecessary blood sport. Following the gray whale kill in 1999, the Makah Tribe discarded most of the whale meat, and did not consume it.	Most of the meat and blubber from the gray whale killed during the 1999 hunt was consumed during a single community celebration (see Subsection 3.10.3.5.1, Makah Whaling) Please also see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1783	e_Wieczorek_3-23-15 -	Furthermore, the eastern North Pacific Gray Whale population is listed as protected by the Marine Mammal Protection Act (MMPA), which is enforced by NOAA, rendering this hunt to be a direct action against the MMPA.	The MMPA moratorium on "take" is not absolute and the the Secretary of Commerce may waive the moratorium

Sort #	Commenter Code	Comment	Response
	Wieczorek_ Petition		if the Secretary determines that the waiver would be compatible with the MMPA. Preparation of the DEIS is one step in the full waiver process, which includes initial and final waiver determinations, formal rulemaking, and permit processing. For more information, see Subsections 1.2.3.3 and 3.17.3.1 of the DEIS.
1784	e_Wieczorek_3-23-15 - Wieczorek_ Petition	The IWC does not recognize 'cultural' needs for aboriginal whaling groups to whale; the IWC recognizes aboriginal whaling for unbroken tradition and subsistence purposes only. The Makah break tradition by utilizing modern weaponry and technology for their hunt. The Makah Tribe of Neah Bay has access to grocery stores and other modern conveniences, thus rendering the claims that this hunt is for subsistence purposes as purely false.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1785	e_Wieczorek_3-23-15 - Wieczorek_ Petition	NOAA should make a 'No-action' ruling on request by the Makah. There are no changes in any of the Makah's whale hunt tactics and/or subsistence hunting needs since the 1999 whale hunt, which yielded discarded whale meat. The United States does not support whaling.. Do not allow the Makah to resume hunting of eastern North Pacific Gray Whales. "To the Makah...I say: give whales a break; throw open the doors of your imagination. There are vastly better ways to create vastly stronger bonds among the young men in your society. Invent a few and master them. Then show us all and let us admire you..." Roger Payne (2014). Updates	Comments noted.
1786	e_Wiggins_4-24-15	1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1787	e_Wiggins_4-24-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	
1788	e_Wiggins_4-24-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1789	e_Wiggins_4-24-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1790	e_Wiggins_4-24-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1791	e_Wiggins_4-24-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
1792	e_Wiggins_4-24-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse- trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1793	e_Wiggins_4-24-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1794	e_Wiggins_4-24-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a

Sort #	Commenter Code	Comment	Response
			boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1795	e_Wiggins_4-24-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1796	e_Wiggins_4-24-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1797	e_Wiggins_4-24-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution. Thank you, Jana Wiggins	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1798	e_Wilson_7-22-15	Dear NOAA: I want to voice my opinion as a WA state resident against granted the Makah Tribe's petition to resume gray whale hunting. I question the legitimacy of their desire to resume hunting whales for cultural reasons and food. I believe more harm, rather than good, would come from grating this petition.	Comments noted.
1799	e_Wilson_7-22-15	The tribe itself is not in agreement upon resuming whaling,	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1800	e_Wilson_7-22-15	and up to five gray whales per year seems like a large number to request for their given reasons.	Most of the meat and blubber from the gray whale killed during the 1999 hunt was consumed during a single community celebration (see Subsection 3.10.3.5.1, Makah Whaling); this level of consumption suggests that there would be little waste of edible whale products if the Makah were to harvest four whales a year. The Makah Tribe's request is for 4 whales per year, with a maximum of

Sort #	Commenter Code	Comment	Response
			5 harvested in any one year. Harvesting four gray whales per year is estimated to yield 8 to 20 pounds of meat and 16 to 20 pounds of oil or blubber per Makah tribal member (see Subsection 3.16.3.1, Nutritional and Health Benefits from Consuming Whale Food Products and Other Traditional Subsistence Foods).
1801	e_Wilson_7-22-15	Further, in this time period, inhabitants of the PNW all revere whales to some extent. We have groups dedicated to researching and protecting whales, people traveling from all over the country/world to see our whales, and generally whales are a symbol of the PNW. Though the Makah tribe historically practiced whaling, in this age, simply respecting whales as part of nature without whaling can still uphold their traditional values. I truly think granting the Makah tribe whaling rights would undermine the 'spirit' of the Pacific Northwest.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1802	e_Wilson_7-22-15	By granting tribes the right to essentially unrestricted salmon fishing, allowing them to govern their tribal lands, have tribal schools, and the like, is still respecting their rights and traditions as a cultural community. Yet, whaling is out-dated and I do not believe granting whaling will bring any additional cultural values and tradition back to the Makah tribe.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1803	e_Wilson_7-22-15	Further, I am concerned that if the Makah tribe is granted this request, other tribes will request whaling permits. If this permit passes, the other tribes will have a greater argument for their own whaling rights. Please uphold the spirit of the PNW and do not grant the Makah tribe whaling rights. Thank you for your time.Sincerely, Briana Wilson Lake Forest Park, WA	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1804	e_Wise_4-21-15	I support the resumption of the Makah Whale Hunt. This is a tribal right. The whales are on the rebound. It is important for us, people of the tall ships, to learn of and appreciate these long-held and long-practiced customs of the first people's culture. Respect, understanding and compassion need to become prominent in our current ways of our being. Bill Wise 710 Foster Street Port Townsend, WA 98368	Comments noted.
1805	e_Wolf_3-13-15	To Whom it May Concern, I want to express my dismay and alarm at even considering letting the Makah tribe hunts whales. The Makah have not whaled since the 1920's. They do NOT need whales for food and said they would sell the meat to Japan. That is NOT subsistence hunting. The International Whaling Commission specifically "allows aboriginal whaling only when there is an	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		unbroken tradition and only for subsistence purposes. Neither of these exceptions are applicable to the Makah tribe.	
1806	e_Wolf_3-13-15	The Makah stated the reason they want to resume whaling is for culture. Slavery in the US was once part of American culture but we finally realized how wrong it was and evolved. The same is true of whaling. Allowing an exemption for "cultural" purposes would set a very bad precedent and would encourage Norway, Japan, Iceland and others to continue slaughtering these intelligent, socially complex beings in the name of culture.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1807	e_Wolf_3-13-15	Will the Makah whale they way they did century ago? Will they sail in wooden boats and throw harpoons at the whales? No they will use motorized boats with GPS, sonar, cell phones and high powered harpoon guns. Those tactics weren't a part of their "culture" but would become the new "culture". See how that word evolves, as should the Makah.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1808	e_Wolf_3-13-15	If the Makah are allowed ANY quota for gray whales they will then seek allowances for other species since gray whales aren't very tasty. They have stated this as their intent.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1809	e_Wolf_3-13-15	If one exemption is made it will be extremely difficult if not impossible to deny the next request or the one after it. And then how can justification be made not allowing exemptions for other countries or peoples? It's a cascading effect, where will it end?	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1810	e_Wolf_3-13-15	Humans have and still are doing tremendous damage to our oceans and marine life. Killing marine species to the brink of extinction, destroying habitats, polluting the waters, sound deafening oil exploration, overfishing and everything else we've done in the name of progress. Whales are still under pressure from all these human activities and still NEED protection. Our oceans and marine life are paying a very high cost for our progress. Humans will too if we don't change & protect Earths oceans and it's inhabitants.	Comments noted. Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1811	e_Wolf_3-13-15	How will the killing of whales impact the highly lucrative whale watching industry? Imagine being on a whale watching tour to see live, free swimming whales only to witness their slaughter. Would you want to see that or allow your children to witness it? It's bad business and could be extremely detrimental to that tourist focused industry. Will whaling end only when they are no more whales left? Not if we make sure to continue to ban whaling in the USA. And continue to pressure other countries to stop their whaling. There are so many reasons NOT to allow the Makah to resume whaling and not a single good one.	As noted in the DEIS, the proposed hunt area is remote and not a major whale-watching destination compared to other areas along the West Coast, so it is unlikely that Makah hunting activities would overlap geographically with whale-watching tours (see Subsection 5.1.3.5, Tourism). The action alternatives place limits on the

Sort #	Commenter Code	Comment	Response
		I'm imploring you, please do not allow the Makah to resume ANY whaling. Thank you, Kathy Wolf	maximum number of whales that can be harvested, struck, and struck and lost (see Table 2-1).
1812	e_Wong_3-12-15	Hello, As a supporter for Sea Shepherd, I would like to voice my opposition to granting the Makah tribe the special ability to whale. Sea Shepherd has 12 primary reasons for opposing the plan to slaughter whales by the Makah: 1. The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1813	e_Wong_3-12-15	2. The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. The Makah have a legal right to sue the U.S. for not representing them, although they did not request representation at the time and have never made a protest about this lack of representation. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1814	e_Wong_3-12-15	3. If the Makah establish a quota of gray whales they will seek to establish a quota for humpbacks, minkes, and orcas in the future because gray whale meat is not considered to be palatable as a food animal. Most of the whale meat that came from the killing of the young whale name "Yabis" (killed on May 17, 1997) was discarded and wasted. Initially, the Makah admitted to having this objective of seeking additional quotas.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1815	e_Wong_3-12-15	4. If the Makah establish a quota for whales and are permitted to kill whales by the USA, it will motivate the tribes on Vancouver Island in Canada to develop whaling plans of their own. In 1998, thirteen native communities on Vancouver Island said that they would be interested in establishing whaling operations should the Makah do so.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1816	e_Wong_3-12-15	5. If the Makah establish a quota for whales it will further strengthen the positions of Japan, Norway, and Iceland to escalate their illegal whaling activities and it will weaken the United States, as it has already done so, as an international voice for whale conservation.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.

Sort #	Commenter Code	Comment	Response
1817	e_Wong_3-12-15	6. The original plans by the Makah were to establish commercial whaling activities to sell whale meat to Japan. We must ensure that this must not happen. Sea Shepherd Conservation Society does not wish to see the United States become a commercial whaling nation or a pirate whaling nation.	We are currently considering the Makah Tribe's request under the MMPA and WCA to undertake a hunt for ENP gray whales. The WCA and MMPA prohibit commercial whaling by U.S. citizens.
1818	e_Wong_3-12-15	7. There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse- trading deal outside of the IWC.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1819	e_Wong_3-12-15	8. If a whale quota is established at Neah Bay, it will threaten the local populations of resident whales that will surely be targeted by the Makah unless specifically protected by legislation.	All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales.
1820	e_Wong_3-12-15	9. The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1821	e_Wong_3-12-15	10. Sea Shepherd notes that there are many Makah opposed to the resumption of whaling, and the whaling initiatives have been advanced by elite Makah families without full democratic tribal participation.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1822	e_Wong_3-12-15	11. Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1823	e_Wong_3-12-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is	Please see the response to frequent comment # 8 regarding interpretation of the Treaty of Neah Bay.

Sort #	Commenter Code	Comment	Response
		contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution. 12. Whales should not be slaughtered anytime or anywhere by any people. These are socially complex, intelligent mammals whose numbers worldwide have been diminished severely. Thank you, Houston Wong 12642 100th Ln NE Apt E121, Kirkland, WA 98034, United States	
1824	e_Wright_7-29-15	Dear Mr. Stone, RE: Makah whaling Draft Environmental Impact Statement I am writing in response to the Draft Environmental Impact Statement (DEIS) on the proposed Makah Tribe's whale hunt. While I respect the Makah and the tribe's culture, I am strongly opposed to the proposed hunt, as (1) the Makah do not have a nutritional and subsistence need for whales, (2) the hunt could further imperil both the resident and Western North Pacific gray whale populations, (3) the National Marine Fisheries Service (NMFS) has not adequately complied with federal law in preparing the DEIS, and (4) the proposed hunt is inherently cruel. I am also concerned that human safety could be jeopardized by the whale hunts, because of the planned weaponry and the hunts taking place so close to shore and in a populated area. Consequently, I support Alternative 1, the no-action alternative.	These introductory comments are noted. Specific responses are provided below.
1825	e_Wright_7-29-15	The Makah do not have a nutritional and subsistence need for whales: As reflected in the DEIS, with the exception of a single whale killed in 1999, and another killed illegally in 2007, the Makah last engaged in whaling in the 1920s, approximately 90 years ago. Consequently, it is impossible for the Makah to demonstrate a continual traditional dependence on whales or whaling--one of the requirements for obtaining an aboriginal subsistence whaling (ASW) quota from the International Whaling Commission (IWC)--and the principle reason why NMFS should deny the Makah's proposal.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1826	e_Wright_7-29-15	The proposed hunt could further imperil both the resident and Western North Pacific gray whale populations: If the Makah are allowed to whale, it is impossible to guarantee the full protection of either resident gray whales or whales from the Western North Pacific population. These imperiled populations number only 209 and 140 whales, respectively, according to recent population estimates published by NMFS. Even though the DEIS contains alternatives designed to reduce the likelihood of killing these whales, these alternatives are inadequate to protect the whales, and allowing any hunt that could result in the death of even a single whale from either of these populations is biologically reckless.	Please see the response to frequent comment # 12 regarding risks to WNP whales.
1827	e_Wright_7-29-15	NMFS has not adequately complied with federal law in preparing the DEIS: The lack of adequate analysis of the impact of the proposed hunt on these imperiled whale populations is only one of several deficiencies in the DEIS. NMFS has also	The DEIS provides a detailed analysis of impacts on gray whales and other species. Please also see the response

Sort #	Commenter Code	Comment	Response
		failed to consider a range of reasonable alternatives, such as developing tribal whale watching. A nonlethal use alternative, like whale watching, would enable the Makah to reconnect to the gray whale without killing a single animal; bring revenue to the tribe; provide additional employment to Makah tribal members; and allow the Makah to educate visitors about whales, marine ecology, and tribal history and culture. Such a solution would be beneficial to all involved, including the gray whales.	to frequent comment # 9 regarding non-lethal action alternatives. .
1828	e_Wright_7-29-15	NMFS has also failed to evaluate the full range of threats to all gray whales in the DEIS: These threats include climate change impacts to gray whale habitat (particularly in the Arctic), ship strikes, contaminants, bycatch, pollution, ocean noise (both seismic and sonar), and development threats throughout the species' migratory range. Military training exercises, oil exploration activities and spills, and a proposed phosphorous mine in Mexico are just a handful of the activities that impact or will impact gray whales; none of these threats were adequately evaluated in the DEIS.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1829	e_Wright_7-29-15	It is difficult to quickly kill a moving whale, from a moving vessel, in a moving ocean. In this particular case, the likelihood of a whale suffering as a result of any hunt is particularly high, given the inexperience of the tribe's whalers. Based on such cruelty concerns alone, NMFS must not allow the tribe to whale.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1830	e_Wright_7-29-15	The resumption of whaling by the Makah will cause stress in the migratory and resident populations and this could lead to dangerous situations for whale-watching participants that could be exposed to wounded or stressed animals.	Under any of the action alternatives, boating accidents might result from protest activities on the water, the actions of a wounded whale, or adverse weather and sea conditions. The DEIS takes into consideration the risk of individuals being injured in a boating accident in the Public Safety section of its analysis (see Subsections 3.15.3.3 and 4.15).
1831	e_Wright_7-29-15	I am aware of the tribe's historic use of whales and the significance of whales to the tribe's culture. Nevertheless, times have changed, social norms and values have changed, and without a legitimate subsistence need for whale meat or other products, the Makah should not be allowed to whale.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1832	e_Wright_7-29-15	Tradition and culture must not be the basis for slaughter. The ancestors of the Makah killed whales because they had to do so for survival. There is no survival necessity today to justify such killing.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1833	e_Wright_7-29-15	The treaty that the Makah cite as evidence of their right to whale specifically states that they have the right to whale "in common with the people of the United States." When the treaty was signed, all Americans had the right to kill whales. When whaling was outlawed for all Americans it included the Makah as the rights are "in common" and not separate. There cannot be unequal rights granted in a system that promotes equality under the law. This is tantamount to extra special rights for a group of people based on race and/or culture and is contrary to the guarantee of equality under the law as guaranteed by the U.S. Constitution.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1834	e_Wright_7-29-15	The International Whaling Commission (IWC) specifically allows aboriginal whaling only when there is an unbroken tradition and only for subsistence purposes. The whales must be a necessity for food. The Makah do not qualify because they voluntarily broke their tradition and they have no need for whale meat for food purposes. They argue that the need is cultural. This is not a recognized need by the IWC.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1835	e_Wright_7-29-15	The Makah say they have a treaty right with the United States to slaughter whales. However, the USA effectively abrogated this treaty in 1946 when they joined the IWC and did not represent the Makah as they did the Yupik and other Alaskan native communities. Whaling is governed by international law and falls under the authority of the IWC, and therefore, the USA no longer has the legal right to grant permission to any peoples to slaughter whales within or outside the territory of the United States.	Please see the response to frequent comment # 8 regarding the Treaty of Neah Bay.
1836	e_Wright_7-29-15	There is no quota granted to the Makah by the IWC and there never was. There is a quota given to native communities in Siberia. The Makah and the United States traded bowhead quotas from Alaska with gray whale quotas from Siberia. This was a horse-trading deal outside of the IWC. Thank you for considering my views. Sandy Wright	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1837	e_Wright_7-30-15	As a citizen of California, I oppose any allowance for the Makah tribe to resume whaling activities. Using the excuse that this is a tradition does not justify the continued exploitation of these animals for human consumption (or whatever they plan to do with them). I am appalled at the whaling activities of countries like Japan, Iceland, and the Faroes who also use this excuse, "tradition", to continue justifying their whaling activities. We should not be hypocritical in our criticism of others while allowing the same in our country.Some Traditions are not worth maintaining. We are an evolved culture that has found that eating animals is harmful to the planet.Whales deserve their safe place in the oceans.Thanks for your consideration,Amy Wright	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1838	e_Wry_3-12-15	I don't believe anyone should be able to hunt the whales! Actually nature and planet earth would be a lot better off without humans in it. We have been more destructive to species and habitats than any other factors. It won't be long though until we destroy everything, what with climate change and ocean acidification. Sincerely, Catherine L. Wry	Comments noted.
1839	e_Young_7-16-15	Dear Sirs, In March, the National Marine Fisheries Service (NMFS) initiated its latest effort to permit the Makah Tribe of Washington to hunt gray whales by releasing a Draft Environmental Impact Statement (DEIS) for public review and comment. This is an opportunity for you to express your thoughts on the DEIS and the government's efforts to allow the Makah the kill gray whales. Please Deny the Makah Tribe Permission to Hunt Gray Whales. With the exception of a single gray whale killed in 1999 and another whale killed illegally in 2007, the Makah have not hunted whales for nearly 90 years. Consequently, the tribe cannot demonstrate a subsistence or nutritional need for whaling or whale products. Such a need is a requirement to secure approval from the International Whaling Commission to engage in aboriginal subsistence whaling, and should be a prerequisite for NMFS' approval of the hunt. Despite the absence of this need, this is the fourth attempt by NMFS to authorize Makah whaling since 1997. Previous efforts have either been scuttled by court rulings or terminated by the agency.	Please see the response to frequent comments # 2 regarding the ASW status of the Makah Tribe and 3.
1840	e_Young_7-16-15	The proposed hunt could jeopardize two imperiled populations of gray whales: the resident Pacific Coast Feeding Aggregation and the Western North Pacific, which number only 209 and 140 animals, respectively.	Comment noted. This comment offers no new information that contradicts or augments the analysis in the DEIS.
1841	e_Young_7-16-15	While the main Eastern North Pacific gray whale population is much larger (nearly 21,000 animals), they and their habitat are subject to threats like climate change, contaminants, ocean noise, ship strikes, and net entanglement throughout their summering, wintering, and incredibly long migratory range (from Alaska to Mexico), and shouldn't be subject to a new threat posed by a hunt.	Comments noted. Please also see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1842	e_Young_7-16-15	Furthermore, whaling is inherently cruel since it involves trying to kill (using harpoon and bullets) a large, moving animal from a moving boat on a rolling ocean by (in this case) individuals with little to no whaling experience—a sure recipe for cruelty and suffering. Respectively,Robert S. Young	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1843	Engel_4-29-15.pdf	Uphold all treaty rights for indigenous people! I support Action or else Makah Nation be returned all their lands.	Comments noted.

Sort #	Commenter Code	Comment	Response
1844	Form_Letter_3_Note_8-6-15	As of the end of the public comment period on July 31, 2015, NMFS had received 33,703 form-letter type emails containing content identical (or nearly so) to that contained below. These e-mails will become part of the agency's record but not necessarily posted on Regulations.Gov during the comment period. Dear NOAANMFS20120104, I am writing to oppose opening U.S. waters for whale hunting. The proposed hunt threatens not only a recovering population of Eastern North Pacific gray whales, but the few remaining individuals left in the endangered Western North Pacific and also the Pacific Coast Feeding Group populations. There is a very strong chance that whales in these smaller groups will be killed because it is virtually impossible to tell the difference between the populations – particularly under chaotic hunt and tumultuous ocean conditions.	Comment noted. The DEIS analyzes the risks to WNP and PCFG whales, and these comments offer no information to contradict or augment that analysis.
1845	Form_Letter_3_Note_8-6-15	There is far too much scientific uncertainty about the impact a hunt would have on gray whales and the environment. Your own scientists acknowledge that the hunt alternatives proposed "are likely to have an adverse impact" on gray whales.	Any predictions about the effects of future events necessarily involve uncertainty. The DEIS characterizes the level of uncertainty associated with various predictions. Any final decision by NMFS will take account of the uncertainties.
1846	Form_Letter_3_Note_8-6-15	Additionally, NMFS is not adequately considering the cumulative impacts of all the other threats to gray whales – such as navy sonar and other underwater noise, climate change, ocean acidification, oil and gas development, ship strikes, and pollution.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.
1847	Form_Letter_3_Note_8-6-15	The proposed hunt is just the first step toward a dangerous precedent that would undermine the global moratorium on whaling.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1848	Form_Letter_3_Note_8-6-15	Whale watching is a meaningful and economically lucrative alternative that helps maintain the gray whale's iconic role in numerous cultures. Holding a "ceremonial hunt" is another manner to represent the cultural importance of whales, while ensuring that no whales are killed. As a concerned citizen and stakeholder, I strongly oppose the hunt of gray whales and request that NMFS deny any permits to hunt gray whales in our Pacific Coast waters. [end]	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1849	Hayte_4-29-15	Under Indian water laws or "winter rights" a tribe cannot lose its winterrights through non-use.The U.S. Constitution supports and protects Makah whaling. Under Article VI, Clause II treaties are the supreme law of the land.As whalemen it is our responsibility to remind you of a few fundamental rules amongst	Comments noted.

Sort #	Commenter Code	Comment	Response
		whalemen.Do you people keep track of all whaling [illegible]. Numbers of killed, wounded, Russia kill numbers.All same as the Makah's whaling tradition and the monies received by each of all, and where do the monies go.	
1850	Huntington_ 3-12-15.pdf	Dear Ms. Dann: I'm writing to comment on the recently released study on the North Pacific gray whale that you were quoted in saying could "eventually lead to authorization for the (Makah) tribe to hunt gray whales". I am deeply saddened and appalled by this prospect and felt that I must bear witness and comment. As you must be aware, the gray whales are part of the cultures of all of us who make the Pacific Northwest our home and of the thousands of visitors who visit our coast specifically just to be able to see these creatures in all of their magnificence. We respect and value the whales, thrilled when we see them and happy to know that they are living their wild lives free of being terrorized and killed by hunters. We are proud that our country, unlike Japan and Norway, provides a safe haven for whales. The Makahs, with all due cultural respect, do not have exclusive rights to this heritage.	Comments noted.
1851	Huntington_ 3-12-15.pdf	Further, it is my understanding that the Makah tribe itself is divided on the issue of killing whales. As you know, renegades from that tribe have a history of illegal kills, kills that are protested by us all,	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1852	Huntington_ 3-12-15.pdf	including members o f their own cultural leadership who recognize that these killings are remnants of a barbaric past and that the idea of needing whales for subsistence is long unnecessary.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1853	Huntington_ 3-12-15.pdf	As times change, our human history is rife with examples of many cultural artifacts in many cultures that have become illegal for reasons of justice, decency and humane considerations.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1854	Huntington_ 3-12-15.pdf	Surely the gray whales need continued protection with no exception and I would expect NOAA to vigorously support and provide that protection completely. I would appreciate your comments on this, Sincerely, Diana Huntington	NMFS will make the ultimate decision regarding waiver of the take moratorium according to the requirements of the MMPA and WCA.
1855	HSUSA_3-11-15_-_Makah_comment_deadline_request.pdf	Dear Mr. Stone, On behalf of the members and constituents of The Humane Society of the United States (The HSUS), I am writing to request an extension of the comment deadline on the Draft Environmental Impact Statement (DEIS) on the Makah Tribe Request to Hunt Gray Whales.1 The National Marine Fisheries Service (NMFS) has provided a 90-day comment period, which closes on June 11, 2015. However, in light of technical working group meetings prior to the upcoming International Whaling Commission (IWC) meeting, and the IWC	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.

Sort #	Commenter Code	Comment	Response
		meeting itself, we ask that the comment period be extended for another 60 days to allow the additional scientific evidence to be submitted and to provide the public an opportunity to analyze the new information.	
1856	HSUSA_3-11-15_-_Makah_comment_deadline_request.pdf	Moreover, the Agency has failed to provide adequate public notice by simply publishing the DEIS on a NMFS page dedicated to Makah whaling and issuing a limited press release.	We did more than publish the DEIS on the NMFS website. The commenter is referred to the Distribution List in the DEIS as well as the EPA and NMFS Federal Register notices announcing the availability of the DEIS (80 FR 13373, March 13, 2015; 80 FR 14912, March 20, 2015).
1857	HSUSA_3-11-15_-_Makah_comment_deadline_request.pdf	We have been made aware that there will be a technical work group meeting held on April 1-3, 2015 that will inform the upcoming annual IWC Scientific Committee meeting that is scheduled for May 22 to June 4, 2015. The Makah proposal is likely to be analyzed and discussed by scientists, including those from NMFS, who would update the information upon which the DEIS analysis was based. Although agency staff may have the benefit of the results of the IWC-related discussions to inform final decision-making; the public should itself be informed of this best available science in order to make informed comments. The agency's presentation of, and participation in, updated research results and the IWC discussions will be concluded only days before the termination of the comment period.	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1858	HSUSA_3-11-15_-_Makah_comment_deadline_request.pdf	Moreover, The HSUS believes the Agency has not fulfilled its obligations to provide the proper public notice under the National Environmental Policy Act (42 U.S.C. § 4321 et seq.).2 By publishing the DEIS on the NMFS website devoted solely to information on the Makah proposals and by issuing a press release, the Agency has limited the distribution of the DEIS. NMFS should have published the DEIS in the Federal Register to ensure the broader public was on notice of the availability of the DEIS. Gray whales are a public trust resource and this species is beloved of both shore- based and boat-based whale watchers along the west coast both here in the United States and in Mexico, where the eastern Pacific residents of this species winter. Their conservation and humane treatment are of interest to a far broader segment of the public than NMFS will reach with a press release and a somewhat obscure webpage. We believe that NMFS should have provided a notice in the Federal Register, as it does for most of the DEIS's on which the public is asked to comment. Extending the comment deadline will allow NMFS to provide this more proper form of notice to the public. We ask that	The commenter is referred to the Distribution List in the DEIS as well as the EPA and NMFS Federal Register notices announcing the availability of the DEIS (80 FR 13373, March 13, 2015; 80 FR 14912, March 20, 2015).

Sort #	Commenter Code	Comment	Response
		the public comment period can be extended by 60 days to allow the updated scientific information to be released and we request that the Agency publish the notice in the Federal Register. In this way the agency is able to receive informed public comment by the widest segment of the American public. Sincerely, Sharon B. Young Marine Issues Field Director The Humane Society of the United States syoung@humanesociety.org cc. Eileen Sobeck, NOAA Assistant Administrator for Fisheries Rebecca Lent, Marine Mammal Commission 1 Available at http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/cetaceans/whale_hunt.html . 2 See NOAA Administrative Order 216-6, "Environmental Review Procedures for Implementing the National Environmental Policy Act." (May 20, 1999) (requiring maximum participation by the public in the NEPA process), available at http://www.nepa.noaa.gov/NAO216_6.pdf.	
1859	Marks_3-20-15.pdf	Dear Mr. Stelle: Please accept our comments in favor of Alternative 2 – the Makah Tribe's Proposed Action Alternative contained in the 2015 DEIS. We understand that DEIS Alternative 2 will allow for both adequate protection of Eastern North Pacific gray whales and responsible use by the Makah Tribe of Washington State for their cultural and subsistence needs. This seems to us to be a fair and balanced approach to the situation. We encourage you to pursue this course of action. Furthermore, we support the Federal Government's (and your Agency's...) responsibility to the Makah Tribe and their treaty. We ask that you expedite the approval process since 10 years is far too long to make this Tribe wait for a fair decision from our government. Respectfully SubmittedRichard E. And Marie A. Marks Ventura, Ca	Comments noted.
1860	Marks_and_Gilman_3-19-15-2.pdf	[Faxed duplicate of e_Marks_3-21-15]	Comments noted.
1861	Martin_4-29-15.pdf	I am going to start my comment using the main word "treaty." A gigantic amount of my tribes land was exchanged with signing of the treat which we were basically promised all of our traditional ways of living were to remain. Gathering and hunting, which included hunting gray whales. My tribes proposal is not going to harm anyone (besides the ones who are against what we are trying to achieve, keeping our culture alive that our ancestors were promised when they signed that treaty.) We only want to practice our rights. We are not going to waste what we have hunted and will not hunt more than what we could use unless my tribe quadruples in size. I highly doubt the five whales proposed will ever be met in the few short months we would hunt. My tribe deserves to have our culture to continue to be passed on to my children and passed on to theirs. I understand	Comments noted.

Sort #	Commenter Code	Comment	Response
		everyone's worries about the population but my ancestors who signed the treat was thinking about my generation who they wanted to continue the traditions that were passed on to them for hundreds of years. My unborn child deserves to see his/her tribe's treaty be met! We should be allowed what was promised to us. We should not be punished because of others who hae mass hunted the whales. We willing stopped hunting because we did not want to lose what mattered so much to our tribe. The whale.	
1862	McMullin_7-15-15	I oppose the Makah Tribe's proposed hunt of gray whales. It's not only cruel,	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1863	McMullin_7-15-15	gray whaling could be disastrous for 2 of the 3 gray whale populations in that geographic area.William McMullin	Comment noted. The comment offers no information to contradict or augment the analysis in the DEIS.
1864	Oczkewicz_7-17-15	Mr. Stone,I am writing to encourage you to deny the Makah's Tribal request to hunt whales. The reasons why are numerous that current tribal members should not partake in whale slaughters. Protecting the gray whales is the highest vale to determine your/our actions and not the Native American subsistence tradition of the past. They can honor their tradition in other ways, and we may honor them for abstaining for humane reasons. It's up to you to take no action that would allow a whale hunt!	Please see the response to frequent comment # 9 regarding non-lethal action alternatives.
1865	Owens_4-29-15	Attention: National Marine Fisheries ServiceWe cannot stand silently by while you mis-manage our tiny group of resident whales to extinction. Had Makah whaling gone forward under any of the management schemes you have endorsed, we would likely have lost forever the 30-35 genetically distinct gray whales that have called Olympic Peninsula waters home for untold generations. Between 1998-2015, at the allowed rate of 20 kills every 5 years, the death toll would be around 68 whales by now, cutting deeply into the entire Pacific Coast Feeding Group of under 200 whales.Your science is unsustainable.The MMPA will not sanction it.	Comments noted.
1866	Peach_6-1-15	Dear Mr. Steele: I support the Makah Tribe's request to resume treaty-based hunting of Eastern North Pacific Gray Whales for ceremonial and subsistence purposes. I am a long-term resident of Clallam County and currently serve as Commissioner of District 3, which covers the western portion of our County. I have also held the positions of Executive Director for the Quileute Tribe and as a regional manager for Rayonier with responsibility for 200,000 acres of private timberland in western Clallam County. I respect the Makah Tribe's express whaling rights under the 1855 Treaty of Neah Bay. I have first- hand knowledge	Comments noted.

Sort #	Commenter Code	Comment	Response
		that the Makah Tribe has great respect for natural resources and the wise management of them. They are excellent co-managers and I encourage you to listen carefully to them. Sincerely, Bill Peach	
1867	Rehg_3-18-15.pdf	To Donna Darm,The Makah tribe wanting to hunt whales as part of their tradition. Is crap. Slavery, female genital mutilation; women as property—these also were (and in some cases still are) traditions. Traditions that involve oppression and cruelty must not be sanctioned.I'm certain members of the tribe drive pickups, use power tools, live in standard houses, cook on gas or electric stoves, wear blue jeans and button shirts—all not part of their tradition. So why cling to one that should never occur again?Charmaine Rehg	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1868	Weng_4-27-15	The need to recognize disagreement on this issue among tribe member. Whereas it appeared that Makah collectively requested to hunt whales, there are disagreements among tribe members, especially female elder members. There have been interviews with female elders who expressed opposition to the whale hunt, but their voices were being silenced. Makah who fought fiercefully for the whale hunt are mostly young, male, elite population. I request NOAA to take a fuller survey of this issue among the tribe before making any decision on this issue.	The request for a waiver is on behalf of the Makah Tribe and our response is to the Tribe as a soverign government. While we recognize that individual members of the Tribe may have differing thoughts on proceeding with the hunt, this is an issue for the Tribal government to address. We are not required to survey individual members of the tribe on such matters. The Makah Tribe has several times surveyed its members and prepared a Needs Statement for consideration by the International Whaling Commision.
1869	PM_SEA_Morris	MS. MORRIS: I'm Nancy Morris. I totally agree with the previous speaker. I also would like to quote a past tribal elder of the Cowlitz Tribe. "The ancient people of this land consider the next seven generations coming before making a serious decision." In the far past, other coastal tribes hunted whales and now they're not. They recognize that the need to kill the whales for subsistence is no longer necessary, nor is it a strong unifying cultural tradition now or for their very next seven generations; therefore, I urgently implore the Makah Council to withdraw their request to chase, harpoon and kill the gray whale.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1870	PM_SEA_Morris	For decades the gray whale has been peacefully watched from boats all along the West Coast, from Baja north to Alaska. The whale's behavior has changed. Gray whales have even interacted peacefully with whale watchers. It is disheartening	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		to think that they may be subject to brutal chasing and a long painful death. There's no way to kill a gray whale without extensive pure pain and suffering.	
1871	PM_SEA_Heizer	THE FACILITATOR: Thank you, Randall. We're through all the speakers that signed up. Let me first just check, is there anybody that did not sign up that would like to speak that has not spoken yet? Is there anybody? If you'd come on up, and if you could just sign in here, your name and affiliation? MR. HEIZER: My name is Ben Heizer. I'm from Republic, Washington. I personally think this is a constitutional issue. Article 6 of the Constitution says to honor and respect all treaties both foreign and domestic. I'm with that. And if this was a gun rights issue, this place would be packed. This is about the Makah. This is about white privilege. This is about white people getting to tell Native peoples what to do once again, and I think that's bizarre. THE FACILITATOR: Make sure your comments are going to NOAA, they're the ones that need to hear it. MR. HEIZER: One more thing I'd like to say. If I'm right, did not the Russians give up part of their quota so the Makah could harvest these whales? THE FACILITATOR: So we're going to have a little bit of question and answer afterwards. It's a good question. So I think we'll have some time afterwards to respond to that question, so thank you. Thanks, Ben.	Comments noted.
1872	PM_SEA_Pruett_2	Catherine Pruett. Again, I'm the executive director of Sea Shepherd Legal. And I don't need five minutes, lawyers tend to talk a lot and I apologize I couldn't stop earlier and I just wanted to point out a couple of things. First, something really important we need to consider. We're not -- again, we're not attacking the Makah, we're not attacking their culture. Other tribal nations understand that this is neither the time nor the place to continue whaling. The First Nation's Environmental Network issued an online statement not that many years ago and they stated, "Not all indigenous people support Makah whaling. While we respect treaty rights, this is a political reason being used for killing and not a true meaning of need and subsistence when it comes to taking another being's life."	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1873	PM_SEA_Pruett_2	I also wanted to wrap up on the part where I left off, the cumulative impacts part. NMFS, in our opinion, has failed to adequately address the cumulative impacts that this hunt will have. In its DEIS, it recognizes the long time frame under which potential cumulative impacts should be analyzed in this instance; however, the Agency neglects to fully understand or consider certain likely and substantial impacts in its analysis – I touched a little bit on that, but I rushed through it – for example, they only devote a few paragraphs to the effects of climate change on the gray whale migration and feeding patterns, neglecting to assess the full range of potential impacts and not discussing the likely greater impact on the smaller populations of the Western Pacific gray and PCFG whales.	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats. This comment does not identify specific information we did not consider.

Sort #	Commenter Code	Comment	Response
		Similarly, NMFS fails to adequately address the potential impacts of the significant increases in underwater sonar use proposed by the Navy; in fact, a federal court recently found that NMFS's approval of a Navy training and testing plan violated multiple requirements of the Marine Mammal Protection Act and the Endangered Species Act. That court ruled that nearly 9.6 million underwater assaults on whales and dolphins were improperly assessed as "negligible" by the Agency. NMFS takes the same dismissive approach here. These are things that they're required to do; they're required to consider all the cumulative impacts.	
1874	PM_SEA_Pruett_2	Obviously, we take the position that NMFS should deny the waiver and go with the No-action Alternative. We also request an additional 60 days to respond comprehensively in writing. Thank you.	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1875	PM_SEA_Anderson_2	Again, Will Anderson of Green Vegans, the New Human Ecology. I had an unpleasant experience with the (unintelligible) in 2005 in Monaco in which the Makah needs statement would not stand on its own. The U.S. knew that, as in previous years, the needs statement was not as strong as the Russian gray whale quota statement and to get around that, they did two things. One, they got in the backroom and did a backroom deal with Russia to present a joint quota in which the U.S. and Russia would be responsible to do whaling themselves; but as I recall, part of that was that Russia would get some of our quota of whales. So my point is that the needs statement, it appears, has always been rubber-stamped. And we're talking about the DEIS; but I believe the needs statement is part of that, so please take a close look at it, at the needs statement, because it's fraught with holes.	Please see the response to frequent comments # 2 regarding the ASW status of the Makah Tribe and 3.
1876	PM_SEA_Anderson_2	Again, the treaty was written in a ecosystem that the world no longer exists, both ecologically and socially. Like it or not, the Makah Tribe is part of a world that has changed its relationships with ecosystems and individual species, including gray whales. Seahawk to Seaworld is now fairing in the public eye. Harpoons and anti-tank guns lost in the Native cultures to adapt to ecosystems because the primary purpose of a culture, above all else, is to adapt to ecosystems; to fail to adapt to ecosystem changes as they change and they're changing as never before in history, that culture dies. All of it dies and we're all failing to do that.	Comments noted.
1877	PM_SEA_Anderson_2	I created greenhouse gases coming over here. We all do that. We've move the world a little bit closer to the unfolding climate disaster heading our way. In most of the ocean basins in the world, for instance, plankton, the very base of the food chain, is decreasing one percent per year.	Comments noted.

Sort #	Commenter Code	Comment	Response
1878	PM_SEA_Anderson_2	There were a lot of technical aspects that were talked about tonight, and I'll just talk about (unintelligible). I'm confused about the National Marine Fisheries Service use of the term "take," because it appears in the very beginning that "take" is defined by the Marine Mammal Protection Act, where the National Marine Fisheries Service has taken a shortened step to define that take as harassment, displacement, and then it jumps immediately over to the Whaling Convention Act and, what else, the IWC definition of "take." So which is it? This is a DEIS about the Marine Mammal Protection Act so I urge you to use that definition throughout the DEIS.	The DEIS glossary notes that the IWC defines take as “to flag, buoy or make fast to a whale catcher” and the MMPA defines it as “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” We attempted to clarify in the DEIS when using “take” to mean lethal takes versus the full range of MMPA takes. We will continue to work in our decision documents to make sure that when the word is used its meaning is clear.
1879	PM_SEA_Anderson_2	I have not seen so far and I do not recall any consideration of the North Puget Sound population of gray whales. They've been ignored because they, after two or three months, they head back up to Kodiak Island, I believe; I ask that be corrected, because those whales exit and enter the Strait of Juan de Fuca, in I believe all of the proposed, except for Alternative 1, alternatives. There are only about a dozen or so that graze by here. They come back every year. They're part of our ecosystem in the State and I urge you to consider that northern Puget Sound population of gray whales.	DEIS Subsection 3.4.3.4.1 (PCFG Population Structure) notes that "[a]lthough interior waters making up Puget Sound are within the PCFG latitudinal boundaries of 41°N to 52°N, whales sighted in Puget Sound were not included in the IWC analysis and are considered outside the range of the PCFG. Previous research has found that the few whales sighted in Puget Sound are typically seen only in the spring (especially in northern Puget Sound), are less likely to be seen in multiple years and regions, and likely represent migratory animals."
1880	PM_SEA_Anderson_2	I ask that the word "harvest" be replaced with harpooning and shooting a gray whale. This is a scientific document.	The DEIS glossary defines "harvest" as to kill and land a whale. This is consistent with terminology used by fish and wildlife management agencies and by the International Whaling Commission in its definition of subsistence use.

Sort #	Commenter Code	Comment	Response
1881	PM_SEA_Weng	My name is Yen-Chu Weng and I'm here to represent myself. Based on the literature I read about this case, I think one overlooked issue in our discussion here is that we seem to represent a tribe as a community, that they have commonly agreed upon their request for a whale hunt; however, we fail to recognize there are also internal conflicts or different opinions on this issue. (Unintelligible) especially female elderly members, there are records and interviews of them. They are actually against this whale hunt. They feel like they have a different kind of relationship to the whales compared to the more elite and more like the younger generation and also the male members of the tribe. So there are several interviews and they list in their report that there are actually some internal conflicts. And the elderly, especially female elders, their positions are being excluded. They are being warned by those elite male members saying you should not talk to a reporter on this issue, you are kicked out from our tribal commission. So I urge the Makah Tribe, the tribal members' opinion on this issue, not just focusing on this voice that's being most voiced strongly, but also try to reach out to all the members of the tribe to kind of get a better understanding of their opinion. That's one thing I find that's missing from the environmental impact statement. So far I haven't track one for this issue, but there are certainly some reports on that. Thank you.	Section 3 of the DEIS acknowledges that some Makah tribal members have expressed opposition to the hunt.
1882	PM_SEA_Honeycutt	My name is Christyna Honycutt and I'm self-affiliated. There is an evolving global consciousness at this time of the sentients and questionable future existence of all beings. This evolving consciousness is shared by all of us as we are experiencing a more transparent network and web of life. The gray whales are at the capacity of 22,000 now; the Western North Pacific gray whales, there are 120 of them. The actual capacity of the ocean to support the gray whales is 96,000 to 122,000, so 22,000 is a very small amount and 120 Western North Pacific gray whales is almost nothing.	Comments noted.
1883	PM_SEA_Honeycutt	If there were 120 humans of one culture left, maybe women for instance in Iran or Iraq, only 120, but it was tribal custom to stone a woman if she had been raped, would that be acceptable to anybody to carry on that custom that had been going on for thousands of years with the evolving consciousness of value of all beings?	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1884	PM_SEA_Honeycutt	Right now, the impact of global climate change and the impact of the ice melt as a result of global warming is a dramatic threat to gray whales. Gray whales are specialty feeders. There's no adequate substitute prey for animalia catecea, which feed on algae dropping from sea ice of carried by ocean currents. When sea ice is diminished, the food web is disrupted and whales are forced to feed on	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face of climate change and other threats.

Sort #	Commenter Code	Comment	Response
		smaller anthropoids which does not give them the required energy to fulfill their 12,000 mile migration, nor the energy to give birth to their calves nor the ability to feed their calves, as well the impact on the environment, the amount of algae is not there to feed themselves or to their calves. They just really can't exist in this current global climatic environment.	
1885	PM_SEA_Honeycutt	With respect for the reverence that the Native cultures for thousands and thousands of years that precede the Caucasian population here, with respect for that history and lineage and their reverence for all nature and majestic creatures, I hope that they will consider the next seven generations in this current global climate, both ecological, sociological and consciousness-wise allow the sentients and other beings, whether their whales or birds, females or males, it's evolving. I hope they will consider that. I hope that they will consider that they want their children and their grandchildren and their great, great, great, great grandchildren to even be able to see a whale, to know what it is. I hope that they'll want to tell those children the story of how they restrained, they retreated and withheld as, yes, the Caucasian population continue the slaughter. I hope that by practicing this restraint in honor of the whale and its survival on the planet, that they will feel proud and be able to have a future relationship with whales at all so that we all may. So if we all consider ourselves interconnected, we really need to look at the fragility of the gray whale now and the potential for its survival at all. Thank you.	Comments noted.
1886	PM_SEA_Engles-Klann	MS. ENGLES-KLANN: My name is Jennifer Engles-Klann and I'm not affiliated with anybody in the room. It is not my intention today to suggest that the Makah lose treaty rights or that their deep connection to the ocean and its resources should not be recognized. My intention today is to defend the whales, whales that for decades lived peacefully in their world of momentary interactions with humans that did not fear for their lives, interactions that were born out of curiosity and celebrated their majesty as seen through the lens of a camera and not the sights of a rifle. In the year 2015, no intelligent mammal should be hunted down at the hands of humans in the name of ancient, unpracticed tribal customs and subsistence.	Comments noted.
1887	PM_SEA_Engles-Klann	Decades of subsistence without whale meat or byproducts have proven that it can be done.	Please see the response to frequent comment # 3 regarding the Makah Tribe’s desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
1888	PM_SEA_Engles-Klann	Tribal customs should celebrate the lives of the whales and their role in our current ecosystem; just because they are no longer on the endangered species list does not mean you should put them back there.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1889	PM_SEA_Engles-Klann	The reality is that technology and the sheer passage of time has changed the fabric of tribal traditions and should help guide the future. Their adoption of this technology not only makes this an unfair fight, but also blurs the line between what should be held onto as critical customs and hypocrisy.	Please see the response to frequent comment # 15 regarding the use of modern weapons
1890	PM_SEA_Engles-Klann	The whales have families, social structure, great intelligence and a level of comfort with humans that they become so vulnerable to the very people that have an incredible opportunity to create new customs based on ancient traditions.	Comments noted.
1891	PM_SEA_Engles-Klann	NOAA needs to take a stand to protect marine mammals and to recognize the world as it is now. Where it is impossible and unfortunate that things cannot go back to the way they were and the only way to maintain integrity once history, is to recognize that -- although it would be incredible to live out our lives in seclusion without influence from others to upset the ways of our ancestor -- we are all humans on one planet that desperately need to coexist with the other intelligent life forms and not kill them. Thank You.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1892	PM_SEA_Morris	There has been great change in the ocean environment since 1855 when the original treaty was written. Our oceans are in serious danger of ecological collapse -- climate change, increasing acidity, unpredictable food sources -- for all living species including the whales and moves these threats to any population of whales are making population predictions speculative at best. The gray whale has distinct populations and all threats have not been addressed in the DEIS.	Comments noted.
1893	PM_SEA_Morris	I ask that the comment period be extended an additional 60 days. The DEIS is a complicated document an takes time to read. I would like to submit further comment after more analyses.	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.
1894	PM_SEA_Morris	Therefore, I support only Alternative 1, the no-action alternative, that would not authorize the Makah gray whale hunt.	Comments noted.
1895	PM_SEA_Morris	And finally, I would like us all to please consider that when traditions control us, they have outlived their reason to exist. All humanity is survived by new tradition of the 21st Century.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1896	PM_SEA_Morris	Let the whales in the oceans live free of harassment and killing by humanity from any culture anywhere on the planet from now to the end of time. Thank you.	Comments noted.

Sort #	Commenter Code	Comment	Response
1897	PM_SEA_Bloomer	My name is Morgan Bloomer and I'm a Chippewa from the great Turtle Mountains of North Dakota and I tell you now, all this is for nothing. They have already won. They have it in their treaty and their treaty comes before your Constitution; before, not after. The only reason they're all having to go through this is because they made a little mistake when they wrote it out. Of course, they couldn't speak English and somebody else was doing it for them but, nonetheless, that's how it all goes. You have destroyed everything everywhere and now you come to them, come to them to make it right. Fix all the things you have done and all this will not have to happen, but no, no. You all poor spirit come to them, the weak, again, and ask them to fix it for you. THE FACILITATOR: Morgan, I'm going to ask you to put your comments to them. MR. BLOOMER: I appreciate all the work you do. THE FACILITATOR: Okay. Thank you.	Comments noted.
1898	PM_SEA_Pruett	MS. PRUETT: Thank you. My name is Catherine Pruett. I'm the executive director of the Sea Shepherd Legal and I appreciate the opportunity to comment. We begin by making it abundantly clear that Sea Shepherd Legal has the utmost respect for the culture, beliefs and traditions of Native people, including the Makah. Native people around would have made and continue to make valuable contributions to the protection of the environment and wildlife. We are not here to denigrate native culture; we are here because the science and the law do not support the Makah's request for a waiver of the protections afforded to gray whales under the Marine Mammal Protection Act. We're also here because we have a moral and an ethical duty to protect and preserve the lives of these magnificent and intelligent creatures. There are abundant scientific findings demonstrating that gray whales, like their other cetacean cousins, are intelligent mammals with extensive cognitive abilities, emotional lives and social relations. For example, studies have shown that gray whales care for unrelated calves and assist injured companions, even those that have been harpooned. We believe that Native cultures, with their inherent respect for nature and humanity's place in nature, are uniquely qualified to embrace our evolving understanding of whales and the critical importance of protecting them from harm. Indeed, other Native people, including the Quileute Tribe here in Washington and members of the First Nations in Canada, have abandoned whaling traditions and found great spiritual and cultural enrichment in celebrating the lives of whales.	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations). Yet it is up to the Makah Tribe, as a sovereign nation, to decide which traditions it continues or revives, within the bounds of the law.
1899	PM_SEA_Pruett	Now, I'll briefly discuss our scientific and legal our opposition to the Makah proposed whale hunt. There’s a lot of scientific uncertainty. That's really the biggest issue. We're here today because the Ninth found that NMFS had ignored	Comments noted.

Sort #	Commenter Code	Comment	Response
		significant scientific uncertainty surrounding populations of gray whales authorized the first Makah whale hunt.	
1900	PM_SEA_Pruett	It is undisputed that the proposed Makah hunt will not only target the larger population of the Eastern North Pacific gray whales, but also considerably smaller populations of endangered Western North Pacific gray whales and the Pacific Coast Feeding Group, often referred to as "resident" whales. In discussing the impact of the hunt the Ninth Circuit, in Anderson v. Evans, held that it was uncertain and controversial what would happen to the local whale population if the Tribe is allowed to hunt and kills whales pursuant to the approved quota. Nothing has changed since the Court came out with that. Many years of intensive study remain to be done by NMFS and the Scientific Committee for the International Whaling Commission and other scientists before we can understand the true impact of the proposed hunt on these smaller populations of gray whales. If NMFS approves the proposed hunt, the Agency will have essentially left it to the Tribe to undertake the nearly impossible task of visually confirming that they are not killing a PCFG or a Western gray, a Western Pacific gray whale. As one of our scientific advisors just told me the other day, it is virtually impossible to tell them apart. Under these circumstances it would be irresponsible and illegal for the Agency to approve the Makah hunt.	As described in the DEIS action alternatives, except for Alternative 4, the tribe would have bycatch limits for PCFG whales that would not require PCFG whales to be identified before striking. Under any scenario the tribe would not be authorized to strike a WNP gray whale. All of the action alternatives in the DEIS include provisions to limit impacts to PCFG whales. Please see the response to frequent comment # 12 regarding risks to WNP whales.
1901	PM_SEA_Pruett	There are also serious precedential impacts. In ordering NMFS to prepare an environmental impact statement, the Ninth Circuit also recognized the significant risk that other groups would use the precedent established by this approval of the Makah hunt. The current DEIS -- in the current DEIS, NMFS has failed to allay the significant concern.	Please see the response to frequent comment # 4 regarding the precedential effect of a waiver internationally and domestically.
1902	PM_SEA_Pruett	It fails to show that the proposed hunt, which was abandoned over 80 years ago by the Makah, will serve a recognized subsistence purpose. Rather, NMFS has effectively created a new category of cultural whaling that ignores the standards applicable to true Aboriginal subsistence whaling established by the IWC, the International Whaling Commission. NMFS further ignores the IWC requirement that there be a continuing traditional dependence on subsistence whaling. That element is conspicuously absent there. FACILITATOR: Why don’t you find a good place to end. AUDIENCE MEMBER: She can have part of my time. FACILITATOR: She’s going to be able to come back, we'll have time. Go ahead.	Please see the response to frequent comment # 2 regarding the ASW status of the Makah Tribe.
1903	PM_SEA_Pruett	NMFS dismisses these concerns out of hand. They also dismissed a number of things that they should have considered in their cumulative impact topics. Climate change received maybe a couple of paragraphs at best. What about impact of a significant increase in underwater sonar use by the Navy? There were	Please see the response to frequent comment # 14 regarding cumulative effects and the future health of the ENP gray whale population in the face

Sort #	Commenter Code	Comment	Response
		a lot of things that they did not consider, and how long-term impacts of all of these things together with whaling could impact whale populations and the environment as a whole. Accordingly -- thank you.	of climate change and other threats. This comment does not identify specific information we did not consider.
1904	PM_SEA_Paschke	My name is Susan Paschke, and this will be brief because I've got a lot of writing to do. The DEIS examines the effect on the human environment based on the Tribe's request; this is the human environment of a small section of people in this area. I can't -- I'm not tribal with Makah, but I have spent time on the ocean and I'm spent time in Puget Sound and I've spent time with Patch and Little Patch and a female out there too, and I don't know how you can take members of our community that are not human but are part of the human environment and leaving them a resource or a commodity, like lumber in a forest, and treat them for harvest.	The DEIS acknowledges that whale hunting under the action alternatives would inspire a wide range of feelings among persons and groups who oppose the hunt, including sorrow, frustration, and anger (see Subsections 3.8.3.3 and 4.8.2.3, Other Individuals and Organizations).
1905	PM_SEA_Paschke	That's all. I think I'll try No. 1, no change, for a multitude of reasons; but among them, the fact that we are all in this together and this does not present a win situation for anyone. It really doesn't. Thank you.	Comments noted.
1906	PM_SEA_Weinstein	I'm Diane Weinstein. I'd like to speak tonight about my own personal experience with the gray whales and also about the millions of taxpayer dollars that have been used to support the Makah whale hunt. I have spent time with the gray whales in the birthing lagoons in Baja. The mothers and babies come up to the small boats in peace and friendship. They raise their giant heads out of the water to get a better look at you with their small eyes and allow you to touch them. Like giant puppies, they roll over on their backs. The whales playfully spout you with water from their blowholes. They especially like it when children are aboard. The more the children giggle and shout for the joy, the more the whales spout them with water. The babies like to swim under the boats and get them to gently rocking back and forth. If they become too boisterous, the mothers correct them. A few of the older whales were alive when their population was almost brought to extinction by whaling, but the younger ones have mostly only known peace. Harpooning these whales is akin to shooting fish in a barrel. The young whale that was killed in 1999 expected to be greeted by friendly people, not harpooned and shot to death. It is morally wrong to hunt whales that have only known friendly human contact and who willingly come up to boats expecting to be greeted. Allowing these gentle and highly intelligent beings to be killed is a breech of their trust.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1907	PM_SEA_Weinstein	Times have changed, there's no going back. This is the 21st Century and cultural traditions that involve violence and killing should be left in the past.	Please see the response to frequent comment # 3 regarding the Makah

Sort #	Commenter Code	Comment	Response
			Tribe's desire to revive its whaling tradition.
1908	PM_SEA_Weinstein	Killing innocent beings will solve the Makah's social or economic problems.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1909	PM_SEA_Weinstein	And as to cost, all past, future and ongoing taxpayer costs related to the Makah whale hunt need to be fully stated in the DEIS, but only some of these costs have been included. According to one table, the estimated cost for just enforcement-related activities and resources is up to $5.6 million per year. The full taxpayer cost today also needs to be included. Just how much is it? 25? 50? 100 million? This should include all monies paid and received, past and present, by federal, state and local governments. The cost preparing the environmental impact statement and other documents, conducting meetings, equipment, travel, training, tracking whales, bringing in experts, sending representatives to IWC meetings, deals and negotiations with other governments, press conferences, use of the Coast Guard, National Guard, Washington State Highway Patrol and the local police and court costs and legal fees. The public has a right to know how many millions of dollars this boondoggle has cost us and I have to ask: Where does it stop? Certainly there must be a better use of our tax dollars that would help the Makah as well as the rest of humankind and other beings.	Comments noted, however the costs we focus on in the DEIS (and cited in this comment) are those relevant to understanding the various alternatives. We do not deem it appropriate or useful to specify the costs associated with conducting the NEPA analysis itself.
1910	PM_SEA_Weinstein	The whale hunt is unnecessary, it's cruel and inhumane and no amount of rationalization can ever change that. Like I said, everybody else, the Makah and the general public, the only reasonable and responsible alternative is the no-action, Alternative 1. Please do everyone a favor and stop this whole insane process now. Thank you.	Please see the response to frequent comment # 1 regarding the humaneness of a whale hunt.
1911	PM_SEA_Henderschott	My name is Tracy Hendershott. I'm going to be sharing, as the last person, because I've had the same experience in (inaudible) in Baja. The whales come to the sound of the motor and when they see the boats, they come up to the boats. The mothers bring their babies to the boats and lift them up to the boats. It's quite amazing. They expect no harm. And then they migrate up to the Washington Coast. And the same thing I thought -- the same thing she thought I thought. The one in 1999, that whale came right up to that boat expecting friendship and what it got was a harpoon in his face, and it was very painful to my family and my friends to see that. I've also swum with the humpback whales. And, you know, we drifted toward them and they stopped their fins and their flukes so that they would not hit us. They are compassionate. They are respectful	Comments noted. Please also see the response to frequent comment # 1 regarding the humaneness of a whale hunt.

Sort #	Commenter Code	Comment	Response
		to humans. They're very intelligent. They communicate with each other. So when they come up here, many people aren't living -- like I say, I'm repeating repeat myself because she said so much of what I wanted to say. The most recent unauthorized killing of a resident gray whale by the Makah members was cruel and not very humane to us to know that it died a slowed death at the bottom of the ocean. Whales are members of a whale family. They're bonded. They're highly communicative. When I was with the humpbacks, we got a microphone down. It sounded like they knew everything in the history of mankind. It was just unbelievable.	
1912	PM_SEA_Henderschott	Doing something in the name of tradition is not a valid reason. Some traditions have proven to be immoral and have been left behind in history, such as slavery. There's no good reason for any whale hunting. It's unfair and immoral in the light of the socialization of the people in Baja. And I feel that whaling should be remembered as a tradition of ancestors and not current tribal members, so I support no action and I thank you.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1913	PM_SEA_Myrick	My name is Alex Mryick. I'm here representing only myself. I would like to address the cultural, ceremonial and subsistence resources. For nearly two years, I lived and worked on a reservation where the Tribe was heavily dependent on fishing. This was not the Makah, but the Metlakatla Indian community in southeast Alaska. While there, in my spare time I authored a grant which included funds for a culture camp to help the young people and the Tribe retain what was left and rediscover some of their culture. Speaking of culture, the Makah's have a long and proud tradition of whaling. It goes back over 1,000 years. They would prepare themselves by killing boulders underneath the waters of a moving river. They would lie on the beach and let the sandflies bite them, and they would lay there motionless for hour after hour. They would prepare a Yew wood shaft for their harpoon and keep it for a muscle shot. They'd be paddling out into the ocean for days at a time in search of an animal much larger than themselves. The modern descendants of these brave hunters also prepare themselves, and I would like to say that I stand in awe of this ancient custom. The bravery, the tenacity is incredible. I can't think of anything else like it.	These introductory comments are noted; specific responses are provided below.
1914	PM_SEA_Myrick	And the modern descendants have prepared themselves by sending a delegation to Norway to learn how the Norwegians hunt the whale. They sent a delegation to the University of Maryland Veterinary School to learn how to kill a whale. They had a motorboat that was there, canoes, to chase the whale, and they shot the whale with a retrofitted anti-tank gun. That's quite a bit different from their ancestors. They towed it to the beach -- as I recall, it was a three-year-old female	Please see the response to frequent comments # 2 regarding the ASW status of the Makah Tribe and # 3 regarding the Makah Tribe's desire to revive its whaling tradition.

Sort #	Commenter Code	Comment	Response
		-- doing backflips off the body, cut off a few steaks, traded recipes from a Japanese cookbook and left most of the carcass to rot on the beach. Where is the culture in that? Where is the culture in that?	
1915	PM_SEA_Myrick	The whale hunt as practiced in 1999 by the Makah and as proposed in the near future is not aboriginal and not subsistence, therefore, I would encourage the Makah Tribe to withdraw their petition. Alternatively, I would encourage NOAA and the decision-makers not to grant the waiver. Thank you very much.	Please see the responses to frequent comments # 2 regarding the ASW status of the Makah Tribe and 3.
1916	PM_SEA_Slagden	My name is Greg Slagden, and I am unaffiliated. I just wanted to talk about the human environment in the draft environmental proposal. I think the environment that you may not be considering is the environment of our entire society and worldwide civilization, how there's been a -- over the past 5,000 years, taking a very long view, there's been a progression of the way that society views things in an emerging global -- especially once civilization became interconnecting to one global civilization. There's been kind of a consensus about what is right and what is wrong, sort of a global emerging world morality. The things that were considered commonplace in the past, like human sacrifice or burning people at the stake or cutting down vast forests rather than thinking about it or burning coal like crazy and causing huge amounts of black soot to cover entire cities. These things we don't do anymore; they're recognized as simply wrong. I think that when -- if you fast-forward another hundred years or a thousand years and you look back at what we're doing now, there's a lot these -- the people back in the early 21st Century were actually going out and killing large gentle intelligent creatures. That's just completely unimaginable. Unfortunately, there's a lot of it going on. The elephants in Africa are being killed, the orangutan in Borneo, forests are being ruined, the dolphins in Japan are being herded and killed, whale hunting in the Antarctic continued until very recently and even right now, there are monkeys in animal research labs. All these things are going on, and the fact that the killing of a gray whale is a small part of that; but if there's something you can do to help our generation look better to future generations, I think it's important to consider and that the long view. Thank you very much.	Please see the response to frequent comment # 3 regarding the Makah Tribe's desire to revive its whaling tradition.
1917	PM_SEA_Hopp	My name is Tom Hopp and I'm unaffiliated. I think it's worth going over my credentials first before I make my remarks. I have a PhD in biochemistry from Cornell Medical College which is recognized as one of the top institutions in the study of nutrition in this country, and I have a long history as the vice president of Immunex Corporation in medical research in bringing new medical products forward. And that said, I'd just like to say there's one thing that this draft environment impact statement is slight on. The very first point is to assess the	Comments noted. The comment offers no credible information to supplement the analysis in the DEIS.

Sort #	Commenter Code	Comment	Response
		effect on the human environment. And I noticed in subsequent points, statements of human health being rather far down the list; well, I'd like to bring them much farther up the list. We know that Native Americans don't tolerate alcohol. Well, we know that Native Americans are among those who often are or have no intolerance, lactose intolerance. What we know then, let me simplify it, is that they are physiologically different from mainstream Americans. I don't feel this environmental impact statement has addressed that issue because it's an issue that strongly argues in favor of the Makah whaling. There are people who have had the tradition, as people have said; but more importantly, they have had a biological connection to whales. And the previous speaker said a thousand years; but Neah Bay, the artifacts there go back between four and five thousand years and the traditions of whaling are much more ancient than that. Really, they go back and get lost in time. Even 4,000 years is plenty of time for the human body to adapt in favor of something, for instance, in favor of eating whale. I think that it's a tremendous presumption of the many people that have just spoken right before me that there's so concerned about whales. I think it's sad when somebody kills a whale, it's an awful thing; but if that's somebody's child who needs whale oil to grow strong then I take exception to the things that they're hearing here today, and I would urge the framers of this environmental impact statement to take a look at that mandate, that they look at the human environment in terms of Makah, and that you consider the health impacts of not approving whaling.	
1918	PM_SEA_Anderson	Good evening. I'm Will Anderson representing Green Vegans and the New Human Ecology. It was interesting, the previous remarks. I just wanted to ask the gentleman afterwards if I can get his number so I can add the peer reviewed literature that states that evolution and genetic change takes place over a constant period of time, a long time, and is incapable physiologically or otherwise of making short jumps quickly to adapt to ecosystems. But getting back to my point, we support Alternative 1, the no-action alternative, of course, that would not authorize the gray whale hunt. This meeting, when you hold it the next time, will be scheduled more closely to the actual end of the comment period because the problem I have now, and a problem I have even with the comment period itself, is that there simply isn't -- hasn't been enough time to thoroughly review the DEIS, nor all of these papers and documents that are available. A lot of us, like myself, are paid to do this, even those who aren't have to attend the IWC Scientific Community meeting in California that's coming up. Humpback whales have been supposedly delisted, whales of the Makah; but certainly once	Please see the response to frequent comment # 16 regarding the amount of time allowed to comment on the DEIS.

Sort #	Commenter Code	Comment	Response
		(unintelligible) than gray whales, as I understand it. So I'm going to ask that not only the comment period be closer to the end of the written comment period, but also that the period be extended by 60 days. It's really, really helpful, otherwise. I've been through this before, since 1995, when I first learned of the Makah. Somebody tipped me off to the fact that they were going to go apply, as they did, and to now. I think all sides are pretty weary, but we know that it takes a long time to go through this (unintelligible.)	
1919	PM_SEA_Anderson	Imagine what would have happened had Green not challenged anything in the environmental and animal welfare/rights communities. If we had not challenged this outrageous proposal, the Makah hunt for gray whales, how many of the Pacific Coast Feeding Group would have been killed? How many of the Western Pacific gray whales -- of which there are what, 100 left -- been killed? And as I understand it, very few of those are females. What if they killed even a single female? And yet, we're still wanting to continue onward as if we know everything. What will we destroy now, in our ignorance, because we're being forced by the Makah to attack whales?	Comments noted.
1920	PM_SEA_Anderson	And so a lot of this has been taking place in a context. The context has different rights and accusations of bias in the previous environmental impact and NEPA ventures regarding this issue, and so I'm going to address the context briefly. It's more than a treaty, it's more than cultural identities carried from the past, and it's more than the National Marine Fisheries Service ignoring with certainty that they -- none of us actually -- control the juggernaut called climate change we together have unleashed; it is about watching another volley of violence against this planet already ravished by 7.3 billion people. Nothing is certain now -- not for the gray whales, not for us. There are so many of us on earth that earth is defined as a species far more than a culture. THE FACILITATOR: You've got about a minute left, so if you'd find a convenient spot to stop. MR. ANDERSON: I'll finish my comments later. Thank you.	Comments noted.
1921	PM_SEA_Powell	Jeff Powell. No affiliations. I'm here to support the Makah. It's their treaty rights. We force them into the local reservations and we shouldn't have any say on what they do. It's their history. It's their culture. I just want to say the whales gets harassed enough all the way to the Bennes (sp) in California, Baja, by the people. They've got boats. They've got charters. They're harassed all the way up here, there ain't much difference; but the Makah have got their rights and this should be one of them until proven, at least.	Comments noted.
1922	PM_SEA_Smith	Good evening. My name is Jeff Smith. I work for American Friends Service Committee here in Seattle. It's a Quaker organization. I'm the regional Indian	Comments noted.

Sort #	Commenter Code	Comment	Response
		program director. My parents are Chris and Palmer Smith. Chris Smith is from Neah Bay and Port Angeles; Palmer Smith's from Newport, Oregon. So the American Friends Service Committee has supported treaty rights for many years and before that, we supported native peoples before we got into the legal aspects. We support tribal sovereignty and we think that the rule of law should be well-considered and if it's going to be gone around, then it should be done with great care and conscience. The indigenous people have suffered much so that today all people of the Americas enjoy -- well, most of the peoples of the Americas -- the countries of the Americas enjoy great wealth, material wealth. And the tribal people of the Americas have given a lot and have taken a lot so that we can be the way that we are today and all people today, hopefully, benefit from that including indigenous people. So in this process, it would seem to me that the rule of law is followed, that the processes are set in place. The Tribe is, I guess is going by that process. And even though the are some who believe that the process is, you know, not appropriate for this, but the Tribe, the tribal government has decided that this is the way to go. I think that we, as indigenous people, know that there's a lot of people and a lot of forest that has been used against us in the past and we know that we have all live to get along. So I want to thank the people, the staff for coming out tonight and doing his hard work and all the hard work that you're doing on this process, and I wish you good luck.	
1923	PM_SEA_Karstettor	My name is Randall Karstettor, and I'm unaffiliated. I wanted to speak tonight because I feel that the Makah people are underrepresented in these proceedings; that is typical of most interactions between U.S. government and native people, and I just wanted to say something on their behalf. I am not a Native American. The Makah people are not the problem. Whales have flourished for thousands and thousands of years with the Native American people whaling them as part of their subsistence and as part of their religious ceremonies. The problem occurred when the Caucasian people came and commercially hunted them to almost extinction. That's the whole reason why we have to have NOAA and the Whaling Commission is to protect whales from Caucasian commercial fisherman. We need to do that. What we don't need you to do is to tell the Makah how they should live their lives. Native American people interactions with U.S. government and U.S. people have constantly been told what to do, what clothes to wear, what religions to believe in, how to hunt and fish, what lands they can own. They've constantly been told what to do. Here we are today, again trying to tell them what to do. That is wrong. All of us here are newcomers to this land, to this area. They were here before us. They have their own culture. They have their own way	Comments noted.

Sort #	Commenter Code	Comment	Response
		of living. And we don't have the right to tell them how they should live, what they should hunt, what they should eat, whether they should go to the grocery for their meat. We don't have the right. I would urge NOAA and the U.S. government to take this into consideration that while we all love whales, and we all love whales -- including the Makah, they revere the whales -- we all love whales, but we should not impose our pet projections of whales onto the Makah and their way of life. Leave the Makah alone and let them live their culture the way they have always lived their culture, without our impact.	

END OF COMMENTS

Appendix F

Responses to Comments on the 2012 Notice of Intent to Terminate the Existing Draft Environmental Impact Statement and Prepare a New Environmental Impact Statement (Appendix C from the 2015 DEIS)

Appendix C

Responses to Comments on 2012 Notice of Intent To Terminate the Existing Draft Environmental Impact Statement and Prepare a New Environmental Impact Statement

In a Federal Register notice dated May 21, 2012 (77 FR 29967) we announced our decision to terminate the 2008 Draft Environmental Impact Statement (DEIS) and to begin preparation of a new DEIS that is informed by substantial new information (gray whales in particular), proceedings of the International Whaling Commission, and public input.

We received 11 comment letters, postcards, e-mails, and facsimiles during the 2012 scoping period. Some people submitted comments in more than one medium. Identical comments from the same commenter that were submitted in different formats are included only once when describing the number of letters and comments received. The commenters were as follows:

- Animal Welfare Institute, Washington D.C., USA
- Owens, C. (citizen) Washington, USA
- Rorabeck, C. (citizen) Oregon, USA
- California Gray Whale Coalition, California, USA
- The U.S. Environmental Protection Agency, Washington, USA
- Green Vegans, Washington, USA
- The Humane Society of the United States, Washington, D.C., USA
- Public, J. (citizen) New Jersey, USA
- Marine Mammal Commission, Maryland, USA
- Peninsula Citizens for the Protection of Whales, Washington, USA
- Abels, S.R. (citizen) Ohio, USA

The geographic origin of written correspondence could be determined for all of the correspondence received. All of the comments originated from the following 7 U.S. states/districts: California; Maryland, New Jersey; Ohio; Oregon; Washington (state); and Washington D.C. Five of the comments were submitted by non-governmental organizations, 4 were submitted by private citizens, and 2 were submitted by Federal agencies or commissions. A total of 4 written correspondences were from the State of Washington, representing 36 percent of the total written correspondence received. The tables below present the 11 comments received and our responses to them.

Animal Welfare Institute – Comments Submitted August 10, 2012 by D.J. Schubert

COMMENT CODE	COMMENT	RESPONSE
AWI-1	On behalf of the Animal Welfare Institute (AWI), I submit the following scoping comments on an Environmental Impact Statement (EIS) related to the Makah tribe's request for the authorization of a treaty right hunt of eastern North Pacific gray whales in the tribe's usual and accustomed fishing grounds off the coast of Washington State (77 Federal Register 29967). AWI commends the National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NMFS) for its decision to terminate the previous Makah/gray whale EIS process given the new information and changed circumstances directly relevant to the environmental impacts of the proposed whale hunt. AWI has consistently held that the Makah Tribe does not qualify to be granted an aboriginal subsistence whaling (ASW) quota by the International Whaling Commission (IWC) and, therefore, there is no legal basis to engage in this National Environmental Policy Act (NEPA) decision-making process. Consequently, while AWI will fully participate in this new decision-making process, the entire process is unnecessary and a waste of taxpayer dollars. The purpose of the scoping process is to provide the public with an opportunity to identify concerns and issues that it believes the government must evaluate in its NEPA analysis. AWI has provided a list of these concerns and issues below (in no particular order) with a brief explanation of the importance or relevance of these issues to the pending analysis.	Comments noted.
AWI-2	1. Compliance with IWC criteria: NMFS must provide a comprehensive explanation of how the Makah Tribe meets the IWC criteria for ASW. Merely relying on the IWC's past and recent approval of the US government's quota request as evidence that the Makah meets the definition of ASW and subsistence use is not sufficient. Rather, NMFS must provide compelling evidence that the Makah, despite its cessation of whaling for over 80 years (with the exception of one authorized kill in 1999), satisfies the "continuing traditional dependence" standard contained in the IWC definition of ASW. In presenting this evidence, NMFS must articulate the myriad reasons why the Makah, including those engaged in whaling, ceased whaling in the late 1920s which was not solely due to declining gray whale numbers but also was a product of increased economic profits available to them by working on a sealing boat. The IWC's definition of ASW makes it clear that to qualify for an ASW quota, a group or tribe must engage in whaling for the purpose of "local aboriginal consumption" and must have a "continuing traditional dependence on whaling and on the use of whales." For the Makah to qualify for an ASW quota it must be able to demonstrate a continuing traditional dependence on whaling and on the use of whales. The Makah does not and cannot meet either standard. Furthermore, "local consumption" is defined by the IWC as "the traditional uses of whale products by local aboriginal, indigenous, or native communities in meeting their nutritional, subsistence, and cultural requirements. The conjunction "and" in this statement makes it clear that local aboriginal consumption is only met when nutritional, subsistence, and cultural requirements are all met.	Refer to Subsection 1.4.1, Summary of Aboriginal Subsistence Whaling Catch Limits.

COMMENT CODE	COMMENT	RESPONSE
	Finally, since "local aboriginal consumption" is linked to the "continued traditional dependence on whaling and on the use of whales," to satisfy this definition NMFS must demonstrate that the Makah has a continuing traditional dependence on whales to meet its nutritional, subsistence, and cultural needs. The Makah's claim that it has had a continuing traditional dependence on whales as a result of its ongoing cultural reverence and celebration of whales and whaling is not sufficient to meet this definition. Even if the NMFS were to somehow claim that cultural need alone is sufficient to satisfy the "continuing traditional dependence" criteria in the IWC definition of ASW, it must prove through the disclosure of, for example, tribal records of past events and celebrations, that the tribe's claimed continuing culture dependence on whales is real and not merely rhetoric. If NMFS cannot document how the Makah satisfies the IWC definition of ASW or subsistence use it should announce the termination of this new NEPA process, amend its bilateral agreement with the Russian Federation to remove reference to the sharing of any IWC gray whale quota, and advise the IWC Secretariat that the US will not allocate any gray whales from the joint (US and Russia) gray whale quota approved at IWC/64.	
AWI-3	2. Compliance with NEPA in seeking an ASW quota from the IWC: NMFS must provide a rational legal explanation for its decision to seek a gray whale ASW quota from the IWC prior to completing its NEPA analysis of the impact of the proposed hunt. As explained in a June 22, 2012 letter from Meyer, Glitzenstein & Crystal (attached) to NMFS, the government's decision to seek the quota prior to complying with its NEPA responsibilities violated both NEPA and the court's opinion in Anderson v. Evans. This premature action violated NEPA by engaging in an action prior to evaluating the impact of that action on the environment. In this case, the act of seeking or requesting the quota from the IWC is inextricably intertwined with a clear intent to allocate the quota to the Makah. Indeed, it is inconceivable that the US government would expend the time and resources to obtain the gray whale quota if it did not intend to allocate the quota. Furthermore, because of the link between seeking and allocating the quota, NMFS has irrevocably compromised the integrity of this new NEPA process before a Draft EIS has even been published. In other words, the entire decision-making process has become nothing more than a make-work exercise for which NMFS has already predetermined the outcome of the process, in violation of NEPA. In addition, by prematurely seeking the ASW quota from the IWC, NMFS has also contravened the clear intent of the court in its ruling in Anderson v. Evans. In that opinion, the court raised concerns about the precedential impact of the Makah obtaining a quota from the IWC since the Makah doesn't clearly satisfy the IWC's ASW criteria. The court questioned how the granting of such a quota could affect or influence other native tribes, First Nations people, or other countries which may also have a desire to engage in ASW. To address this issue it would only be sensible to do so before the quota was requested so that the analysis of potential precedential impacts could be completed before the quota was sought and granted, after which the precedent has already been set. Consequently, to evaluate the precedential impacts now is meaningless. Unless NMFS can provide a rational legal basis for its decision to seek an ASW quota prior to completing its NEPA review, it should, to protect the integrity of the NEPA process, inform the IWC Secretariat that it	As noted in the 2008 DEIS (Subsection 1.2.4.1.4, United States' IWC Interagency Consultation), negotiating positions advocated by the United States are not final agency actions; these positions may change during the negotiations. The United States' negotiating positions advocated before the IWC, moreover, may or may not be adopted by the IWC, and any attempt to analyze effects on the human environment would be speculative.

COMMENT CODE	COMMENT	RESPONSE
	has decided not to accept the ASW quota for gray whales approved at IWC64, ask the Secretariat to amend Paragraph 13 of the Schedule to revise and reduce the number of gray whales permitted to be taken under the relevant ASW quota accordingly, and terminate the current bilateral agreement with the Russian Federation which provides for sharing of the gray whale quota.	
AWI-4	3. Precedential impact of seeking, obtaining, and/or allocating the quota: As indicated above, the court in Anderson v. Evans explicitly raised concerns about the precedential impact of the US obtaining a gray whale quota for the Makah and subsequent allocation of that quota. Though NMFS erred in not engaging in this analysis prior to seeking a gray whale quota at IWC/64, it must provide a comprehensive evaluation of this issue in the Draft EIS. Though the Makah may be the only US Native American tribe to have whaling explicitly addressed in its treaty with the US government (The Treaty of Neah Bay), the evaluation of precedential impacts must extend beyond the Makah to other US Native American tribes, to First Nations in Canada, to tribal groups in other countries, and to other countries that may elect to use the US receipt of an ASW quota from the IWC or the possibility of active whaling by the Makah as justification or precedent to permit, authorize, engage in, or seek permission to allow hunting of gray whales.	Refer to the following Subsections: 1.4.3, Other Environmental Assessments and Court Decisions Informing this Action; 3.17, National and International Regulatory Environment; 4.17, Regulatory Environment Governing Harvest of Marine Mammals; and 5.16, National and International Regulatory Environment.
AWI-5	4. Treaty interpretation and legal implications of the MMPA in regard to the authorization to whale contained in the treaty language: Beyond merely reporting that the Treaty of Neah Bay explicitly authorizes the Makah to engage in whaling, NMFS must examine the context in which this provision is contained and whether the MMPA effectively abrogates this treaty right. As an initial matter, the Treaty recognizes the Makah's right to whale but only "in common with all citizens of the United States." At the time the Treaty was signed in 1885, the US was a whaling nation allowing both whaling by citizens for aboriginal and commercial purposes. As a result, the language used in the Treaty was clearly intended to permit the Makah to whale if other citizens were also able to whale. Consequently, if the non-tribal citizen was not authorized to engage in whaling, the Treaty language holds that the Makah would also not be provided such authority. Hence, since the Marine Mammal Protection Act (MMPA) prohibits US citizens from engaging in whaling, the Makah similarly cannot be permitted to whale given the treaty language. If there is legal precedent to suggest that the "in common with" language is not relevant in this case, NMFS must cite to and explain such legal precedents. If it can't overcome the plain language and clear intent of the "in common with" language, NMFS should terminate this new NEPA process and inform the Makah that it will only reconsider the tribe' interest in whaling if or when other US citizens have similar opportunities. Furthermore, if NMFS intends to proceed with its review despite the "in common with" language, this would suggest that NMFS is cherry-picking those components of the treaty that it prefers to implement while ignoring those that are problematic. For example, the treaty also contains a provision that prohibits the introduction of "ardent spirits" to the reservation; a provision that has not been upheld or enforced. Finally, NMFS must discuss whether the whaling provision contained in the Treaty of Neah Bay has been abrogated by the promulgation of the MMPA in 1972. The MMPA explicitly prohibited the taking, including killing, of marine mammals by any US citizen. The only exception to this prohibition is an	The purpose of the draft EIS is to analyze potential impacts of alternatives, not to explore or resolve legal debates.

COMMENT CODE	COMMENT	RESPONSE
	exemption provided to Alaskan natives. Hence, when Congress promulgated the MMPA in 1972 – nearly 45 years after the Makah had last killed a whale – it did not provide any exception to the broad prohibitions against the take of marine mammals to recognize the Makah's treaty language. At that time, it is possible that Congress was not advised of the Makah's treaty language. Yet, surely members of the Makah tribe, given the alleged importance of whaling and marine mammals to the tribe, were aware that the legislation establishing the MMPA was being debated in Congress and either advised Congress of its treaty language and was ignored or elected not to inform Congress of its whaling tradition and treaty language because it had no intention of ever resuming whaling. In either case, the fact that Congress did not exempt the Makah from the take prohibitions under the MMPA demonstrates that it intended to abrogate the whaling provision in the Treaty of Neah Bay. If NMFS does not except this premise it must provide a rational, legally coherent argument to demonstrate that the MMPA does not abrogate the Makah's treaty right.	
AWI-6	5. Resident gray whales: NMFS must provide a comprehensive discussion of the biology, ecology, and behavior of the resident gray whales, also known as the Pacific Coast Feeding Aggregation. This analysis must include an assessment of the genetics of this unique group of whales, how these whales differ genetically from non-resident or fully migratory whales, how whales are recruited into the PCFA, daily and seasonal distribution patterns of these whales (i.e., proportion of time spent in coastal waters versus offshore, when resident whales are known to occupy the water in and around Neah Bay), and the implications of these distribution and genetic differences to the management of the two groups of gray whales. This analysis is particularly important considering that new scientific evidence indicating that the resident and non-resident whales are genetically distinct is one of the reasons why the NEPA process for the proposed hunt has been restarted. Of particular importance, is an analysis of the Makah's proposed hunting strategy and how that may impact the short and long-term survival, genetic diversity, and recruitment of PCFA whales. In 2005, in its request for an MMPA waiver, the Makah had proposed a hunting strategy in which they intended to minimize the potential killing of resident whales by hunting further offshore and by establishing a subquota of two resident whales to be identified through photographs taken after the whales were killed and landed. Though this proposal was flawed to begin with, it was made at a time before scientific evidence provided proof of the genetic distinctiveness between resident and non-resident whales. Subsequently, it is not clear if the Makah have amended their proposed hunting strategy to address this new evidence. If so, the new hunting strategy should be fully disclosed and evaluated in the Draft EIS. Furthermore, if the Makah's strategy remains the same as that proposed in 2005 or if it has changed but is still based on establishing a subquota of resident whales, there must be discussion of how any struck and lost whales will be counted against the subquota and whether any observer will be assigned to monitor each hunt to ensure that any and all struck and lost whales are properly reported. Presumably, any whales that are struck and lost will be considered resident whales and, therefore, will count toward any proposed resident whale quota. If this is not the case, NMFS must explain why.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.4, Pacific Coast feeding Group (PCFG) of Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.3, Change in Abundance and Viability of PCFG Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).

COMMENT CODE	COMMENT	RESPONSE
	There also must be an analysis of the proportion of the known or estimated resident whales for which identification photographs have been taken, how any non-photographed resident whales will be considered when evaluating photographs of killed whales, who possesses the catalog of resident gray whale photographs, who will be responsible for comparing photographs of any killed whales to the catalog of resident whales, what methodology would be used to conduct the comparison (e.g., computer assisted, human comparison only), the accuracy of the method used to compare photographs, how any potential but non-exact matched photographs will be addressed, the chain of custody of the photographs of killed whales, the timetable for engaging in the comparative analysis of photographs, and who will be responsible for obtaining photographs of any killed whales, if that person or those persons are properly qualified and by whom.	
AWI-7	6. Western gray whales: NMFS must provide a comprehensive analysis of the frequency with which critically endangered Western gray whales (WGW) have been documented as migrating across the Bering Sea from Russia to Alaska to enter the migratory corridor of the Eastern North Pacific (ENP) gray whale. This analysis must include all historical evidence of such movements (documented using photographic identification) and more recent incidents of such interactions (documented through photographic identification and the use of electronic tags). Of particular importance is information regarding the timing (by month) of estimated (based on photo-identification and average swimming speeds), known (based on electronic tag data), and predicted (based on modeling of future WGW movements) WGW presence in the Makah's usual and accustomed hunting areas and surrounding areas, and the duration of WGW remaining in these areas, any evidence of WGW remaining in the area beyond the traditional south or northbound migratory periods. Considering that the scientific documentation of WGW entering the ENP gray whale migratory corridor was another basis for terminating the previous NEPA process, this analysis is crucial to the new NEPA process. Of particular importance is to fully disclose and evaluate the potential for the Makah to kill a WGW based on whatever proposed hunting strategy may be employed. The strategy proposed in 2005 did not contemplate any potential killing of WGW since, at that time, it had not been known that WGW were entering the migratory corridor of the ENP gray whales. If the Makah has proposed changes to its hunting strategy to eliminate or minimize the potential for killing a WGW, these changes must be disclosed and fully analyzed. Furthermore, even if NMFS claims that the potential for the killing of a WGW is low, it can't suggest that there is no risk. Consequently, NMFS must disclose and discuss what penalties would be imposed on the Makah if a WGW was killed (if a hunt is permitted), if the Makah would be subject to criminal penalties or fines under the Endangered Species Act, if an Incidental Take Permit would be issued to the Makah and the process used to issue that permit, how the killing of a WGW would impact the recovery of this critically endangered whale stock, and how such a kill would impact the continuation of the hunt both for that season and long-term. This assessment must include an assessment of how a kill of a WGW would be verified. If photo-identification would be used, NMFS must disclose what proportion of known WGW have been	In response to this and related comments, we have included WNP gray whales in our analysis in the new DEIS. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).

COMMENT CODE	COMMENT	RESPONSE
	photographed, who maintains the WGW photographic catalog, who would be responsible for photographing any gray whales taken by the Makah, what training would that person or those persons receive in obtaining such photographs, what the chain of custody would be for handling any photographs, how the photographs would be compared (i.e., computer assisted, human eye comparison only), the accuracy of the method of comparison, and how any struck and lost whales will be categorized. Considering the critically endangered status of the WGW and given the precautionary principle, it would be reasonable to categorize any struck and lost whale as a WGW for the purpose of evaluating the conduct of any proposed hunt. To ensure that any and all struck and lost whales are accurately reported, this again raises the issue of the potential need for an observer to monitor each hunt. Similarly, since there is evidence of WGW transiting the Makah's usual and accustomed hunting grounds and, therefore, any hunt (if allowed) could potentially result in the killing or the harassment of WGW, NMFS must include in the Draft EIS a full evaluation of the biology, ecology, behavior of the WGW. This analysis must also evaluate all threats to the WGW (i.e., oil/gas developments, shipstrikes, ASW, ocean noise, pollution) throughout their known migratory range (including within the migratory range of the ENP gray whale) since the Makah hunt would pose a direct and indirect impact to the WGW and would add to the cumulative impact of all threats to this stock.	
AWI-8	7. Threats to the gray whale throughout its range: One of the significant flaws in the previous Draft EIS was the failure by NMFS to fully disclose and evaluate the full suite of threats to the ENP gray whales and gray whale habitat throughout the stock's entire range (from the Arctic to Mexico). Instead, in that Draft EIS NMFS focused its analysis on threats on the PCFA or resident whales only. This mistake must not be repeated in this new Draft EIS. Gray whales and their habitat are subject to a host of threats throughout their range. Many, but not all, of these threats are identified below. These and all other known threats to gray whales must be fully disclosed and evaluated in the DEIS. Climate change: There is overwhelming scientific evidence that climate change is affecting the chemistry and ecology of the oceans in profound ways resulting in direct, indirect, and cumulative impacts on marine species and their habitats. For gray whales such impacts include, but are not limited to, the expansion of dead areas where oxygen levels in the water are not sufficient to sustain life including the benthic and other organisms that gray whale feed on, increases in the acidity of ocean water adversely affecting other potential gray whale prey, changes in current patterns potentially affecting gray whale prey, and alterations in the structure of ecosystems from benthic to pelagic as a result of ocean warming and the concurrent changes in sea ice extent and melting patterns. All of the impacts (and others) could drastically impact the gray whale but the documented shift from benthic to pelagic driven systems in the gray whales historically important summer feeding areas is of particular concern. Though it is now known that the gray whale can survive on a variety of prey species, it is less clear if all prey species provide the same amount of nutritive value and caloric energy for gray whales. Despite the ability to utilize other prey species, benthic amphipods remain a critically important item in the diet of gray whales. The documented shift in historically important Arctic feeding areas from benthic systems (maximizing production of amphipods) to pelagic systems (where most of the food is consumed by fish	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.0, Affected Environment; 3.2, Water Quality; 3.4.3.6, Known and Potential Anthropogenic Impacts; 3.17 National and International Regulatory Environment; 3.6.3.3.2, Commercial Value of Whales; 3.16.3.2, Environmental Contaminants in Gray Whales; 4.0, Environmental Consequences; 5.4, Gray Whales (Cumulative Effects).

COMMENT CODE	COMMENT	RESPONSE
	prior to reaching the amphipods on the sea floor) has reduced amphipod densities throughout the gray whales summer feeding area. As a result, gray whales are migrating further north in search of food including additional amphipod patches. What is not clear is how amphipod densities change as the whales move north, whether the seafloor substrate is suitable for amphipods, what species of amphipods may exist further north, and their nutritional and caloric value. There is significant scientific evidence documenting these types of changes and though some have suggested that gray whales, as ecological generalists, may not suffer adverse consequences as a result of climate change, there is compelling evidence to suggest otherwise. ASW: It is obvious that ASW represents a threat to gray whales. This would include ASW conducted by Russian Natives and the potential for ASW to be conducted by the Makah. While the IWC Scientific Committee has reported that the current gray whale quota is sustainable, of all of the current threats to gray whales, ASW is the one threat that is entirely under human control and could be reduced or eliminated much easier than ameliorating other threats to the species. The analysis of ASW in the Draft EIS must expand beyond whatever the Makah may propose to include a full analysis of the impacts of the Russian hunt on ENP gray whales. This analysis must include disclosure of hunt statistics including the size, sex, and age of all whales killed by Russian natives, location of kills, number of struck and lost whales, and any evidence of contamination (i.e., stinky whale, toxins, heavy metals). Shipstrikes: ENP gray whales migrate along one of the busiest shipping areas in the world. As a consequence, shipstrikes represent a threat to gray whales. The Draft EIS must disclose all evidence of the number of shipstrikes on gray whales throughout the gray whale range including its entire migratory corridor. This must include any information on the fate of struck whales. Gray whale deaths caused by ship strikes represent a cumulative impact to the stock which must not be discounted or ignored. Entanglement in fishing gear: Given their tendency to primarily use coastal waters during their migration, gray whales are susceptible to entanglement in fishing gear. Though total number of such verified incidents may not be high, NMFS must consider the frequency of known entanglements, an estimate of unreported entanglements, and the fate of gray whales subject to entanglement incidents in the Draft EIS. Furthermore, it must disclose the types of fisheries operating in US, Canadian, and Mexican waters that use gear that may pose a risk to gray whales, the type of gear used, and any mitigation measures that may be employed to reduce the potential for such incidents. Ocean noise: Ocean noise has increased exponentially over the past few decades. Ocean noise in gray whale range, including their migratory corridor, is particularly severe considering ship traffic, recreational vessel use, oil/gas exploration, military activities, and coastal development. Though the understanding of noise impacts on marine mammals remains incomplete, it has been documented that noise can result in a litany of adverse impacts including permanent hearing loss, temporary hearing loss, masking, avoidance reaction, disruption of feeding/breeding activities, alterations in swimming speeds, and behavioral implications that can have adverse consequences. These impacts can drastically impact gray whales and other marine species and, therefore, must be fully disclosed and discussed in the Draft EIS. In conducting this assessment, NMFS must disclose all of the Incidental Harassment Authorizations and Letters of Authorization that it has issued	

COMMENT CODE	COMMENT	RESPONSE
	or will issue (and that remain in effect) and evaluate the cumulative impact of all such authorizations on the gray whale. Military activities: NMFS must evaluate the impact of all military activities conducted within the summer range, winter range and migratory corridor of the gray whale. This includes any military activities conducted by Canadian or Mexican military personnel with the gray whale range. Within US waters, in recent years, various military bases in California and Washington have either been permitted to increase their training activities, to expand the range of activities, or proposals to do so are currently being evaluated. In most if not all cases, NMFS has permitted such changes in military activities or is engaged in the review of any proposed changes. Consequently, NMFS must disclose information about all existing, expanded, increased, or proposed military activities within the range of all gray whales and within the range of PCFA gray whales and assess the impacts, including the cumulative impact, of the activities on gray whales and their habitat. Such impacts including, but are not limited to, military development activities, range expansion, military testing, explosive use, weapons testing, active sonar use, and military drills and readiness training. Oil/gas exploration: The US government, despite concerns about potential massive oil spills, well blowouts, and other complications associated with oil/gas development, has permitted both oil/gas exploration activities and development activities in the Arctic and elsewhere within the gray whales range. These and any similar activities permitted by Canadian and Mexican authorities in the Pacific Ocean (within the migratory range of the gray whale or within the summer range of PCFA whales) must be disclosed and their impacts to gray whales and gray whale habitat assessed in the Draft EIS. Such impacts include, but are not limited to, those associated with exploration activities (i.e., seismic testing, noise associated with ship traffic, potential for shipstrikes) and development activities (i.e., noise impacts caused by drilling activities, potential for shipstrikes, and noise associated with ship traffic). Renewable energy development projects: NMFS must disclose and evaluate the impact of any existing or planned renewable energy development projects (e.g., offshore wind turbines, ocean wave energy systems, underwater tidal energy systems) within the summer range of the PCFA or migratory range of ENP gray whales. This would include any renewable energy development projects permitted or under consideration by Mexican and Canadian government agencies. Impacts from such projects may include, but are not limited to, impacts from the noise generated by the energy devices and potential entanglement or injury caused by any lines or tethers used to anchor equipment in place. Whalewatching: The popularity of whalewatching has increased throughout the world. Gray whales are a popular species for whalewatching because of the extensive migration and tendency to utilize coastal waters make them relatively easy to observe throughout much of their migratory range in Alaska, Canada, the US (Washington, Oregon, and California), and Mexico. Furthermore, in Mexico gray whales provide unique opportunities for whalewatching in the birthing lagoons where there are opportunities to interact with both adult and newborn gray whales. Despite the economic and education value of whalewatching, it can result in adverse impacts as a result of disturbance, harassment, avoidance behaviors, and due to the risk of injury from whalewatching vessels. NMFS must identify all whalewatching companies that provide opportunities	

COMMENT CODE	COMMENT	RESPONSE
	to observe gray whales throughout their migratory range, disclose what regulations are in place in the US, Canada, and Mexico to regulate whalewatching operations, assess the effectiveness of such regulations including the level of enforcement, and assess the impact of such activities on gray whales both during their south and northbound migrations. Pollution, contaminants, toxins: The migratory range of the ENP gray whale includes areas that are known to be highly polluted as a result of ship traffic, coastal development, industrial activities, and due to the significant number of people that live along the coast – particularly in California, Oregon, Washington and in British Columbia, Canada. In addition, wherever there may be oil/gas operations throughout the range of the gray whale there is the potential for oil/gas spills that can directly impact gray whales and their habitat. As a consequence, gray whales are subject to exposure to a number of pollutants including, but not limited to, heavy metals, oil/gas residues, and persistent organic pollutants. Since gray whales are considered bottom feeders (though they also feed on prey in the water column) the impact of pollutants on gray whales includes those toxins to which the whales are exposed in the water, in the prey they consume, or in any contaminated substrate that may be ingested. NMFS must identify all such sources of air/water pollution throughout the migratory range of the gray whale, including in Canada and Mexico, identity the pollutants being discharged, document the fate of the pollutants in the ocean environment, assess the potential for gray whales to be exposed to each pollutant, evaluate the risk that each pollutant poses to gray whales, and assess the cumulative impact of all such pollutants on gray whales. Furthermore, NMFS must also consider evidence of contamination of gray whale meat and blubber and how this may impact humans if the Makah are permitted to whale. Considering the long history of killing and consuming gray whales among native people of the Russian Federation, NMFS should consult with Russian scientists, medical personnel, and public health officials to determine what, if any, testing has been done to assess the contaminant load of gray whale meat/blubber consumed in Russia and what impact such consumption may have had on the health of those native people who consume whale products. In addition, there is an expanding body of literature both providing evidence of significant evidence of contamination found in whales and other marine animals and the corresponding impact on those who consume products from these animals. This information should also be reviewed in the preparation of the DEIS. Predation by orcas and sharks: Though orcas and sharks have always been the primary predators of gray whales, there is evidence that predation rates, particularly on gray whale calves, have increased. In years of high calf production, an increasing predation rate may not have any population level impacts but, when calf production is low (as has been documented many times in the past 15 years), the predation rate may pose yet another threat to gray whales particularly in light of the existing and future impacts of other threats. This increase may be, in part, due to what appears to be a larger proportion of calves being born in the open ocean – including off of central California – which is a product of the documented delay in the initiation of the southbound migration as gray whales have expanded their range further north in the Arctic in search of food. Calves born in the open ocean are substantially more susceptible to predation by orcas and sharks compared to calves born in the protected lagoons. In addition, the energetic demands placed on calves born in the open ocean (to maintain body temperature in colder waters and to accompany their mothers on their	

COMMENT CODE	COMMENT	RESPONSE
	southward migration) also may increase their susceptibility to predation. NMFS must disclose and evaluate the risk of gray whale predation by orcas/sharks, estimate the proportion of the population that may be affected each year, and otherwise assess the impact of predation in light of other direct, indirect, and cumulative threats.	
AWI-9	8. Gray whale population estimates and demographics: The gray whale is one of the most studied cetacean species in the world. This is, in part, due to the tendency of gray whales to migrate in coastal waters facilitating access to them in the ocean and permitting observation of them from land stations. As a result, there is considerable data available on gray whale population estimates based largely on census of south and northbound gray whales. Nevertheless, when the published population estimates are compared there are groups of years where the reported increase in gray whale numbers is biologically impossible. Though scientists have reexamined some of these data and have altered various correction factors and other measures to improve the accuracy of such estimates, the validity of the estimates remain in question. NMFS, therefore, must provide a comprehensive overview of all such population estimates, the methodologies used to calculate them, and changes made to the various correction factors used to develop population estimates in the Draft EIS. It also must disclose an up-to-date gray whale population estimate in the Draft EIS that is based on the most recent data and most scientifically credible census methodologies.	Refer to the following Subsections: 3.4.3.1, General Life History and Biology; 3.4.3.3, Eastern North Pacific (ENP) Gray Whales. The above DEIS subsections incorporate relevant abundance-related information published in research papers by Laake et al. (2012)* and Durban et al. (2013)**. Those research papers should be consulted for the more comprehensive treatment of methodologies and correction factors requested in this comment. * Laake, J.L., Punt, A., Hobbs. R., Ferguson, M., Rugh, D. and Breiwick, J. 2009. Re-analysis of gray whale southbound migration surveys, 1967-2006. NOAA Technical Memorandum NMFS-AFSC-203. 55 p. ** Durban, J. Weller, D., Lang, A. and Perryman, W. 2013. Estimating gray whale abundance from shore-based counts using a multilevel Bayesian model. Paper SC/65a/BRG02 presented to the International Whaling Commission Scientific Committee [Available from http://www.iwcoffice.org/]
AWI-10	9. Economic impact of the hunt: The economic impact of any proposed hunt is not limited to merely the alleged economic benefit or harm to the Makah if they are or are not allowed to whale. Indeed, considering that US laws don't allow edible whale products to be sold and considering that the Makah have not engaged in whaling, with the exception of the single whale legally killed in 1999, for over 80 years, there likely is no direct economic benefit or harm to the tribe if it is or is not allowed to whale. There may, however, be indirect economic impacts to the local community if whaling is permitted as a result of expenditures made in preparation of whaling and/or expenditures made by enforcement agencies, protestors or others who may be involved in overseeing or opposing the hunt. The economic impacts of the hunt, however, extend far beyond such indirect effects. Though NMFS and other federal agencies rarely address the full range of economic impacts in NEPA documents, other impacts include those associated with the killing of one or more whales and the detrimental impacts to the tribe as a	Refer to the following Subsections: 3.6 and 4.6, Economics; 3.7 and 4.7, Environmental Justice; 3.8 and 4.8, Social Environment; 3.10 and 4.10, Ceremonial and Subsistence Resources. With respect to comments about, the purpose of the draft EIS is to analyze potential impacts of alternatives, not the history of federal funding or conjecture about how those funds could have been used.

COMMENT CODE	COMMENT	RESPONSE
	result of its expenditures of funds to gain approval for whaling (an effort that has been ongoing for nearly twenty years) while sacrificing other tribal needs. This is not to suggest that the resumption of whaling may not be of great importance to some members of the tribe but is identified here only to recognize that the tribe's effort to reinitiate whaling may have detracted from meeting other tribal needs. A whale has economic value. In this context, since the meat/blubber of the whale cannot be sold (though handicrafts created from whale parts may be able to be sold by the Makah under US law), the whale is worth very little financially to the Makah. However, a live whale is worth a significant sum of money in terms of its existence value, its role in the ecology of the ocean, its reproductive potential, and its value to the whalewatching industry. If a whale is killed by the Makah, his or her present and future economic value is lost. NMFS must consider this economic value in the Draft EIS by placing a numeric value on a live gray whale (e.g., through social science surveys or examining relevant social science/recreational/whalewatching literature) and then assessing the cost of losing the whale if killed by the Makah versus whatever economic benefit the whale would represent to the Makah. In addition, NMFS should disclose the funds used by the Makah, at least since the mid-1990s, in its efforts to resume whaling. This should include the source of the funds (i.e., private, tribal, federal, other) and how the funds were spent (i.e., scientific study, legal representation, state/federal lobbying, travel, meeting attendance/participation). To assess the impact of such expenditures on the tribe, NMFS must then identify other needs of the tribe and its people (i.e., education, health care, elder care), the costs of meeting such needs, and whether the funds expended in promoting the resumption of whaling could have helped meet any of these other needs. Such an analysis would aid in helping the public to understand how efforts to resume whaling may have affected other tribal needs and whether the alleged value of resuming whaling (i.e., social, cultural) outweighs the value to address other pressing tribal needs. Finally, NMFS must disclose the amount of federal funds that it or other federal agencies (e.g., Bureau of Indian Affairs) have provided to the Makah for its use to gain government approval to resume whaling. This would include, but would not be limited to, any funding provided to the Makah for any scientific research, lobbying costs, travel to promote whaling and/or to seek government approval for whaling, legal costs, or travel to attend meetings of the IWC. The public has a right to know if its federal tax dollars are being used to support the Makah's efforts to resume whaling and, therefore, such information must be disclosed in the Draft EIS.	
AWI-11	9. Alternative: NMFS indicates in the Federal Register notice announcing the termination of the old EIS process and initiation of a new process that it intends to consider five alternatives: No Action, Tribe's Proposed Action, Offshore Hunt, Summer Management Hunt, and Adaptive Management Hunt. Considering the fact that the Makah does not meet the IWC criteria to obtain an ASW quota, the risk of any hunt to PCFA whales and WGW, and the significant and ongoing threats to gray whales and their habitat, AWI strongly supports the No Action alternative. Though it has no objection to NMFS considering the other alternatives identified, none of them, given all of the facts relevant in this case, should ultimately be selected at the conclusions of the decision-making process.	The suggested alternatives are addressed in the following Subsections: 1.2, Legal Framework; 1.4.1, Summary of Aboriginal Subsistence Whaling Catch Limits; 2.4, Alternatives Considered but Eliminated from Detailed Analysis (in particular 2.4.1, Non-lethal Hunt and 2.4.7, Alternative Compensation to the Makah Tribe).

COMMENT CODE	COMMENT	RESPONSE
	Furthermore, the list of alternatives identified by NMFS is not complete. Two other alternatives that it should, at a minimum, seriously consider in the Draft EIS would be an alternative to assist the Makah in establishing a whalewatching operation to provide visitors with both a unique opportunity to observe gray whales and other marine mammals while also introducing them to Makah history and culture. A second alternative that should be evaluated is the possibility of reaching an agreement with the Makah whereby it will agree not to exercise its treaty rights (assuming they have not been abrogated by the passage of the MMPA) in exchange for funding and/or other support from the US government to meet other tribal needs. This could include the return of lands to the Makah and/or the provision of funding, technical support, or materials to meet other tribal needs. This alternative is suggested based on a similar agreement reached a few years ago between the Canadian government and one of its First Nation tribes. Conclusion: The intent of the scoping process is to provide the public with an opportunity to identify those issues or concerns that they believe the government should consider in it NEPA analysis. In this letter AWI has provided a litany of issues and concerns relevant to the proposal to permit the Makah tribe to resume whaling. It fully expects that each of these issues will be seriously considers by NMFS and that each issue and concern will be subject to discussion and analysis in the Draft EIS. Though AWI will fully participate in this decision-making process, it reiterates that this process should not go forward. The Makah does not satisfy the criteria to receive an ASW quota from the IWC and, therefore, should not be permitted to whale. The only reason the US has been granted a gray whale quota by the IWC is because it has combined its request with the Russian Federation. If the US had sought a gray whale quota for the Makah independent of the Russian Federation, AWI is confident that the quota would have been denied. Furthermore, as articulated above, even though the Treaty of Neah Bay has been claimed to provide the Makah with a right to whale, the language of the treaty makes clear that any whaling conducted by the Makah must be "in common with all citizens of the United States." Since US citizens who are not members of the Makah tribe are not permitted to engage in whaling, the treaty language makes clear that such permission cannot be granted to the Makah. Finally, even if the treaty language is not an obstacle to whaling, the promulgation of the MMPA clearly abrogates any whaling right articulated in the treaty. For all of these reasons, this new planning process should be terminated to avoid the US wasting any additional time or federal funds on this undertaking. AWI appreciates the opportunity to submit these scoping comments. Should you have any questions about the content of this letter, please contact D.J. Schubert at dj@awionline.org or via telephone at (609) 601-2975. Please send any further correspondence on this issue to D.J. Schubert, Animal Welfare Institute, 202 Cranberry Court, Egg Harbor Township, NJ 08234.	
AWI-12	ATTACHMENT Meyer Glitzenstein & Crystal 1601 Connecticut Avenue, N.W.	Attachment noted.

COMMENT CODE	COMMENT	RESPONSE
	Suite 700 Washington, D.C. 20009-1063 Katherine A. Meyer Eric R. Glitzenstein Howard M. Crystal William S. Eubanks 11 Jessica Almy Telephone (202) 588-5206 Fax (202) 588-5049 www.meyerglitz.com June 22, 2012 BY ELECTRONIC AND U.S. MAIL Dr. Douglas Demaster Acting U.S. Commissioner to the International Whaling Commission c/o National Oceanic and Atmospheric Administration United States Department of Commerce 1401 Constitution Avenue Washington, DC 20230 Dear Dr. Demaster: We are writing on behalf of the Animal Welfare Institute, Australians for Animals, California Gray Whale Coalition, Cetacean Society International, Dolphin Connection, Fluke Foundation, Green Vegans, Pacific Whale Foundation, Peninsula Citizens for the Protection of Whales, TerraMar Research, Whale and Dolphin Conservation Society, The Whaleman Foundation, Ms. Sandra Abels, Mr. Will Anderson, Ms. Tami Drake, Mrs. Patricia Ness, Mr. Robert Ness, Mrs. Margaret Owen, Mr. Chuck Owens, and Toni Frohoff, Ph.D. to urge you to remove the United States' request for an aboriginal subsistence whaling (ASW) quota of Eastern North Pacific (ENP) gray whales from the draft Schedule Amendment to the International Whaling Commission (IWC). As we will explain, such a request- which we understand is being made on behalf of the Makah tribe of northwest Washington State- may not be submitted until an Envirom11ental Impact Statement (EIS) is completed in compliance with the Ninth Circuit Court of Appeals' ruling in Anderson v. Evans, 371 F.3d 475 (9th Cir. 2004). Background Because of the long history behind the United States' effort to obtain a gray whale ASW quota for the Makah tribe, it is critical to briefly summarize that history to put the present issue in the appropriate context.	

COMMENT CODE	COMMENT	RESPONSE
	The Makah tribe has not had a tradition of whale hunting since the 1920s. In 1995, after the tribe decided it would like to resume whaling, NOAA prepared a report to consider whether the United States should support this effort, which would require an amendment to the whaling schedule established by the IWC. In that report, NOAA recognized that a resumption of whaling by a tribe that has not engaged in this traditional practice for so long could encourage, and serve as a precedent for, other tribes to also seek whaling authorization. See Metcalf v. Daley, 31 4 F.3d 11 35, 1 1 37-39 (9th Cir. 2000) (summarizing this history), Despite that concern, and without analyzing the impacts such a precedent may have on the environment in general, and on gray or other whale populations in particular, NOAA entered into several agreements with the tribe pursuant to which the United States then supported Schedule amendments seeking IWC approval of an ASW gray whale quota. After the initial effort to obtain a gray whale quota was withdrawn from consideration at the 1996 meeting, a second proposal was presented at the 1 997 meeting that combined ASW quotas for the US (for the Makah) and Russia (for its aboriginal people). Although the proposed Schedule amendment was adopted, delegates were concerned that granting a quota to the United States to allocate to the Makah would open the door to whaling by other groups that no longer have a whaling tradition- echoing the concern NOAA had identified in its original report. Id. at 1 1 39-40; see also Firestone and Lilley, Aboriginal Subsistence Whaling and the Right to Practice and Revitalize Cultural Traditions and Customs, 8 Journal of lntl Wildlife Law and Policy 1 77, 1 98 (2005) (explaining that "[b]ecause of the precedent that would be set if Makah whaling were approved-authorizing subsistence whaling where there had been a long hiatus in whale hunting by an aboriginal group--and in light of Japan's effort to gain IWC authorization for community-based coastal whaling, the U.S. proposal generated controversy among IWC members.") (emphasis added). The National Environmental Policy Act (NEPA) requires that NOAA prepare an appropriate analysis of the environmental impacts of, and alternatives to, Makah whaling. 42 U.S. C.§ 4321, et seq. In 1 997, a group of plaintiffs (including several of the groups submitting this request) sued NOAA for its failure to complete this analysis- which had been prepared in an Environmental Assessment (EA)- before deciding to support the resumption of Makah whaling. In 2000, the Ninth Circuit Court of Appeals ruled for the plaintiffs, suspending NOAA's Agreement with the tribe and approval of Makah whaling until appropriate NEPA analysis has been completed. Metcalf, 21 4 F.3d at 1 1 46. NOAA subsequently prepared a new EA and once again approved Makah whaling - and these decisions were once again set aside. In this second Ninth Circuit decision, the Court determined that before NOAA may decide whether to support Makah whaling the agency must first complete an Environmental Impact Statement (EIS), which must address two particular issues, among others. Anderson, 371 F.3d at 489-494. First, the Court found that NOAA must analyze the extent to which the plam1ed Makah whaling may have significant impacts on the local gray whale population in the area where the tribe intends to hunt Particularly because the tribe no longer intended to carry out plans designed to limit the hunt to migrating whales, the Court concluded that there were significant concerns that Makah whaling might deplete the number of local whales in the area. Those risks, the Court concluded, must be analyzed in an EIS. Id at 490-492.	

COMMENT CODE	COMMENT	RESPONSE
	Second, reiterating a concern NOAA itself had recognized in its original Report on Makah whaling, and that IWC delegates had recognized in opposing the quota, the Court concluded that NOAA must analyze the extent to which the IWC granting a whaling quota to be used by the Makah may serve as a precedent leading to increased whaling by others. In particular, the Court noted that if the Makah- who have not whaled for many decades – are deemed to be engaged in traditional subsistence whaling, "the heretofore narrow aboriginal subsistence exception" may be significantly widened, and that "[i]f such an increase in whaling occurs, there will obviously" be serious impacts on whale species. ld. at 493-494; see also Firestone and Lilley at 202 ("The panel also faulted the EA for failing to properly consider the effect of the decision to permit the Makah to whale on other Native American tribes that may wish to hunt whales as well as its effect on other IWC member countries"). The Court in Anderson also concluded that Makah whaling is governed by the Marine Mammal Protection Act (MMPA), and thus that the tribe must also obtain proper authorization under that statute before whaling may proceed. Based on these concerns, the Court once again suspended NOAA's Agreement with the Makah, vacated the whaling quota, and directed NOAA to prepare an EIS. ld. at 494. In 2008, NOAA released a Draft EIS on Makah whaling. However, just a few weeks ago NOAA withdrew that Draft EIS and announced that, in light of significant new information the EIS process would begin anew. 77 Fed. Reg. 29,967 (May 21, 2012). As explained in the recent notice, "several substantive scientific issues" have recently arisen that must be considered and addressed, including the extent to which gray whales from the endangered western stock may be migrating into the area where Makah whaling would occur, and the recent scientific evidence demonstrating that the resident gray whales are genetically distinct from the migratory whales. Id. at 29,968.[1] Despite these Court rulings and most recent developments, the United States has recently submitted a proposed Schedule amendment that combines its ASW quota requests on behalf of the Makah (gray whales) and Alaska1 native people (bowhead whales) with quota requests by the Russian Federation (gray and bowhead whales) and St. Vincent and the Grenadines (humpback whales). The proposed Schedule amendment, to be considered at the upcoming IWC meeting, if approved by the IWC, would allow the United States to allocate gray whales to the Makah for whaling between 2012-2018 if not barred by outstanding domestic requirements[2] As we explain below, the United States may not present such a proposed amendment to the IWC at this time. Discussion Since NOAA first began considering the Makah's effort to resume the killing of gray whales after many decades without whaling, there have been serious concerns that allowing the Makah to resume whaling n1ay encourage, and serve as a precedent for, others who have not whaled in many years to also seek whaling authorization- including both other United States tribes, as well as groups from other JWC countries. As the Court recognized in Anderson, while the IWC has recognized ASW, the "precise reach of the exception"	

COMMENT CODE	COMMENT	RESPONSE
	allowing such whaling has always been "unclear." 371 F.3d at 483. However, prior to the Makah's effort to resume whaling, the IWC had limited the exception to whaling that was "related to a continuing traditional dependence on whaling and on the use of whales." ld. at 496 (emphasis added). Thus, in its original Report, NOAA recognized that Makah whaling, by opening the door to whaling that does not involve a "continuing" tradition, may lead to expanded whaling by others. Daley, 31 4 F.3d at 1 1 37-39. This was also a major issue when the Makah quota was originally considered by the JWC, and it remains a serious issue today. See generally Beck, The Makah's Decision To Reinstate Whaling: When Conservationists Clash With Native Americans, 1 996 Journal of Envtl Law and Lit., 359, 381-402 (1 996) (summarizing precedential concerns). The Court in Anderson also explicitly recognized this concern, explaining that an JWC gray whale quota intended for the Makah may "make it easier for [other] groups to gain approval for whaling." 371 F.3d at 493, and n.17 (citing Jenkins and Romanzo, Makah Whaling: Aboriginal Subsistence or a Stepping Stone to Undermining the Commercial Whaling Moratorium, 9 Colo. J. Int'l Envtl. L. & Policy 71, 88-89 (1 998). As noted, the Court therefore directed NOAA to prepare an EIS that, among other things, explored this potential for opening the door to expanded whaling and the impacts of such a precedent. To date, NOAA has not completed such an EIS. To the contrary, NOAA just recently withdrew the draft EIS that it had prepared and intends to begin the entire process anew. Moreover, NOAA has also recognized other serious issues that must be addressed in an EIS, including the potential for risks to endangered western stock gray whales. Under these circumstances, not only is it entirely premature to present a Schedule amendment to authorize Makah whaling, doing so contravenes NEPA and the Court's Anderson ruling. Certainly, the potentially precedential effect of the Schedule amendment must be considered in an EIS before the amendment is adopted. Otherwise, that discussion in the EIS will be a make-work exercise, since it will not be informing any decision whether to seek authorization from the IWC. Indeed, as the Court's decision in Metcalf makes plain, NEPA's procedures only work when an agency considers the impacts of, and alternatives to, actions before they occur. 21 4 F.3d at 1 1 46; see also. e.g., Andrus v. Sierra Club, 442 U.S. 347, 351 (1979) (explaining that the NEP A process must be completed "early enough" so as to "insure that planning and decisions reflect environmental values"); WildWest Institute v. Bull, 54 7 F.3d 11 62, 1165 - 1 166 (9th Cir. 2008) (explaining that an EIS must "serve practically as an important contribution [and may] not be need to rationalize or justify decisions already made")[3] NOAA cannot defend its failure to complete an EIS before a Schedule amendment is presented by the United States to the IWC on the grounds that actions before the IWC have no environmental impacts by a federal agency, and thus are not governed by NEPA - an argument NOAA has presented in other contexts. See, e.g., EIS for Subsistence Hunt on Bowhead Whales for the Years 2008 through 2012 at 2 10 (Jan. 2008). Such an argument is foreclosed by Anderson, which held that the mandated EIS must consider, among other things, "the precedential impact of our government's support for the Makah Tribe's whaling in	

COMMENT CODE	COMMENT	RESPONSE
	future JWC deliberations." 371 F.3d at 493 (emphasis added). Thus, under Anderson it is absolutely clear that an EIS must be completed before the United States may propose the new Schedule amendment for the Makah. of Defenders of Wildlife v. Gutierrez, 532 F.3d 9 13, 925-28 (D.C. Cir. 2008) (rejecting the argument that the Coast Guard's participation in international proceedings before the International Maritime Organization (IMO) exempted the Coast Guard from domestic law in connection with decisions made at the IMO). The fact that the IWC approved an ASW Schedule amendment in 2007 that included the United States also does not undermine the conclusion that the present amendment is premature. Before the Makah can engage in whaling NOAA must complete not only an EIS, but the MMPA waiver process as well. Though the 2007 amendment was for five years, NOAA has been unable to complete either the EIS or MMPA waiver processes. The current proposed Schedule amendment, by contrast, extends for six years. Given that time, the work that has already been done on the now defunct Draft EIS for Makah whaling, and the potential for completing the MMP A process, there is every reason to assume that, unlike the last amendment, the Makah will obtain whaling authorization under this current proposed Schedule amendment- thereby establishing the precedent that must be analyzed in an EIS. Moreover, even assuming arguendo that, once again, the quota obtained by the Schedule amendment is never allocated to the Makah (as in 2007), the United States is only further aggravating the precedential effect of its actions here. In particular, other tribes in the United States, or even groups from other countries, may seek to obtain IWC whaling quotas in the absence of domestic authorization for such whaling. Once again, these are all matters that, under Anderson, must be considered by NOAA in an EIS, \\lhich must be completed before the United States takes further steps to authorize Makah whaling. There is also no urgency to obtaining a gray whale quota now, rather than once NOAA is able to comply with federal law- by both completing the NEPA process and issuing an MMP A waiver to the Makah tribe. At that time, the United States can return to the IWC to seek a gray whale quota for the Makah tribe, even if this is before the ASW quota issued for the take of gray whales by aboriginal groups from other countries has expired. In conclusion, the United States may not seek an ASW gray whale quota for the Makah at this time, given the lack of an EIS as mandated in Anderson; thus the proposed Schedule amendment should be modified to remove any reference to the United States seeking a gray whale quota. If the United States wants to seek a gray whale quota for the Makah, it must ensure that its domestic requirements and responsibilities are addressed first and then, and only then, seek a quota from the IWC. Seeking a quota now is entirely premature and fatally undermines the Court-mandated NEPA process. Moreover, the ongoing efforts to secure a gray whale quota for the Makah could undermine the United States' efforts to achieve its other objectives at IWC/64, including obtaining a renewal of the bowhead whale quota. Considering the current status of the IWC, taking up valuable Commission time by seeking a	

COMMENT CODE	COMMENT	RESPONSE
	quota that the United States is legally barred from requesting or using may be counterproductive toward other United States supported efforts. In addition, while there was no opposition to the United States' request for an ASW gray whale quota in 2007, this is unlikely to be repeated at the upcoming meeting in light of the new scientific information about so-called resident whales and interactions between Eastern and Western North Pacific whales. This is yet another reason why the United States should remove any reference to its request for a gray whale quota from the proposed Schedule amendment. For all these reasons, we urge the United States to: 1) withdraw its request for a gray whale quota from the proposed Schedule amendment and adjust the remaining quota numbers accordingly; 2) withdraw the Makah Needs Statement from consideration by the ASW Subcommittee; 3) suspend the bilateral agreement with Russia to share a gray whale quota from the IWC; and 4) agree to take no further steps toward obtaining a gray whale quota from the IWC on behalf of the Makah until the NEPA and MMPA processes mandated by Anderson are completed. Sincerely, Howard M. Crystal Trevor Smith cc: Ryan Wulff, NOAA/NMFS Roger Eckert, NOAA/NMFS Melissa Andersen, NOAA/NMFS Lisa Phelps, Department of State Donna Darm, NOAA/NMFS Rollie Schmitten Mike Tillman Trevor Smith [1] Recent photo-identification and radio-tagging data demonstrate the presence of highly endangered Western gray whales (e.g., Flex in 20l0/11 and Varvara in 2011/12) within the migratory corridor of the Eastern North Pacific population, including within the Makah's Usual and Accustomed hunting area. [2] Although the Schedule amendment does not identify the Makah, NOAA has explained that these amendments "never mention particular aboriginal tribes," Anderson, 371 F.3d at 496, and so far the Makah is the only Native Americm1 tribe or group from the United States with a Statement of Need on file with the JWC to hunt gray whales. See http://www.iwcofllce.org/conservation/aboriginal.htm. [3] Indeed, the United States' effort to seek a gray whale quota at the IWC is inextricably intertwined with its intent to allocate the quota to permit whales to be killed (i.e., the United States would not seek the quota unless it intends to allocate the quota). NEPA specifies that "connected actions"- actions that "are closely related"- "should be discussed in the same impact statement." 40 CFR 1508 .25(a)(1). Actions are	

COMMENT CODE	COMMENT	RESPONSE
	considered "connected" if they "automatically trigger other actions which may require environmental impact statements, cannot or will not proceed unless other actions are taken previously or simultaneously, and/or if they are interdependent parts of a larger action and depend on the larger action for their justification." See 40 CFR 1508.25 (a)(l)(i-iii). Thus, it could not be more clear that NEPA review is required on the IWC Schedule Amendment, and that the review must be completed before the Amendment is proposed.	

C. Owens - Comments Submitted August 8, 2012

COMMENT CODE	COMMENT	RESPONSE
CO1	Comments to Makah DEIS From Charles Owens--8-8-12 1. My first suggestion to this DEIS is that I believe NMFS/NW should be removed from this process entirely and replaced by another NMFS region. NMFS/NW has shown they are too imbedded with the Makah tribe to make an unbiased and scientific decision on this issue. And above all these resident whales would have been wiped out if NMFS had gotten their way, this alone disqualifies NMFS/NW. I will expand on this in part 3 of my comments.	We disagree with the assertion that NMFS staff have been biased and unscientific in their review of the tribe's request. Regarding the comment about resident whales, refer to Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales.
CO2	Knowing that my first suggestion will be ignored, I recommend a moratorium on any whaling for 5 to 10 years to allow science to catch up with all the new information concerning the Western grays in the Makah U & A, and genetic research of our local resident gray whales.	Comment noted.
CO3	2. I whole- heartedly endorse the comments of NOAA's recent head of the US IWC delegation, Monica Medina, when she proclaimed; "reject the Makah's request for a permit to kill whales." [article reproduced below] "Illegal Hunting Turning Clock Back On Whales" Publication: The Hartford Courant Author: Monica Medina 09/26/2007 - The illegal killing of a gray whale off the coast of Washington state earlier this month by five members of the Makah Nation caused a public outcry, and justifiably so. No one in this country has the right to unilaterally decide to kill a whale without a permit. As we learned this week, the numbers of gray whales left on Earth are nowhere near what they once were. Stanford University researchers report that their historic populations were around 100,000, three to five times larger than previously believed. The current population estimate of 22,000 eastern Pacific gray whales is actually a fraction of the pre-whaling levels. And that population is increasingly stressed. There is new evidence that gray whales are now thin and starving, possibly a result of changes in the oceans resulting from global warming and overfishing. This is ominous news for the health of the whales, and our oceans as well. It has been 25 years since the international community agreed to a moratorium on commercial whaling. There is no question that this major conservation achievement saved many whale species, including gray whales, from the brink of extinction. However, in the past decade, there has been steady erosion in the protection of the world's great whales. This is of concern not only because whales are special creatures that generate awe and wonder but also due to the many roles they play in the ocean ecosystem as predators and prey. Fortunately in this country we have laws against the action taken by these five individuals who decided that "the time was right" for the Makah to resume whale hunting. Although the federal government has granted the Makah a permit to kill whales in the past, this time there was no permit. The Makah leaders have stated that they will do the right thing and prosecute these hunters under tribal law. The U.S. government must also prosecute them under federal law, and reject the Makah's request for a permit to kill whales. The situation outside U.S. waters is much worse. Currently, too many nations exploit loopholes in the international rules that ban	Comment noted. The cited publication by Monica Medina was published as an opinion piece by the Pew Charitable Trusts and prior to her appointment as the U.S. Commissioner to the IWC in 2010. During her tenure as Commissioner the U.S. conveyed an opening statement to the 2011 IWC meeting that it "strongly supports aboriginal subsistence whaling" and noted its appreciation for the Makah tribe's "important scientific contributions on eastern North Pacific gray whales."

COMMENT CODE	COMMENT	RESPONSE
	commercial whaling. Only in extremely limited circumstances are whales permitted to be killed, such as when they are needed to feed communities with limited sources of food. And yet more than a thousand whales are killed annually because whalers exempt themselves from the moratorium on commercial whaling. Their actions are no different from those of the five Makah hunters. They are in open defiance of the rules against hunting. For many years the whaling nations by and large abided by the rules and took only a minimal number of whales. However, beginning in the late 1990s, the world's few remaining whaling nations decided to defy the intent of law by exploiting loopholes in the moratorium and began large-scale industrial whaling operations. As a result, whale hunting has escalated at an alarming rate. And little is being done about it. Powerful nations including the United States refuse to use their diplomatic clout to hold these whaling nations accountable for their actions. The world's whales deserve better protection than they are getting now. What is lacking is the resolve to abide by and enforce the global regulations on whaling. The international body that governs whaling, the International Whaling Commission, is a weak institution with no enforcement capability. Its feckless commercial whaling "ban" and purported "sanctuaries" afford whales no protection from whalers who feel it is their right to kill these majestic and sentient creatures where and when they choose. And with half the commission in an alliance with the whalers, this lawless behavior is allowed to continue. We need to reform the International Whaling Commission so that international laws provide whales the same standing that the gray whale killed this past weekend has under U.S. law. The United States must step in and lead the nations of the world in this endeavor. Only then will the world's whales will be safe from lawless hunters. *Monica Medina is director of whale conservation for the Environment Group of The Pew Charitable Trusts.*	
CO4	3. Conflicts of interest, cronyism and more. A. The consulting firm NMFS hired to produce the environmental assessment - Parametrix Inc. of Auburn - has a work history with the Makah (and NMFS) that includes managing a $ 10 million contract to pave the road from Neah Bay to Cape Flattery on the tribal reservation. Also the tribe has hired Parametrix to do a Corridor Management Plan for a tribal scenic byway. And more??	As is allowed by Federal law (40 CFR 1506.5c), we employed a contractor to assist in preparation of the 2008 DEIS, under the supervision of NMFS staff, and using a competitive and documented process to select Parametrix. At the beginning of the contract, the contractor disclosed that it also had a contract with the Makah Tribe to assist in the development of the Cape Flattery Tribal Scenic Byway Scenic Corridor management plan. After the unauthorized hunt in September 2007, members of the public raised questions about additional work Parametrix was performing for the Tribe. When questioned by NMFS about the additional work, Parametrix provided information on the details of the subsequent contract, and affirmed that it had obtained the work for the Tribe in a competitive process.

COMMENT CODE	COMMENT	RESPONSE
		Also as required by law, Parametrix and its subcontractors signed disclosure statements prepared by NMFS as affidavits that there is no conflict of interest by being employed by both the Tribe and NMFS (40 CFR 1506.5c). We accepted the disclosure statements in good faith, and conducted due diligence reviews of Parametrix's role as a contractor for the Tribe. We concluded that there was no potential for conflict to occur, and further, no biased information could be inserted into the DEIS under our sole supervision. Producing an EIS is the responsibility of the Federal action agency (40 CFR 1506.5(a)(c)). We are responsible for the content and process. We do not consider the relationship between Parametrix and the Tribe to have compromised the integrity of Parametrix's work product, and in any event are confident that in exercising our oversight we have ensured the document is a product of our analysis.
CO5	B. The Makah's hired marine mammal biologist is Jonathan Scordino, son of Joseph Scordino, former Deputy Northwest Regional Director for Fisheries Service in Seattle. Joe Scordino was a key figure in this effort to green-light whaling.	The comment implies the existence of a conflict of interest but makes no connection between the analysis required in our DEIS and the fact that the marine mammal biologist employed by the Makah Tribe is related to a former NMFS employee.
CO6	C. NMFS, prior to and after the whale hunt of 1999 hired key members of the whaling crews, notably Wayne Johnson, captain of the whaling crew.	The comment makes no connection between the analysis required in our DEIS and the reported hiring of whaling crew members.
CO7	D. NMFS personnel butchering the 1999 whale for the Makah and complaining about having to butcher it for the tribe. (all caught on film, NMFS has seen this film)	Many people participated in the butchering of the whale, including members of the Makah Tribe and NMFS personnel.
CO8	E. Pat Gearin, NMFS biologist, has worked in Neah Bay for many years. I was informed by a harbor master in Neah Bay that it was Gearin who told him and other major players that "there's money in them whales" and that is what kick started this whole mess! Gearin also allowed the Makah to harvest a beached whale	The impetus for the Makah Tribe's hunt request is documented in Section 1, Purpose and Need.

COMMENT CODE	COMMENT	RESPONSE
	within Olympic National Park (Yellow Banks), in violation of numerous federal laws in 2001. There were no consequences for Gearin or the tribal members. (see article below for more, and responses from those who seem to have gotten caught with their fingers in the cookie jar!) Whaling opponents allege federal conflicts of interest A group of whaling opponents says the federal agency that conducted a probe into an unauthorized Sept. 8 whale hunt has close ties to the Makah tribe whose members it investigated. The National Marine Fisheries Service, a division of the National Oceanic and Atmospheric Administration, has conflicts of interest that are "almost incestuous," in the words of Chuck Owens of Joyce. Fisheries Service also is overseeing the federal court-ordered environmental impact statement on the tribe's request to resume authorized whaling. Owens said he wants an FBI investigation of the relationships. He said he would spread his campaign across the country with the help of a national animal advocacy group. Owens founded Peninsula Citizens for the Protection of Whales, which has opposed the tribe's hunting gray whales off the Washington Coast and in the Strait of Juan de Fuca since the 1990s. "We don't trust NMFS," he told Peninsula Daily News. "They've never given us a reason to trust them. "The Makah preserved their whale-hunting rights in the 1855 Treaty of Neah Bay and legally killed a 30-foot female gray whale off the Washington state coast in 1999. Enjoined from more hunts by a federal appeals court, the Makah have sought an exemption from the Marine Mammal Protection Act that NMFS enforces. Last month, however, five tribal members harpooned, shot and killed a gray whale in the Strait of Juan de Fuca, and Fisheries Service investigated the unauthorized action. 'Cronyism' denied Fisheries Service denied the overall allegation of "cronyism" and the specific examples that Owens cited. They include: The Makah's recently hired marine mammal biologist is Jonathan Scordino, son of Joseph Scordino, former Deputy Northwest Regional Director for Fisheries Service in Seattle. The consulting firm Fisheries Service hired to produce the environmental assessment - Parametrix Inc. of Auburn - has a work history with the Makah that includes managing a contract to pave the road from Neah Bay to Cape Flattery on the tribal reservation. A Fisheries Service investigator of the Sept. 8 whale hunt, John Haupt, is a Makah tribal member whose mother has served for many years as secretary to the tribal council. Haupt also is related to one of the five defendants. Alleged nepotism Speaking for Fisheries Service, Donna Darm, regional administrator for protected resources, said Joseph Scordino retired in January, several months before the Makah hired his son. The elder Scordino, Darm said, had transferred his environmental assessment duties to her two years earlier, when the Makah renewed their request to hunt whales. He had worked on the issue for three years, according to Owens. Also, Darm said, Jonathan Scordino worked for Fisheries Service as a consultant on a killer whale study from March 2007 to July, when he joined the tribe as its marine mammal biologist. According to Makah Tribal Council member Micah McCarty, Jonathan Scordino was hired by a personnel committee. "My impression is that he was the best candidate fair and square," McCarty said. Joseph Scordino confirmed that the Makah hired his son but	

COMMENT CODE	COMMENT	RESPONSE
	said, "They hired my son because he met the requirements of the job." Jonathan Scordino did not return calls from the PDN. Parametrix's double role Darm said the company had performed and passed a review of potential conflicts of interest. "They did disclose the fact that they were assisting the Makah Indian Nation with the development of the Cape Flattery Scenic Byway Corridor," Darm said. The road project is supervised by a Parametrix subsidiary, TranTech Engineering LLC of Bellevue. Jeff Peacock, executive vice president at Parametrix, told the PDN, "We have absolutely nothing to hide." As for his firm's double involvement with the tribe, he said, "That's a huge stretch to link those two. "We were required before we ever entered into that [road] contract to make sure there was no interaction there. "None of our folks that are working on the environmental impact statement are involved in the construction." Parametrix manages only the road-building contract, Peacock added. "The big dollars are being consumed by the contractor," Scarsella Brothers Inc. of Seattle, on the $10 million project. Peacock also challenged Owens' motives. "I could see how somebody who wants to undermine a process might want to do that," he said. McCarty, too, denied an improper relationship between the tribe and Parametrix. "It's a relatively large company that specializes in contract management work for a number of different entities," McCarty said. "There are internal firewalls that are put in place [against conflicts of interest]. They're completely different people." Regarding the environmental impact statement. Darm said, "the draft EIS is a NMFS document Those documents are not the contractor's documents. They are our documents." Haupt, who has confirmed he is a Makah member, has declined further comment. McCarty, however, said Haupt's tribal membership made it "probably good that he was the guy on the scene" after five tribal members shot and killed the whale last month. "He knows where to find people; he knows who's who," McCarty said. "He's a professional man who doesn't allow conflicts of interest to affect his work. I think it's a shame people who don't know him are attempting to defame him." Taking claims nationwide Peninsula Citizens for the Protection of Whales said it will disseminate its allegations nationwide with the help of the Animal Welfare Institute of Alexandria Virginia. AWI, according to Owens, "is putting a big list of conflicts of interest together." The group, which received $2.9 million in contributions in 2005, spent more than $83,000 in lobbying efforts. It was founded in 1951. Chuck Owens is joined in the effort by his wife, Margaret. For the last 10 years, the Owenses have protested the Makah whale hunts, which the tribe maintains are its right under its 1855 treaty with the United States. The couple called for an FBI investigation of the conflicts but said their main motive is putting the allegations on the record. "We're being pre-emptive with our critique so we've left a paper trail of protest," said Margaret Owens. However, both McCarty and Joseph Scordino said the couple repeatedly had attacked individual tribal members and Fisheries Service employees during the controversy. 'Anti-whaling extremists"	

COMMENT CODE	COMMENT	RESPONSE
	"These anti whaling extremists wantonly and shamelessly practice defamation of character," McCarty told the PDN. "They're stooping too low on this one." Said the elder Scordino, "The Owenses have done that with other people too. This isn't surprising to me that they would be focusing on my son." Owens said, "The only reason we've attacked them is that we've had the facts. "We don't go after these guys unless we have it documented." Of the Scordino hiring, "that is wrong," he said. "They knew they should never have done that." Of Fisheries Service, the Makah and Parametrix's involvement in the environmental statement and the investigation, Owens said, "This should be an unbiased look at this issue, and you can't do it when the tribe's paying off their consultants." And regarding Haupt, he added, "He should have recused himself from the very beginning." "The whole point is we have seen their past history and their recent history," Owens said. "They are not to be trusted. We just want a better investigation." Reporter Jim Casey can be reached at 360-417-3538 or at jim.casey@peninsuladailynews.com.	

C. Rorabeck - Comments Submitted July 16, 2012

COMMENT CODE	COMMENT	RESPONSE
CR-1	Dear NMFS, The fact that researchers have recently discovered that the severely endangered Western Gray Whales travel across the Pacific and utilize the area that the Makah claim are their huntings grounds, is enough to warrant the only choice of action as Alternative 1. Aside from the fact that a whale suffers a long and painful death at the hands of man, the Makah, if allowed to hunt, would be at risk of killing a race of whale that is nearly extinct. I encourage you to look at the research, and to consider the vast amount that we still do not know about these whales. Sincerely, Cheryl Rorabeck	In response to this and related comments, we have included WNP gray whales in our analysis in the new DEIS. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 3.4.3.5, Welfare of Individual Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects)

California Gray Whale Coalition - Comments Submitted August 10, 2012 by S. Arnold

COMMENT CODE	COMMENT	RESPONSE
CGWC-1	As an initial comment, the Coalition contends that NMFS is acting ultra vires in seeking comments and promoting the Makah DEIS given that the US IWC delegation has requested and been granted a quota at the Panama IWC meeting in the full knowledge that no waiver bas been pitted and due legal process has been ignored. This action by the administration is completely unacceptable, unethical, and unlawful.	Refer to Subsection 1.2, Legal Framework.
CGWC-2	The DEIS makes a complete mockery of the NEPA process.	Refer to Section 1, Purpose and need
CGWC-3	On March 31 and April 1, 2012, the Coalition held a Scientific Workshop on the ENP Gray Whale in San Francisco. A number of experts were invited from Mexico, Canada, the Russian Federation as well as experts from the USA. On the basis of the recommendations of this workshop, the Coalition supports Alternative 1:- No Action.	Comment noted.
CGWC-4	The Coalition has, as a result of the workshop, identified a number of issues which need to be included in the scope of issues to be included in this ridiculous DEIS. There are no current population estimates for the ENP Gray Whale on the SWFSC website with the out of date 2006/7 field study still being quoted as the most current estimate. It is simply outrageous that in August 2012, there are no published population estimates for 2009/2010 and 2010/2011.	Refer to Subsection 3.4.3.3.3, ENP Abundance and Trends.
CGWC-5	The re-analysis of the gray whale population (Laake 2009) should be an injunction to review all PBRs over the period and to review whether these PBRs were accurate or incorrect and what impact they may have had on the population.	Estimates of PBR rely on a minimum population estimate that is based on the best available scientific information on abundance (Section 3(27)(A) of the MMPA). However, such estimates can be expected to vary as minimum population sizes and other PBR parameters change. Refer to Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates.
CGWC-6	Issues raised at the workshop which should be included in any EIS are: • Impact of massive changes in the Chirikov Basin where foraging bas shifted from amphipods to polychaetes and the ramifications of these changes to the population. • Implications of extension of the northward migration and impacts on energy budgets of whales. • Impacts of dramatic and ongoing change in sea ice conditions in the Arctic and sub-Arctic breeding and feeding grounds. • Anthropogenic impacts on gray whales and their habitat as a result of the exponential increase in oil and gas exploration; noise; climate change, ocean acidity, toxic wastes, increased shipping, potential oil spills, stress and disease.	Refer to the following Subsections: 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates; 3.4.3.6.11, Climate Change and Ocean Acidification; 4.4.3, Evaluation of Alternatives (Gray Whales); 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales (Cumulative Impacts).

COMMENT CODE	COMMENT	RESPONSE
	• The sheer extent of oil and gas exploration in the ENP gray whale feeding grounds and impacts. • Cumulative noise impacts from seismic surveys, infrastructure.	
CGWC-7	• Lack of research and information on the number of cows and calves leaving the count areas along the west coast and arriving at the Chukotka breeding grounds in. This information is essential in ascertaining mortality of calves. • Mexican cow/calf counts and cow/calf counts along the west coast need to use standard methodology so counts have variability removed.	Comment noted, refer to Subsection 3.4.3.1.5 Reproduction and Calf Production.
CGWC-8	• Transient orca predation is significant with mortality estimates ranging from 8-60%. Better assessments are needed and studies need to be expanded so that information can be integrated across the range of the species throughout the year.	Comment noted, refer to Subsection 3.4.3.1.6, Natural Mortality and Subsection 5.1.3.8, Natural Mortality.
CGWC-9	• Government delay in releasing census numbers is a major concern. Given the re-evaluation of population estimates (Laake 2009), the lack of current information is completely unacceptable.	Refer to Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates.
CGWC-10	• Stinky whales are increasing in numbers and this problem is also apparent in seabirds, fish, and seals in the Chukotka region.	Refer to Subsection 3.4.3.6.2, Environmental Contaminants, and Subsection 3.16.3.2, Environmental Contaminants in Gray Whales.
CGWC-11	• Introduction of Western Pacific gray whales into the ENP migration route and in the Baja Lagunas. • Significant risks to Western Pacific Gray whales by any Makah hunt. • Implications of the Western Pacific Gray whales moving into ENP areas needs to be addressed	Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).
CGWC-12	• Genetic research by Palumbi, Alter et al. continues to support an original population of at least 70,000.	NMFS responded to this issue in its 2010 Stock Assessment Report for the ENP stock of gray whales.* Refer to Subsection 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates. * Allen, B.M., and R.P. Angliss. 2010. Alaska marine mammal stock assessments, 2010. U.S. Dep. Commer., NOAA Tech Memo. NMFS-AFSC-223, 292 p.
CGWC-13	• Lack of research covering breeding, migration and foraging.	Gray whales are the subject of considerable research on these and other aspects of their life history and ecology. NMFS scientists and

COMMENT CODE	COMMENT	RESPONSE
		funding support a wide variety of gray whale research activities, as do the efforts and funding of other entities. The monitoring and research conducted by NMFS and others is too extensive to list here, but is summarized in a separate 2015 NMFS scoping report. That report contains the recommendations from the 1994 and 1999 NMFS monitoring plans and describes the monitoring and research done since 1994 and 1999, respectively. The 2008 DEIS and new DEIS include references to most of the publications that have resulted from that research and monitoring.
CGWC-14	• Stable isotope analysis of tissue, baleen or bone is needed to evaluate changes in diet and foraging.	Comment noted.
CGWC-15	• Inter-annual variation of gray whale population and calf production is not taken into account with current NMFS management policies.	Changes in minimum population estimates can and do influence PBR calculations which in turn influence management of gray whales as described in the action alternatives. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4.2.1.1, Defining Marine Mammal Population Parameters; 3.4.2.1.2, Calculating Marine Mammal Population Parameters; 3.4.2.1.3. Linking Marine Mammal Population Parameters to Removals; 3.4.2.1.4, Defining and Calculating PBR; 3.4.2.1.5, Implementing the PBR Approach; 3.4.2.1.6, Stock Assessment Reports; 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates; 4.1, Introduction (Environmental Consequences).
CGWC-16	• Inter-annual variation of gray whale population and calf production is not adequately addressed by the IWC Scientific Committee which relies on US information.	Comment noted, refer to Subsection 3.4.3.1.5 Reproduction and Calf Production.
CGWC-17	• The Makah tribe request to hunt Gray whales is not a subsistence hunt and creates an alarming precedent for other IWC member countries to seek similar non subsistence quotas. • The Makah tribe request weakens the IWC convention.	Refer to the following Subsections: 3.17, National and International Regulatory

COMMENT CODE	COMMENT	RESPONSE
	• Any waiver granted under the MMPA to the Makah could set a precedent for other Native American Indian tribes to claim discrimination and seek similar rights.	Environment; 4.17, Regulatory Environment Governing Harvest of Marine Mammals.
CGWC-18	• The US IWC delegation should not have sought a quota at IWC Panama meeting for the Makah without first securing a waiver under the MMPA. Yours sincerely, Sue Arnold CEO California Gray Whale Coalition P.O. Box 50939 Palo Alto, CA 94303	Comment noted (also refer to response to comment AWI-3).

U.S. Environmental Protection Agency – Comments Submitted August 4, 2012 by E. Peterson

COMMENT CODE	COMMENT	RESPONSE
	Re: U.S. Environmental Protection Agency (EPA) scoping comments on the National Marine Fisheries Service (NMFS) Notice of Intent (NOI) to terminate the existing and prepare a new Environmental Impact Statement (EIS) related to the Makah Indian Tribe's request to authorize treaty right hunting of eastern North Pacific gray whales in usual and accustomed fishing grounds off the coast of Washington State. EPA Region 10 Project Number: 08-030-NOA.	
EPA-1	Dear Mr. Stone: The EPA has reviewed the NMFS Federal Register NOI in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Our review of the EIS prepared for the proposed action will consider expected environmental impacts and the adequacy of the EIS in meeting procedural and public disclosure requirements of the NEPA. A copy of our rating system is enclosed.	Comment noted.
EPA-2	For us, a key difference between the 2008 draft EIS alternatives and the May 21, 2012 NOI alternatives is the addition of Alternative 5: Adaptive Management Hunt. The addition of Alternative 5 is notable because all of the 2008 alternatives and alternatives 1-4 in the 2012 NOI consider relatively inflexible, distinct and complete schemes of spatial, temporal and take limit requirements. Alternative 5, in contrast, is a management scheme that would allow for flexibility in: " … Permit terms; hunting seasons; allowable levels of struck, struck and lost and landed whales up to the levels proposed by the Tribe and methods of calculating an allowable bycatch level for PCFG whales." Your interest and effort to plan for effective adaptive management appears appropriate given this waiver request's recent history. Namely, the need to terminate the 2008 draft EIS due to substantive scientific issues that arose after its release. In order to adequately disclose any related adaptive management plan, we recommend the EIS describe: • The proposed adaptive management approach; • How the approach is reflected in the alternatives being considered; • The monitoring protocol; • The desired outcome; • The performance measures that will determine whether the desired outcome is being achieved or an adaptive action is needed; and • The factors for determining whether additional NEPA review is needed.[1] In addition to the views of the 'NEPA Task Force' quoted above, we believe the Council on Environmental Quality's "Draft Guidance for NEP A Mitigation and Monitoring"2 is a useful reference for developing and	Information regarding the commenter's recommendations can be found in the following Subsections: 2.3.6, Alternative 6 (Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits); 4.1.6, Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits. In addition, relevant information can be found for the various resources in our evaluation of Alternative 6 in Subsections 4.2 through 4.17.

COMMENT CODE	COMMENT	RESPONSE
	disclosing an effective adaptive management framework. Thank you for this opportunity to comment and if you have any questions or concerns, please contact me at, (206)-553-6382 or by email at peterson.erik@epa.gov. Sincerely, Erik Peterson Environmental Review and Sediment Management Unit [1] See p. 52 at: http://ceq.hss.doe.gov/ntf/report/chapter4.pdf [2] http://ceq.hss.doe.gov/nepa/regs/Mitigation and Monitoring Draft NEPA Guidance FINAL 02182010.pdf	
EPA-3	ATTACHMENT U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action* Environmental Impact of the Action LO-Lack of Objections The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal. EC - Environmental Concerns EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts. EO - Environmental Objections EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts. EU - Environmentally Unsatisfactory EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected	Attachment noted.

COMMENT CODE	COMMENT	RESPONSE
	at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ). Adequacy of the Impact Statement Category 1 -Adequate EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information. Category 2- Insufficient Information The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft ElS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS. Category 3 - Inadequate EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ. * From EPA Manual 1640 Policv and Procedures for the Review of Federal Actions Impacting the Environment. February. 1987.	

Green Vegans – Comments Submitted August 10, 2012 by W. Anderson and T. Drake

COMMENT CODE	COMMENT	RESPONSE
GV-1	Re: Scoping Comments/Makah Request for a waiver under the MMPA Pursuant to the Notice of Intent To Terminate the Existing Draft Environmental Impact Statement and Prepare a New Environmental Impact Statement in Federal Register, Vol. 77, No. 98, Green Vegans submits the following comments to be considered in the new Draft Environmental Impact Statement. It is our desire that these comments be included in the permanent record of the Draft Environmental Impact Statement (DEIS). Further, we fully expect NOAA and NMFS to investigate and respond to these comments in the DEIS. The 9th Circuit Court of Appeals ruling in Metcalf v. Daley states: "In summary, the comprehensive "hard look" mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." We urge NMFS and NOAA to take this "hard look". In media reports, NMFS officials have stated that the Makah will be granted a waiver and that the only variable Is litigation. This bias has not gone unnoticed and must be corrected. NEPA requires that this waiver not be "rubber stamped". NMFS has a fiduciary duty to the public to act Impartially.	Comment noted.
GV-2	Killing whales in US waters with US support and funding is a matter of great national and international importance. It raises complex domestic and International conservation and legal issues which have not been addressed in the previous Environmental Assessments or the previous Draft Environmental Impact Statement.	Comment noted.
GV-3	Alternatives 1. Emergency Relisting of the Eastern North Pacific Gray Whale on the Endangered Species List. Gray whales and their habitat are subject to significant threats. Gray whales are threatened by the direct, indirect, and cumulative adverse Impacts caused by aboriginal kills, documented and undocumented mortality, oil and gas exploration and extractions activities, and noise impacts. Gray whales, their prey, and their habitat are under increasing threats from global warming, El-Nino events, bottom trawling, and contaminants. While several of these factors have individually significant impacts, cumulatively the extent and severity of the impacts indisputably support a listing of this population.	In 2001, we received the most recent petition to relist the gray whale under the ESA, but found that the petition did not present substantial scientific or commercial information indicating that relisting was warranted (66 Fed. Reg. 32305, June 14, 2001). We have continued monitoring the population since delisting. Refer to Subsection 3.4.3.1.3, Population Exploitation, Protection, and Status.
GV-4	2. Renegotiate the Treaty of Neah Bay.	Refer to Subsection 2.4, Alternatives Considered but Eliminated from Detailed Analysis
GV-5	Resources 1. Assess the danger of setting a precedent by granting a waiver to the MMPA. Should the .Makah be granted a waiver to the MMPA, it sets a precedent for the oil and gas industry, other tribes, and the whale watching industry.	With respect to precedential effects for other tribes, refer to the following Subsections: 3.17, National and International Regulatory Environment; 4.17, Regulatory Environment Governing Harvest of Marine Mammals. The

COMMENT CODE	COMMENT	RESPONSE
		comment does not provide sufficient information to discern the concerns regarding the whalewatching and oil and gas industries.
GV-6	2. Assess the impact on all species covered by the MMPA - If the precedent of a waiver for killing gray whales is granted, then the DEIS should have a thorough discussion for each species possibly affected by other waivers and identify the possible parties, tribal and non-tribal. This should be discussed substantially in the DEIS.	We believe such an assessment would be too speculative; refer to 3.17.3.1, Waivers of the MMPA Take Moratorium.
GV-7	3. US support for domestic cultural whaling has undermined their position at the IWC regarding cultural whaling by other nations. At IWC 64, the US delegation bundled the Makah request with Russia, and even more shockingly, with the request to kill humpback whales by Saint Vincent and the Grenadines (SVG), specifically to avoid a determination by the IWC on whether the Makah qualify under the aboriginal subsistence whaling exception to the moratorium. The DEIS should address the strategies the US delegation took to get the Makah quota, and the reasons for "hiding" the Makah quota with Russia and the non-aboriginal SVG hunt. The DEIS also needs to address why the US delegation did NOT make a presentation of the Makah request during the plenary at IWC 64. It appears that they didn't want discussion from those who oppose it.	Comment noted. Subsection 1.4.1.2.2, Overview of Requests for ENP Gray Whales on Behalf of the Makah summarizes the meeting referred to in this comment, however there is no indication that the U.S. was attempting to "hide" the Makah request. The IWC Chair's Report for that meeting describes the relevant deliberations and that the U.S. noted that the joint proposals were "…all a status quo continuation of existing hunts, and all had been found to be consistent with the IWC's definition of ASW on previous occasions. Further, the Scientific Committee had reported that the hunts were sustainable, and for these reasons these Governments considered that it was appropriate for the Commission to consider a joint rather than a separate proposal."* * IWC. 2012. Chair's Report of the 64th Annual Meeting held 2-6 July 2012 in Panama City, Panama.
GV-8	4. The US request for a quota of gray whales for the .Makah at IWC 64 undermines the NEPA process by "predetermining" the outcome. This must be addressed in the DEIS.	Refer to response to comment AWI-3
GV-9	5. Assess the impact on the ENP gray whales killed during whaling operations outside of IWC quotas (i.e. Alaska native hunting and Makah hunting in Russia).	We believe such an assessment would be too speculative.
GV-10	6. Assess the impact on the Pacific Coast Feeding Aggregation (PCFG) and Western gray whales. New scientific evidence demonstrates that the PCFG are genetically distinct from migratory gray whales and there is increasing evidence of critically-endangered Western gray whales migrating to the west coast of North America and traversing the Makah's hunting area. The IWC Scientific committee is still looking at the issue of the impact of a Makah hunt on the endangered Western grays. A determination has not been made by the IWC Scientific Committee and until that happens, the DEIS process should be called off. A	Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 3.4.3.4, Pacific Coast feeding Group (PCFG) of Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2,

COMMENT CODE	COMMENT	RESPONSE
	definitive evaluation of the Northern Puget Sound population's migratory behavior needs to be included and steps taken to ensure this small, behaviorally significant sun-population[sic] is not target unintentionally or carelessly by the proposed Makah hunt.	Change in Abundance and Viability of WNP Gray Whales; 4.4.2.3, Change in Abundance and Viability of PCFG Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).
GV-11	7. A full assessment of so-called "Stinky" whales must be completed and included in the DEIS. Investigation of the overall health of gray whale population and human health consequences of consuming toxic whale meat must be included in the DEIS.	Refer to Subsection 3.4.3.6.2, Environmental Contaminants, and Subsection 3.16.3.2, Environmental Contaminants in Gray Whales.
GV-12	8. Assess the impact of climate change and warming ocean temperatures on gray whale food supply including the impacts of ocean acidification on their food web, the opening of the arctic as sea ice decreases over time.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.0, Affected Environment; 3.2, Water Quality; 3.4.3.6, Known and Potential Anthropogenic Impacts; 3.16.3.2, Environmental Contaminants in Gray Whales; 4.0, Environmental Consequences; 5.4, Gray Whales (Cumulative Effects).
GV-13	9. The DEIS needs to examine the methodology of population estimates over the last ten years, particularly in relation to the PBR and OSP assessments. These assessments cannot be made on questionable or out of date data. Without factoring in major effects caused by global climate change; a severe downturn in amphipod productivity; ecosystem changes and their effects etc; any PBR or OSP assessment is deeply flawed. Without funds to conduct annual population estimates as well as north and south calf counts, the process of establishing PBR and OSP assessments is not current. Given the nature of ecosystem changes which have already occurred, any estimates are purely hypothetical.	Refer to the Subsection 3.4.2.1, Marine Mammal Protection Act Management
GV-14	10. Assess the Impact of oil production from exploratory activities to possible offshore production and underwater pipeline transport on gray whales and their prey. Recent reports are that oil companies are not able to meet Coast Guard criteria for oil spill responses.	Refer to the following Subsections: 3.4.3.6.4, Oil Spills and Discharges; 3.4.3.6.5 , Offshore Activities and Underwater Noise; 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales (Cumulative Impacts).
GV-15	11. Assess the Impact of seismic surveys on gray whales and their prey. Seismic surveys have been conducted to study geological structure under the seabed in order to determine risk of earthquake damage.	Refer to the following Subsections: 3.4.3.6.4, Oil Spills and Discharges; 3.4.3.6.5 , Offshore Activities and Underwater Noise; 5.1.3, Past, Present, and Reasonably Foreseeable Future

COMMENT CODE	COMMENT	RESPONSE
		Actions; 5.4, Gray Whales (Cumulative Impacts).
GV-16	12. Assess the Impact of military low frequency sonar on gray whales and their prey. This includes the expansive underwater ensonification grid in training areas off the coast of California and perhaps elsewhere.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4.3.6.5, Offshore Activities and Underwater Noise; 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales (Cumulative Impacts).
GV17	13. Assess the effects and extent of bottom trawling of benthic habitat preferred by gray whales.	We considered known and potential human-caused impacts, but concluded this activity did not rise to a level that required consideration because it's been ongoing for decades and gray whales have recovered. We found no evidence suggesting bottom trawling affects gray whale foraging opportunities, nor does the comment point to any such evidence; there is no evidence that bottom trawling is likely to increase in the future.
GV18	14. Assess the threats to gray whale birthing lagoons in Mexico.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to Subsection 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales (Cumulative Impacts).
GV19	15. Assess the mortality rates in juveniles from Orca predation.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4.3.1.2, Global Distribution and Population Structure; 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.1.6, Natural Mortality; 3.5.3.1.1, ESA-listed Marine Mammal Species (Killer Whale); 4.5.2.2, Prey Availability; 5.1.3.8, Natural Mortality.
GV20	16. Assess the impacts of whaling in Washington State on tourism.	In response to this and related comments, we have updated relevant material in the new DEIS.

COMMENT CODE	COMMENT	RESPONSE
		Refer to the following Subsections: 3.6.3.2.1, General Description of the Local Economy; 3.6.3.2.4, Contribution of Tourism to the Local Economy; 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts; 3.6.3.3.2, Commercial Value of Whales; 3.8.3.3 Other Individuals and Organizations; 4.6.2.1, Tourism; 4.6.2.3, Whale-watching Industry; 4.6.3, Evaluation of Alternatives.
GV21	17. Assess the impacts of whaling in Washington coastal waters using a .50 caliber rifle on public safety.	In response to this and similar comments the new DEIS includes an "Offshore Hunt" alternative (Alternative 3); refer to the following subsections: 2.3.3, Alternative 3 (Offshore Hunt); 3.15, Public Safety; 4.15, Public Safety.
GV22	18. How will Makah whaling impact the PCFG whale population? What will the removal of resident whales have on ecosystems of their feeding sites in the Marine Sanctuary and the Straits? Their "plowing" action enhances habitat for benthic communities.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.3.3.1 Pelagic Environment; 3.3.3.2 Benthic Environment; 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 4.3, Marine Habitat and Species.
GV23	19. Assess the impacts on whale watching communities along the West Coast, Canada and Mexico.	Refer to the following Subsections: 3.6.3.2.1, General Description of the Local Economy; 3.6.3.2.4, Contribution of Tourism to the Local Economy; 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts; 3.6.3.3.2, Commercial Value of Whales; 3.8.3.3 Other Individuals and Organizations; 4.6.2.1, Tourism; 4.6.2.3, Whale-watching Industry; 4.6.3, Evaluation of Alternatives.
GV24	20. The US must maintain control and enforcement over all whaling activities of US citizens.	Refer to Subsection 1.2, Legal Framework.
GV25	21. There is no humane way to kill a whale. This hunt is unacceptably inhumane. ASW killing methods are recognized by the IWC as being even less efficient than those in commercial whaling operations. Longer times to death and lower instantaneous death rates are estimated, and higher 'struck and lost' rates are proven.	Refer to the following Subsections: 3.4.3.5, Welfare of Individual Whales; 4.4.2.5, Welfare

COMMENT CODE	COMMENT	RESPONSE
		of Individual Whales - Method of Striking and Killing; Time to Death; Hunting Efficiency.
GV26	22. Whaling operations may cause stress and compromise welfare in the hunted whale even before a killing method Is deployed. Whalers depend on getting close to their quarry for successful harpooning. However, whales have not evolved as a prey species and may not be adapted to being chased. Pursuit times of 30 minutes or more are not unusual in Japanese hunts for example. The pursuit itself is believed to cause physical and psychological stress, which may lead to syndromes such as Exertional Myopathy, a condition that scientists believe may prove fatal, even to animals that evade capture. The DEIS must assess the stress impacts on gray whales during whale hunting. The stressful pursuit itself may lead to whales suffering or dying, even if they evade capture. We have witnessed extensive pursuit by the Makah in previous attempts to kill gray whales. These pursuits are "takes" under the MMPA.	Refer to the following Subsections: 3.4.3.5, Welfare of Individual Whales; 4.4.2.5, Welfare of Individual Whales - Method of Striking and Killing; Time to Death; Hunting Efficiency.
GV27	23. Social impacts - assess the impacts of Makah whaling on community tensions.	Refer to the following Subsections: 1.4.2, Summary of Recent Makah Whaling ─ 1998 through 2014; 3.8, Social Environment; 4.7 Environmental Justice.
GV28	24. The DEIS must include an analysis of the impact to other cetaceans if the Makah desire to hunt other species. The DEIS must explore and report Makah intent to hunt humpback whales.	Refer to the following Subsections: 1.2, Legal Framework; 1.3, Purpose and Need for Action; 1.4, Background and Context; 2.4.4, Hunt Other Marine Mammal Species Traditionally Hunted by the Tribe; 3.10.3.1, Makah Archaeological Resources Connected with Whaling; 3.10.3.4, Makah Historic Whaling; 3.17.3.1, Waivers of the MMPA Take Moratorium; 3.17.3.2, Worldwide Whaling; 4.5.2.1.1, Marine Mammals (Excluding Gray Whales); 4.17, Regulatory Environment Governing Harvest of Marine Mammals.
GV29	25. Diabetes - the Makah claim that eating whale would really help with the rampant diabetes in Neah Bay. A "medical" discussion about the cause and effect of dietary choices on diabetes as well as its management should be included. In the DEIS, this section should include any studies on the Makah diet, the abundance of readily affordable fresh fish and other seafood, the need for nutritional education that can mitigate diabetes in Neah Bay and how the dietary guidelines are common to all of us. A bad diet is a bad diet. The lack of whale meat and fat is not to blame.	Refer to the following Subsections: 3.16, Human Health; 4.16 Human Health.
GV30	26.Since the US government has a Federal Trust Responsibility to the Makah Tribe, the DEIS must assess the impact on human health to those who eat whale meat which on occasion may be toxic and pose severe	In response to this and related comments, we have updated relevant material in the new DEIS.

COMMENT CODE	COMMENT	RESPONSE
	health risks. A contaminants testing program should be established to monitor any toxics load that may be present.	Refer to the following Subsections: 3.16, Human Health; 4.16 Human Health.
GV31	27. The Needs Statement - past EA's and DEIS and submissions to the IWC lack any written criteria for approving/disapproving a needs statement including the original Makah needs statement by Ann Renker. The DEIS should discuss the need for NOAA/NMFS to create specific criteria (verifiable statements, referenced data), and raw data that are published in the Federal Register for public comment and revision and then have the Makah submit a formal needs statement.	This is an area of active discussion by the IWC. At its 65th annual meeting the IWC passed a resolution (Resolution 2014-1) directing the aboriginal subsistence whaling (ASW) sub-committee to address a number of issues, including the development of standardized need statements and a better understanding of the relationship between needs and consumption patterns for ASW hunts. Subsection 1.4.1, Summary of Aboriginal Subsistence Whaling Catch Limits provides an overview of requests for ENP gray whales on behalf of the Makah as well as IWC plans to convene an aboriginal subsistence workshop in the near future to address ASW needs and related topics.
GV32	28. Require analysis of nutritional need per person and the yield from an average gray whale.	Refer to the following Subsections: 3.16, Human Health; 4.16 Human Health.
GV33	29. Government bias should be removed from DEIS in language and in "facts".	Comment noted.
GV34	30. Costs to taxpayers - we asked that the social Impacts include a close accounting of all government monies spent in the past (including enforcement by the Coast Guard) and anticipated in the future.	Refer to the following Subsections: 3.14, Public Services; 4.6, Economics; 4.6.2.5, Management and Law Enforcement.
GV35	We also request information on what steps the US Government has taken to inform Mexican and Canadian authorities and businesses of the proposed waiver given the ramifications to the whale-watching industries in those countries. There needs to be a clear notice to whale-watch operators along the entire West Coast of North America. Should you have any questions, feel free to contact Tamara Drake at (541) 552-0502. Sincerely, Will Anderson Green Vegans will@greenvegans.org Tamara Drake Green Vegans	The U.S. reports regularly to the 87 other member governments of the IWC (including Mexico). Although Canada withdrew from the IWC in 1982, the U.S. and Canada cooperate closely on a range of environmental issues and initiatives (e.g., both countries are founding members of the Arctic Council). While the U.S. is under no obligation to notify businesses in Mexico and Canada, information regarding waiver-related actions by the U.S. are readily available to all interested parties via federal

COMMENT CODE	COMMENT	RESPONSE
	tami@greenvegans.org	portals (e.g., www.regulations.gov) and the media.

Humane Society of U.S. – Comments Submitted August 10, 2012 by N. Rose

COMMENT CODE	COMMENT	RESPONSE
HSUS1	RE: Notice of Intent to Terminate the DEIS and Prepare a New EIS, NOAA–NMFS–2012–0104 Dear Mr. Stone: On behalf of the 11 million members and supporters of The Humane Society of the United States (HSUS), I am submitting scoping comments for the preparation of a new Environmental Impact Statement (EIS), required under the National Environmental Policy Act (NEPA), which will address the application by the Makah Tribe for a waiver of the Marine Mammal Protection Act (MMPA) prohibition on the take of marine mammals, to conduct a hunt for the Eastern North Pacific (ENP) gray whale (Eschrichtius robustus) in the Tribe's usual and accustomed fishing grounds. As we noted in our 2005 scoping comments, and note again here, the National Marine Fisheries Service (NMFS) is still referring to the Makah proposal as one in which the tribe seeks to "continue treaty right ceremonial and subsistence hunting of eastern North Pacific (ENP) gray whales" (p. 29967 of 77 FR 29967, emphasis added). With the exception of the highly contested whale hunts approved in 1999 and 2000, and later declared unlawful by two separate court rulings, as well as the illegal hunt of 2007, the Makah have not hunted whales in approximately 85 years. Therefore, the proposal more correctly concerns the Makah Tribe's interest in reviving its whaling tradition, a situation unique among aboriginal subsistence whaling (ASW) requests considered by the U.S. government or the International Whaling Commission (IWC) in the past. Indeed, The HSUS has opposed the Makah whaling proposal from the beginning because the request has never fit the definitions and requirements of domestic and international management regimes, will require a waiver under the MMPA, and creates a novel category of whaling at the international level that all too easily could be used by pro-whaling nations to justify killing more whales.	Comment noted
HSUS2	We agree that NEPA requires the NMFS to prepare a new EIS on the Makah's request for a waiver under the MMPA, given the scientific information that has become available since 2008. As addressed in greater detail below, in its new EIS the NMFS must consider, inter alia, new information from the IWC, a reasonable range of alternatives, a proper characterization of the past and present political situation, new scientific information regarding the two gray whale populations, and new scientific information regarding the effects on the whales from various anthropogenic threats and their cumulative impacts, as well as the effects of the proposed action on the welfare of individual animals, public safety, and certain federally protected areas. *Information from the IWC* The Federal Register notice indicated that the NMFS would consider discussions by the IWC Scientific Committee (SC) (p. 29968 of 77 FR 29967), which we agree is reasonable, but we emphasize the following, taken from the IWC's 2012 Scientific Committee Report:	The new DEIS has been updated with new information obtained since 2008. Information specific to the IWC's implementation review of PCFG gray whales can be found in Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates.

COMMENT CODE	COMMENT	RESPONSE
	The Committee noted that the SLA variants tested did not correspond exactly to the management plan proposed by the Makah to the IWC [emphasis added]. The Committee agrees to test such a variant intersessionally and examine the results at the next Annual Meeting [in 2013 in South Korea]. In other words, the IWC SC's conclusion that there is an acceptable strike limit algorithm (SLA) for a hunt of the ENP gray whale on the Makah Tribe's usual and accustomed fishing grounds is not equivalent to a conclusion that the actual Makah whaling proposal is acceptable. The IWC SC must still test the SLA variant that corresponds to the Makah proposal and examine the results. As such, the NMFS must wait for the results of this 2013 examination and discussion before undertaking its environmental review in order to satisfy NEPA[1].	
HSUS3	In addition, the Federal Register notice indicates that the issue of Western North Pacific (WNP) gray whales possibly being taken in the Makah hunt will also be discussed in the new EIS (p. 29968 of 77 FR 29967). We fully support this intention and it is absolutely required under NEPA[2]. The IWC also noted its concern about this possibility, but again, its discussion on this issue has yet to be completed and will be continued at the 2013 meeting. Therefore, in order to conduct the requisite "hard look" required by NEPA, the NMFS must wait for the results of this 2013 discussion so that it can analyze this information in its environmental review[3].	Our analysis of WNP gray whales includes information provided by the IWC through 2014. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).
HSUS4	*Alternatives* The Federal Register notice suggests the following alternatives (p. 29968 of 77 FR 29967): Alternative 1: No action Alternative 2: Tribe's proposed action Alternative 3: Offshore hunt Alternative 4: Summer-only hunt, to avoid taking WNP gray whales Alternative 5: Adaptive management hunt We are pleased to see the addition of Alternatives 3 and 5. The HSUS noted in its 2008 DEIS comments that Alternative 3 should have been included as one of the alternatives considered, and we will be pleased to see its inclusion in the new EIS. However, as we did in our 2005 scoping comments, we still recommend the inclusion of a sixth alternative, a "Ritual hunt," which relies on "calling a whale" to shore – a cultural practice historically performed by the Makah chiefs that does not result in the death of a whale. Such an alternative encompasses Makah traditions and should be thoroughly discussed in the new EIS[4]. In addition, while the NMFS has proposed Alternative 4 to decrease the likelihood that a WNP gray whale will be taken, it increases the risk that a Pacific Coast Feeding Group (PCFG) whale will be taken, and the effects of such must be properly analyzed in the new EIS[5].	We included the suggested "ritual hunt" in this DEIS (Subsection 2.4.1, Non-lethal Hunt) and for the reasons described in that Subsection did not analyze it in detail. In response to this and other comments, we included a "Split Season" hunt alternative (Alternative 5) to address concerns that a tribal hunt should be managed to avoid WNP whales while still minimizing the chance of taking a PCFG whale; refer to Subsection 2.3.5, Alternative 5 (Split-season Hunt).
HSUS5	*Characterization of the past and present political situation*	Refer to the following Subsections: 1.2, Legal Framework; 1.3, Purpose and Need for Action;

COMMENT CODE	COMMENT	RESPONSE
	The 2008 DEIS, as with previous NEPA documents prepared on the Makah whaling proposal, inaccurately described the political and administrative background of the Makah's effort to resume whaling. Indeed, as noted in our comments on the 2008 DEIS, The HSUS has opposed the Makah hunt proposal from the outset because it did not conform to international standards of aboriginal subsistence whaling. The proposal threatened to create (and has indeed de facto created) a new category of whaling – cultural whaling – that does not reflect a true subsistence need. We strongly recommend that the new EIS accurately reflect the history of the Makah whaling proposal at the IWC, as carefully outlined in our 2008 DEIS comments.	1.4, Background and Context; 1.6, Relationship to Other Treaties, Laws, Regulations, Policies, and Processes.
HSUS6	*New science* The Federal Register notice appears to have covered the major areas of new research results and indicates that the new EIS will include a comprehensive and fair discussion of this work (p. 29968 of 77 FR 29967). This new research includes studies indicating that the PCFG may warrant consideration as a separate management unit. We believe the evidence is now sufficient to treat the PCFG as a separate management unit and the new EIS must be approached with this as the starting point. However, the new EIS should also include other work, such as the genetic analysis by Alter et al. (2007)6, which noted that the historic population of ENP gray whales may have been larger than is currently the conventional wisdom. The 2008 DEIS did mention this paper and indicated further work on its analysis was needed. If such further analysis has not been completed, the NMFS should undertake it before completing a new EIS. Indeed, without an adequate understanding of the relationship between the current ENP gray whale population estimate and its historic numbers, the NMFS cannot establish a proper environmental baseline from which to analyze the environmental impacts of the proposed action and thus cannot comply with NEPA[7].	Refer to the following Subsections: 3.4.3.1.3, Population Exploitation, Protection, and Status; 3.4.3.3.1, ENP Population Structure; 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates; 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates.
HSUS7	The new EIS should also include a thorough discussion of the potential and already-measured impacts of climate change on the ENP gray whale and its Arctic habitat and should include reference to the growing body of research on this topic. The 2008 DEIS did not even mention climate change in any substantive way until Chapter 5 and even then it was covered in only two paragraphs. The review of the threats facing the ENP gray whale in Chapter 3 did not have a separate discussion on climate change at all. The new EIS should include a thorough discussion of climate change impacts[8]. The new EIS should also thoroughly consider the cumulative impacts on the ENP gray whale from climate change, chemical and noise pollution, harmful algal blooms, and increased shipping in the Arctic, as well as other threats adversely affecting the species, as required by NEPA[9]. The science of cumulative impact analysis is advancing and the new EIS should reflect these advances.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4.3.6, Known and Potential Anthropogenic Impacts; 3.11, Noise; 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales.
HSUS8	The new EIS should also include any results, conclusions, and insights that arose as a result of the 2012 ENP gray whale stock assessment and the related discussions by the Pacific Scientific Review Group in late 2011 (and any subsequent discussions that are more recent when the new EIS is drafted).	Refer to Subsection 3.4.3.3, Eastern North Pacific (ENP) Gray Whales.
HSUS9	*Public safety*	Refer to the following Subsections: 1.4.2, Summary of Recent Makah Whaling ─ 1998

COMMENT CODE	COMMENT	RESPONSE
	The 2008 DEIS failed to adequately clarify how those responsible for managing the hunt will prevent on-water interactions between whalers, officials (e.g., the Coast Guard), and protesters from becoming dangerous. The new EIS must clarify and carefully discuss how public safety will be maximally protected during a hunt. In a related point, the 2008 DEIS did not adequately address the ramifications of the illegal hunt that occurred in 2007. This hunt had ramifications for public safety, enforcement of any part of the Makah whaling management plan, and the PCFG. The new EIS should thoroughly discuss the breakdown in security and process that allowed this hunt to happen using the official whale hunting firearm and what ramifications this breakdown might have for any future monitoring of the hunt, enforcing the regulations, and public safety.	through 2014; 3.15, Public Safety; 4.15, Public Safety.
HSUS10	*Welfare* Whenever NMFS issues a take permit pursuant to the MMPA, the permit "shall" specify "the location and manner (which manner must be determined by the Secretary to be humane)"[11] of take [12]. Yet the 2008 DEIS did not adequately consider the impact of hunting methods on individual animals or whether those methods are humane. We strongly urge the NMFS to include a thorough discussion of this aspect of the hunt in the new EIS, taking into account information presented over the years at the IWC, in its working group on whale killing methods and related animal welfare issues, and relevant information that has come from the bowhead hunt in Alaska. In particular, the NMFS must discuss the pain and suffering the hunt will cause individual animals, as well as a full analysis of which whaling method – if any – can be deemed "humane" under the MMPA.	Refer to the following Subsections: 2.4.6, Employ Different Hunting Methods; 3.4.3.5, Welfare of Individual Whales; 4.4.2.5, Welfare of Individual Whales - Method of Striking and Killing; Time to Death; Hunting Efficiency.
HSUS11	*Federally protected areas* We note that the Federal Register notice states that "marine habitat and species," "other wildlife species," "public services," and the "national regulatory environment" will be considered in the new EIS, but does not specifically list how the hunt will affect wilderness and other federally-designated protected areas (p. 29968-9 of 77 FR 29967). We noted in our comments on the 2008 DEIS that such a discussion was lacking and urge the NMFS to include such a discussion in the new EIS. For example, we note that the hunt is proposed in or near federally-designated protected areas, including the Olympic Coast National Marine Sanctuary; the Washington Islands National Wildlife Refuges, including the Quillayute Needles, Flattery Rocks, and Copalis Refuges, which are almost entirely designated as Wilderness Areas; the Olympic National Park; and the Olympic Biosphere Reserve. The NMFS must fully account for any possible effects the proposed hunt will have on the values intended to be protected by these areas[13].	Refer to the Section 3, Affected Environment (especially Subsection 3.1.1, Designated Areas) as well as Section 4, Environmental Consequences.
HSUS12	*Conclusion* The NMFS's prior efforts to promote and approve the Makah request have consistently resulted in legal short cuts and questionable policy positions that have weakened domestic and international whale protection. Indeed, the government has been so anxious to get to the finish line – to approve the Makah request – that it has repeatedly bent and broken the rules. The HSUS hopes that this will not be the case with	Comment noted.

COMMENT CODE	COMMENT	RESPONSE
	the new EIS, and that the NMFS will adequately consider all relevant information, including the information described above, in order to properly analyze the environmental implications of granting the Makah's waiver request, as required by NEPA and its implementing regulations. Thank you for the opportunity to provide these scoping comments. Sincerely, Naomi A. Rose, Ph.D. Marine Mammal Scientist The Humane Society of the United States Cc: Timothy Ragen, Ph.D., executive director, Marine Mammal Commission [1]See 40 C.F.R. § 1500.1(a), which states that NEPA evaluation must insure relevant environmental information is made available to government officials and the public "before decisions are made and before actions are taken" and that such information include "[a]ccurate scientific analysis" (emphasis added). [2]See 40 C.F.R. §§ 1508.8; 1508.27(b)(9), which states that both direct and indirect impacts must be analyzed under NEPA, including the effects on natural resources and components of affected ecosystems, and the effects on threatened and endangered species. [3]See Robertson v. Methow Valley Citizens, 490 U.S. 332, 349-50 (1989). This ruling noted that NEPA's "hard look" requirement "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed to the die otherwise cast." [4]See e.g., 40 C.F.R. § 1502.14(a), which states that NEPA requires agencies to "rigorously explore and objectively evaluate all reasonable alternatives." See also the ruling in Nat. Resources Defense Council v. Callaway, 524 F 2d. 79, 93 (2nd Cir. 1975), wherein it states that NEPA requires an agency to "consider such alternatives to the proposed action as may partially or completely meet the proposal's goal." [5]40 C.F.R. § 1502.14(a) [6]Alter S.E., Rynes E., and Palumbi S.R. 2007. DNA evidence for historic population size and past ecosystem impacts of gray whales Proc. Natl. Acad. Sci. USA 104:15162-15167. [7]See Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir.1988), which states that "[w]ithout establishing…baseline conditions…there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA." [8]See e.g., Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008), which notes that relevant impacts related to climate change must be considered in NEPA analyses. [9]See 40 C.F.R. § 1508.7, which states that, in its cumulative impacts analysis, an agency must consider impacts that "result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." [10]See 40 C.F.R. § 1508.27, which states that listing "significant" environmental effects must be explained, including "[t]he degree to which the proposed action affects public health or safety."	

COMMENT CODE	COMMENT	RESPONSE
	[11]The MMPA defines "humane" as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved" (16 U.S.C. § 1362(4)). [12]16 U.S.C. § 1374(b)(2)(B) (emphasis added). [13]See 40 C.F.R. § 1502.16(c), which states that NEPA requires an agency to fully address "[p]ossible conflicts between the proposed action and the objectives of Federal…policies and controls."	

J. Public - Comments Submitted May 27, 2012

COMMENT CODE	COMMENT	RESPONSE
JP1	the makah tribe needs to stop killing whales. what existed in this world in l700 or some such previous time does not mean it can continue in 2012. we live in a world where such species are under extreme stress. they are killed by ships, by commercial fish profiteers who say they eat fish so they want them dead, etc. its time to stop the killing of whales by everybody in america. everybod. the makah tribe needs to move into 2012. the whales zre gone for everybody. nobody should be killing them any more.	Comment noted.

Marine Mammal Commission– Comments Submitted August 27, 2012 by T. Ragen

COMMENT CODE	COMMENT	RESPONSE
MMC1	Dear Mr. Stone: The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's 21 May 2012 notice (17 Fed. Reg. 29967) regarding a draft environmental impact statement on the Makah Tribe's proposal to take gray whales for ceremonial and subsistence purpose. The Service's notice indicates that it intends to terminate its .review of a prior draft statement and prepare a new one. The Commission offers the following recommendations and rationale. RECOMMENDATIONS The Marine Mammal Commission recommends that the National Marine Fisheries Service- • publish a new draft environmental impact statement on the proposal to authorize whaling by the Makah Tribe under the Marine Mammal Protection Act • retain sufficient flexibility in its NEP A process to respond to new information or changed circumstances (e.g., by issuing supplemental analyses if needed) • either not include an adaptive management alternative in the draft environmental impact statement or, if such an alternative is included, provide an explanation of how it would be consistent with the procedural requirements of the Marine Mammal Protection Act and describe what, if any, procedural safeguards it would build into its management regime to ensure that parties to the rulemaking are ongoing participants in post-rulemaking decisions • add to the environmental impact statement an alternative that includes both temporal limits on the hunting season to avoid times when either feeding-group whales or western stock whales are most likely to be present, and • discuss in the new draft environmental impact statement the implications of the *Kokechik* decision for the rulemaking in the Makah Tribe's request for a waiver.	Comments noted and addressed below.
MMC2	RATIONALE New information More than seven years have passed since the Makah Tribe first submitted its application seeking a waiver of the Marine Mammal Protection Act's taking moratorium so that it could hunt gray whales for ceremonial and subsistence purposes. Thus, the Commission does not take lightly the idea of recommending that the National Marine Fisheries Service now set aside its previous draft environmental impact statement on this action and begin the NEP A review process anew. Nevertheless, doing so appears to be the best course of action to ensure that the Service meets its responsibilities under that Act. A new analysis is warranted because understanding of gray whale movements along the Pacific coast of the United States has changed materially since publication of the original draft statement. Two findings are particularly noteworthy and require consideration by the Service. First, recent genetic studies indicate that the Pacific Coast Feeding	The new DEIS has been updated to reflect the new information described in these comments.

COMMENT CODE	COMMENT	RESPONSE
	Group may be sufficiently distinct to merit consideration as a separate stock or management unit. Second, satellite telemetry, photo-identification, and genotype studies have revealed the occurrence of gray whales from the endangered western Pacific stock in U.S. west coast waters, where they become part of the migratory stream of gray whales along the coast between Alaska and Mexico. The Service could consider these issues in a supplemental draft environmental impact statement, but a new document would make it easier for the Service to describe the implications of these findings to the Makah Tribe, conservation organizations, and the public and thereby enable them to comment more meaningfully. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service publish a new draft environmental impact statement on .the proposal to authorize whaling by the Makah Tribe under the Marine Mammal Protection Act	
MMC3	Continued uncertainty The implications of the new information on the Pacific Coast Feeding Group and the mixing of western and eastern Pacific gray whales remain uncertain, but likely will require some adjustments to current scientific assessments and management strategies. For example, the International Whaling Commission's Scientific Committee noted in the report from its 2012 meeting that the strike limit algorithm variants that it tested to support issuance of a new aboriginal subsistence whaling catch limit for gray whales "did not correspond exactly to the management plan proposed by the Makah to the IWC." Thus, the Committee agreed to test a variant that did match the Tribe's management plan at its 2013 meeting. The 2012 report also notes the Scientific Committee's concern "about the possibility of whales feeding in the Western North Pacific being taken during the proposed Makah Tribe hunt in northern Washington." Among the issues identified by the Committee were- • the need to estimate the probability of a western gray whale being taken in aboriginal hunts for gray whales • the possibility that research results may indicate the need for further testing of strike limit algorithms, and • the need to continue monitoring this situation and conduct additional analyses as the International Whaling Commission requests. The Committee noted that research was ongoing to investigate the riming, routes, and destinations of migrations by western Pacific gray whales and the resulting management implications. It noted the need for such research before drawing conclusions about the possible effects of the Makah hunt on the western Pacific gray whale stock. It plans to consider these matters again at its 2013 meeting. Because of the remaining uncertainty regarding the potential effects of the Makah hunt on both the Pacific Coast Feeding Group and the endangered western Pacific gray whale stock, the Marine Mammal Commission recommends that the National Marine Fisheries Service retain sufficient flexibility in its NEPA process to respond to new information or changed circumstances (e.g., by issuing supplemental .analyses if needed).	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).

COMMENT CODE	COMMENT	RESPONSE
MMC4	Alternatives The Service's notice identified five alternatives that it may include in a new draft environmental impact statement Alternative 5 is the adoption of an adaptive management strategy to govern the hunt. Generally, the Commission supports adaptive management strategies that allow managers to monitor the effectiveness of conservation programs, learn as they go, and refine regulatory mechanisms in response. As indicated above, the Commission also believes that the Service should maintain some flexibility for meeting its NEP A responsibilities, which are intended to ensure that decision-makers and the public are well-informed about the consequences of possible alternative actions. However, the Makah Tribe is seeking to waive the Marine Mammal Protection Act's taking moratorium and an adaptive management process may require more flexibility than can reasonably be accommodated under a waiver. Indeed, Congress provided a number of checks on the waiver process, including increased scrutiny of waiver decisions under the Marine Mammal Protection Act, a heightened evidentiary burden under the Administrative Procedure Act, and the opportunity for interested parties to make their case before an independent decision-maker as to whether the requirements of the Marine Mammal Protection Act have been met fully. Allowing the Service regulatory flexibility to adjust the management regime in potentially fundamental ways-but outside the scope of the formal rulemaking process--poses various problems. It suggests that the Service may not be confident that it has sufficient information to meet the rigorous standards of the Act at the outset, but rather would offer a speculative guarantee that, if a waiver is granted, it will ensure that those standards are met through its post-rulemaking management decisions. In essence, this approach runs the risk that interested parties will be excluded from the decision-making process in ways not envisioned by the Marine Mammal Protection Act or the Administrative Procedure Act. If an adaptive management approach is included in the draft environmental impact statement as one of the alternatives, the Marine Mammal Commission recommends that the National Marine Fisheries Service explain how it would be consistent with the procedural requirements of the Marine Mammal Protection Act and describe what, if any, procedural safeguards it would build into its management regime to ensure that parties to the rulemaking will be able to participate in post-rulemaking decisions.	The new DEIS describes an action alternative (Alternative 6) where the waiver of the take moratorium would expire 10 years after adoption and regulations governing the hunt would limit the term of any hunt permit to not more than 3 years. Limiting the permit term to 3 years provides an opportunity for more frequent NMFS review than if permits were issued for 5 years. After 10 years a new waiver process would need to be initiated if the tribe chose to continue whaling. Refer to the following Subsections: 1.2, Legal Framework; 2.3.6, Alternative 6 (Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits); 4.4.3.6, Alternative 6, Different Limits on Strikes and PCFG, and Limited Duration of Regulations and Permits.
MMC5	Two of the five alternatives have temporal limitations that, based on what we know at this point, are designed to avoid taking whales from either the Pacific Coast Feeding Group (the Tribe's proposed action) or the western Pacific stock (the summer-only hunt). Another alternative also should be analyzed-a combination of those two alternatives that would limit the hunting season to avoid times when either the Pacific Coast feeding group whales or western Pacific stock whales are most likely to be present. To address both concerns, the Marine Mamma1 Commission recommends that the National Marine Fisheries Service add to the environmental impact statement an alternative that includes both temporal limits on the hunting season to avoid times when whales of either the Pacific Coast Feeding Group or the western Pacific stock are most likely to be present. In developing this alternative (and in assessing the original two alternatives) the Service will need to account for the considerable uncertainty regarding the movement patterns of these two whale groups.	In response to this and similar comments, we have included a “Split Season” hunt alternative (Alternative 5) to address concerns that a tribal hunt should be managed to avoid WNP whales while still minimizing the chance of taking a PCFG whale; refer to Subsection 2.3.5, Alternative 5 (Split-season Hunt). Recognizing the need to account for the uncertainty described in this comment, this alternative has the most constrained hunting season (44 days split

COMMENT CODE	COMMENT	RESPONSE
		between two hunt periods) of all the action alternatives.
MMC6	*The Kokechik decision* Finally, the Service may find itself able to authorize the taking of whales from some groups, but not others. Such a finding will depend on (1) resolution of the stock identity questions related to the Pacific Coast Feeding Group and the whales that spend some time in both the western and the eastern Pacific, and (2) the information available to make optimum sustainable population determinations fur the whale groups whose members may occur in Washington waters. Such an outcome would be similar to that faced in *Kokechik Fisherman's Association* v. *Secretary of Commerce*, 839 F.2d 795 (1988), in which the Service determined that it could issue a taking authorization for some marine mammal species and stocks, but not others. In that case, the court of appeals indicated that "the Act may not prohibit issuance of a permit where there is only a very remote possibility that marine mammals for which an optimum sustainable population has not been determined may be taken ...." However, in the *Kokechik* case, the court ruled that no taking could be authorized for any marine mammal stock because of the virtual certainty of taking marine mammals from stocks for which an optimum sustainable population determination could not be made. To address the possibility of taking a whale from the Pacific Coast Feeding Group or the western Pacific stock, the Marine Mammal Commission recommends that the National Marine Fisheries Service discuss in the new draft environmental impact statement the implications of the: *Kokechik* decision for the rulemaking in the Makah Tribe's request for a waiver. The Service should discuss (1) whether it intends to treat the Pacific Coast Feeding Group and/ or the western Pacific gray whales that migrate to the eastern Pacific Ocean as separate stocks, (2) whether it believes that it will be able to make an optimum sustainable population determination for either of those putative stocks, (3) how it will judge the likelihood of taking whales from either of those putative stocks, and (4) whether it believes that authorizing the taking of migratory gray whales along the Washington state coast is consistent with the ruling in *Kokechik* if authorizations cannot be issued for gray whales from the putative stocks that also might be in the area. Thank you for the opportunity to comment. The Commission looks forward to further discussions with the Service about these matters. Sincerely, Timothy J. Ragen, Ph.D Executive Director	The purpose of the analysis in the DEIS is not to assert legal opinions or conclusions but to predict likely effects on the human environment of the Makah Tribe's proposed action and the alternatives. Our assessment of North Pacific gray whale stocks, including the likelihood of taking whales from them, can be found in the following Subsections: 2.3.5, Alternative 5 (Split-season Hunt); 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales; 4.1.1 through 4.1.6, [Environmental Consequences] Alternatives 1 through 6; 4.4.3, [Gray Whales] Evaluation of Alternatives.

Peninsula Citizens for Protection of Whales – Comments Submitted August 8, 2012 by M. Owens

COMMENT CODE	COMMENT	RESPONSE
PCPW1	Greetings, Donna Darm and Steve Stone- These comments are being submitted to the current Makah whaling DEIS process, and are intended to be added to the comments already submitted by Peninsula Citizens for the Protection of Whales to the past DEIS. The concerns we had then, we continue to have. And new issues just keep piling on. Thankfully, this whaling was halted in the years between 1999 and now. Had Makah whaling gone forward under any of the management scenarios put forward by the Tribe and NOAA, we could easily have lost the small population of gray whales that feed off Washington's coast in the Makah U&A. At the rate of [20] gray whales every five years, that could have been at least [55] whales gone by this year. And this does not take into account the "struck and lost" numbers allowed. How many would have been resident whales? Even at a previously recommended "one a year", a loss of 13 adults from this small group would have been devastating. If six had been females, the loss multiplies for generations. The fascinating implications of the new DNA science regarding resident whales would have been left incomplete, or sadly moot, with the eventual elimination of these whales. What a loss to science and to the local ecosystem that would have been! NOAA scientists would have assured us that "other whales" would quickly fill the places of the "so called residents". Now we know how unlikely that would have been. We can only hope that NMFS enters into this new effort without a foregone conclusion, and with a determination to do a truly thorough and honest assessment of the issues that will determine the very survival of the special gray whales that frequent the waters of Washington State. However, after all these many years of scrutinizing your work and watching your flawed conclusions overturned in court, we can be forgiven for being skeptical. And our members wonder if it is even calculable how much money has been flushed down the toilet on this whole ill-conceived quest. With that said, we now start, with you , a new chapter...a fresh chance to analyze new findings...to ask new questions...to renew hope that the poor old Precautionary Principle can be dusted off and used to protect what is precious.	Comments noted.
PCPW2	Topics of concern not covered in past PCPW comments: - The new verification of genetic differences between the "resident whales" and the migrating population of Eastern Pacific gray whales raises many questions. - How will these whales be classified? Distinct population segment? - With or without a new classification, is NOAA committed to more careful management of this Washington Coast/ Southern Vancouver Island subgroup of the "PCFG"?	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4, Gray Whales (especially Subsection 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales; 4.1.1 through 4.1.6, [Environmental Consequences] Alternatives 1 through 6; 4.4.3, [Gray Whales] Evaluation of Alternatives.
PCPW3	- With new appreciation for the vital role the mothers play in passing their unique feeding knowledge to their calves, will there be heightened protection from harassment for the cow-calf pairs in the spring and summer and fall months? How will this be accomplished?	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 1.2.4.1.3, IWC Aboriginal Subsistence Whaling; 1.2.4.2.3,

COMMENT CODE	COMMENT	RESPONSE
		National Aboriginal Subsistence Whaling; 2.3.2, Alternative 2 (Tribe's Proposed Action); 2.3.3, Alternative 3 (Offshore Hunt); 2.3.4, Alternative 4 (Summer/Fall Hunt); 3.4.3.3.1, ENP Population Structure; 3.4.3.4.1, PCFG Population Structure; 4.4, Gray Whales.
PCPW4	- With off-shore feeding techniques being one of the hallmarks of resident whale "culture", how can NMFS contemplate an off-shore summer hunt? This would target resident whales for death and harassment at the very time and place that the mothers are passing to their calves the knowledge that makes them unique. The very knowledge that may have allowed the Eastern Pacific gray whales to survive the Ice Age. The very learned feeding habits that could save the species in the future. When catastrophe strikes the near-shore habitat, only those who can feed off -shore will thrive. The percentage of the Eastern gray whale population that has this knowledge may be as low as 1%.[200 out of 20,000] A very important 1%, with only a fraction of that number specialized for the Washington coast. How can NMFS contemplate a "take" from this tiny group?	The DEIS includes only one alternative (Alternative 4) that contemplates hunting during the summer. That alternative is not restricted to offshore waters but instead has the same hunt area as the tribe's proposal (Alternative 2). Refer to the following Subsections regarding Alternative 4 and gray whale feeding strategies: 2.3.4, Alternative 4 (Summer/Fall Hunt); 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem; 3.4.3.3.2, ENP Seasonal Distribution, Migration, and Movements; 3.4.3.3.4, ENP Status, Carrying Capacity, and Related Estimates; 3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales; 4.1.4, Alternative 4, Summer/Fall Hunt; 4.4.2.1, Change in Abundance and Viability of the ENP Gray Whale Stock.
PCPW5	-Has NMFS attempted to calculate how many resident whales can be supported in the Makah U&A eco-system? Is the population rising? falling? remaining the same? Can this be explained?	Refer to the following Subsections: 3.4.3.4.1, PCFG Population Structure; 3.4.3.4.2, PCFG Seasonal Distribution, Migration, and Movements; 3.4.3.4.3, PCFG Abundance and Trends; 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates.
PCPW6	-Will the IWC need to re-assess the "20 whales every five years quota" in light of new information about genetic distinctiveness of resident whales, if they will be the allowed targets of a hunt?	Refer to Subsection 3.4.3.4.4, PCFG Status, Carrying Capacity, and Related Estimates - IWC Implementation Review of PCFG Gray Whales.
PCPW7	- There have been anecdotal reports of cooperative feeding among groups of gray whales encircling and lunge-feeding on forage fish off-shore. What does NMFS know about this?	We are not aware of the anecdotal reports cited. Refer to the following Subsections regarding gray whale feeding strategies: 3.4.3.1.4, Feeding Ecology and Role in the Marine Ecosystem;

COMMENT CODE	COMMENT	RESPONSE
		3.4.3.4, Pacific Coast Feeding Group (PCFG) of Gray Whales.
PCPW8	-The new finding that unknown numbers of Western gray whales transit through Washington waters in the fall-winter-spring, possibly mingling with resident whales at their feeding grounds, as well as mixing in with the main migration to Baja raises new questions. -Will this finding rule out spring-fall-winter hunts, or is NMFS prepared to allow an accidental take by death or harassment of a Western gray to accommodate a Makah hunt? -Will the IWC need to weigh in on any plan that could threaten a Western gray?	In response to this and related comments, we have included WNP gray whales in our analysis in the new DEIS. Refer to the following Subsections: 2.3, Alternatives Considered for Detailed Study; 3.4, Gray Whales; 3.4.3.2, Western North Pacific (WNP) Gray Whales; 4.4.2, Evaluation Criteria (Gray Whales); 4.4.2.2, Change in Abundance and Viability of WNP Gray Whales; 4.4.3, Evaluation of Alternatives; 5.4, Gray Whales (Cumulative Effects).
PCPW9	- Tsunami debris is already accumulating on every beach between Cape Flattery and La Push. Surveyors have kayaked this coastline and found no beach untouched, and some beaches that resemble landfills. The main tonnage is yet to arrive. This raises serious questions, some of which involve gray whales. -There is no doubt that masses of rubbish and toxic materials will arrive at the coast soon and for years to come. There is no plan in place to systematically remove this dangerous material. The effect this will have on the rocky headlands and sandy shores is not known, but must be contemplated. As the junk sloshes in and out, the tidal and near-shore habitats will surely be impacted. How will this affect the gray whales' feeding areas? They may be sickened and harmed from ingesting rubbish. They may be disoriented by the changes and danger in their familiar feeding grounds. Off-shore feeding may become a necessity rather than a choice. It would be extremely inhumane to interject an off-shore hunt into this stressful scenario. Does NMFS have a plan in place to monitor the extent and effects of submerged trash and toxins on the benthic species and the food web they support?	Refer to the following Subsections: 3.4.3.6.2, Environmental Contaminants; 3.4.3.6.12, Marine Debris.
PCPW10	- NOAA is well aware of the current problem of ocean acidification on the Pacific Northwest Coast. It is well documented that the Makah U&A is sandwiched between at least two commercial oyster growers who can no longer raise oyster larvae in local waters due to the changing chemistry in the near-shore. [see attached Seattle Times article by Craig Welch.] - What monitoring is NOAA doing in the Marine Sanctuary related to acidification? - What is the most up to date assessment of the health of shell-forming organisms on the coast? - What is NOAA's projection of how the changes in water chemistry will affect the naturally occurring populations of shell bearing organisms and the food web that depends on them? - For this DEIS NOAA must extrapolate the inevitably detrimental effects that increased acidification will likely have on gray whales, and explain what NOAA intends to do to mitigate this huge problem. Off-shore feeding/teaching behaviors will be critically important. Is NOAA committed to protecting gray whales engaged in this activity?	In response to this and related comments, we have included WNP gray whales in our analysis in the new DEIS. The DEIS includes only one alternative (Alternative 4) that contemplates hunting during the summer. That alternative is not restricted to offshore waters but instead has the same hunt area as the tribe's proposal (Alternative 2). Refer to the following Subsections regarding Alternative 4 and ocean acidification: 2.3.4, Alternative 4 (Summer/Fall Hunt); 3.4.3.6.11, Climate Change and Ocean Acidification; 4.1.4, Alternative 4, Summer/Fall

COMMENT CODE	COMMENT	RESPONSE
	- How would a summer off-shore hunt impact the feeding and passing of knowledge to the new generation each year?	Hunt; 5.2, Water Quality (Cumulative Effects); 5.3, Marine Habitat and Species (Cumulative Effects); 5.4, Gray Whales (Cumulative Effects); 5.5, Other Wildlife (Cumulative Effects).
PCPW11	The scope and severity of the issues touched upon above require a new alternative. PCPW requests the addition of an alternative that responds to the new realities of life on Washington's outer coast. Rather than a "do nothing" alternative, there must be an alternative that decrees a moratorium on any hunting of gray whales by the Makah Tribe anywhere in their U&A.	Refer to Subsection 2.4, Alternatives Considered but Eliminated from Detailed Analysis.
PCPW12	The Tribe has a unique opportunity to call a halt to this current DEIS process. With leadership from the Makah Tribe, many tribes have rightly proclaimed alarm at the effects of global warming now being felt across the nation and the world. In these times of tight budgets, it would seem logical and imperative that all attention and resources be directed at the big problem: ocean acidification. For if no solution is found, if the sources of the environmental degradation are not confronted with strength, the shellfish are doomed, the salmon are doomed, the whales are doomed, and we are doomed. There is nothing to pass to the next generations but regret and sorrow. Does the Tribe "fiddle while Rome burns" with this energy, money, attention, time, emotion, and ally draining pursuit of whaling? Or does the Tribe decide to commit every effort towards fighting to save the sea life of this home we all love? There would be such respect for this decision, and so many allies in the "battle." We can only hope that NOAA, an agency tasked with stewardship of our oceans, would agree. Thank you for taking these comments into consideration, Margaret Owens Peninsula Citizens for the Protection of Whales Port Angeles, Washington [attachment] Originally published June 21, 2012 at 9:24 PM | Page modified June 22, 2012 at 1:34 PM Willapa Bay oyster grower sounds alarm, starts hatchery in Hawaii A Willapa Bay shellfish company is shifting some of its business to Hawaii because of ocean acidification that scientists believe is killing tiny oyster larvae in shellfish farms along Washington's coast. By Craig Welch THE SEATTLE TIMES The owners of Goose Point Oysters have been raising oysters in Willapa Bay since the mid-1970s but recently opened a hatchery in Hawaii because ocean acidification made it harder to raise oysters in the	Comments and attachment noted.

COMMENT CODE	COMMENT	RESPONSE
	Northwest. After 34 years rearing shellfish in Willapa Bay, Dave Nisbet was in a bind: Nature had stopped providing. Oysters were no longer reproducing naturally on the Washington Coast. Oyster larvae were even dying in nearby hatcheries, which use seawater to raise baby shellfish that get sold as starter seed to companies like Nisbet's Goose Point Oysters. But when, in 2009, Nisbet heard oceanographers identify the likely culprit — increasingly corrosive ocean water, a byproduct of the same greenhouse gases that contribute to global warming — the oysterman did the unthinkable. Nisbet took out a loan and spent three years testing and building a new hatchery that opened recently. In Hawaii. Most of Washington's $100 million-a-year oyster industry has been whipsawed in recent years by ecological problems. But Nisbet's oyster company appears to be one of the first businesses in the Northwest — perhaps anywhere — to shift part of its business to a new region in response to ocean acidification. "I just got nervous," Nisbet said. "I was afraid if I didn't do something, then our business would just slowly die." Now, rather than relying on oysters that have spawned in Willapa Bay or on juvenile oysters purchased from a nearby hatchery — as he has for years — Nisbet raises larvae in tanks in a million-dollar, 20,000-square-foot plant in Hilo, Hawaii. The tiny larvae are then sent by mail to Washington, where Nisbet and his team oversee the rest of the multiyear growing cycle in Willapa Bay. "It would have been much easier and cheaper to start a hatchery here," Nisbet said. "But we just saw the hatcheries having failures, the larvae dying in the tanks and just decided to sidestep the issue completely." Nisbet's move is just the latest sign of how the threat of ocean acidification is altering the way Washington's shellfish growers do business. Changes come fast Scientists for years have warned that excess carbon dioxide from the burning of fossil fuels eventually would be taken up by marine waters and begin lowering the pH of the world's oceans. In the last five years, oceanographers at the National Oceanic and Atmospheric Administration (NOAA) working along the U.S. West Coast repeatedly have documented that ocean chemistry is already changing, decades earlier than anyone predicted. Scientists are still learning just how those changes ultimately may upend marine food webs. Researchers have shown that less-alkaline seawater causes sea urchin larvae to change shape, makes squid more lethargic and prompts clown fish to race toward rather than away from predators. But the type of calcium carbonate used by juvenile oysters during the initial stage of forming their shells is particularly vulnerable to even slight increases in acidity. And the dark, frigid water that wells up from the deep along the Northwest coast during north winds already is naturally richer in carbon dioxide than most ocean surface water. Those natural conditions combined with greenhouse-gas emissions, scientists reported earlier this year, have turned the tidal currents on Washington's once oyster-rich coast into a death trap for juvenile oysters. "We're the tip of the spear for the worst of the worst because of the way the ocean circulates," said Bill Dewey, with Taylor Shellfish. Oysters now haven't reproduced on their own in Willapa Bay since 2005, so every grower now relies on hatchery produced larvae. Once the oysters make it to that stage they can survive acidic conditions just fine. But even producing larval oyster has become a complex game. Already, the Taylor Shellfish hatchery on Hood Canal and the owners of the Whiskey Creek Hatchery on Oregon's Netarts Bay have started tracking breezes because heavy north winds draw water	

COMMENT CODE	COMMENT	RESPONSE
	from the deep that tends to be more damaging. Both now use expensive carbon-dioxide monitors to time the uptake of water into their growing tanks. Taylor has even begun a series of experiments to add sodium carbonate — similar to baking soda — to its hatchery waters to counteract Hood Canal's increasingly acidity. "We have a huge investment in that hatchery and we can't just turn off the lights and walk away," Dewey said. "We're investing instead in the science to try and find a way to make it work." But the Nisbets took another approach. "We're on an escalator" Goose Point Oysters employs 70 people and processes several million pounds of shellfish a year, which are sold all over the world. Since water quality is as important to an oyster grower as air to a human, the company had been following the changes closely. "We didn't know what was going on but we knew by 2009 that we could no longer depend on our current seed supply," said Kathleen Nisbet, Dave's daughter. When her father attended a meeting with NOAA oceanographers the depth of the problem became clear. "They said, 'We're on an escalator with this thing,' " she said. "The problem is going to get worse and we're going to have to adapt." Kathleen Nisbet had attended the University of Hawaii-Hilo and had contacts there, including Maria Haws, an associate professor of aquaculture. Hawaii also doesn't experience the same upwelling events and acidification doesn't appear to be a problem — at least not yet. "The Northwest is really the canary in the coal mine, though sooner or later we won't have any place to run if we don't somehow reverse the trend," Haws said. She and the Nisbet family spent several years working out kinks and started operating the hatchery earlier this year. "Luckily we've come out of this not too scarred," Kathleen Nisbet said. "We think we've come up with a way to work around things." But she said the experience has opened her eyes to how quickly acidification is taking hold. "What I think is scary is that not everybody knows this is real, that it's actually started to impact people," she said. "For now, here, it's oysters. But it's going to start affecting a lot of other fish and a lot of other food that we get from the sea." Craig Welch: 206-464-2093 or cwelch@seattletimes.com. On Twitter @craigawelch.	

S. Abels - Comments Submitted May 23, 2012

COMMENT CODE	COMMENT	RESPONSE
SA1	I strongly encourage NOAA/NMFS to not allow the Makah a waiver to hunt whales at all. There is NO way to determine which gray whales are from the main Eastern Pacific population, the residents or the highly endangered Western Pacific population. Killing a whale from the resident whale or Western Pacific population could prove catastrophic to those populations. They don't wear name tags. There is no way to tell them apart!!	Refer to the following Subsections: 3.4, Gray Whales; 4.4, Gray Whales.
SA2	Climate change is having a huge impact in the Arctic. Since the grays "summer" in the Bering Sea to feed, it would be short sighted to allow whaling when the effects of climate change on the grays hasn't been reviewed.	In response to this and related comments, we have updated relevant material in the new DEIS. Refer to the following Subsections: 3.4.3.6, Known and Potential Anthropogenic Impacts; 3.11, Noise; 5.1.3, Past, Present, and Reasonably Foreseeable Future Actions; 5.4, Gray Whales.
SA3	Whaling off the coast greatly impacts whale watching. I was on a trip in Puget Sound and I heard a woman ask the Captain to avoid Neah Bay because she didn't want to see a whale killed in front of her. Whale watching is a huge industry and allowing whaling off the coast of Washington destroys aesthetics visually and emotionally.	Refer to the following Subsections: 3.6.3.2.1, General Description of the Local Economy; 3.6.3.2.4, Contribution of Tourism to the Local Economy; 3.6.3.3.1, Summary of Economic Effects of the Makah Gray Whale Hunts; 3.6.3.3.2, Commercial Value of Whales; 3.8.3.3 Other Individuals and Organizations; 4.6.2.1, Tourism; 4.6.2.3, Whale-watching Industry; 4.6.3, Evaluation of Alternatives.
SA4	The Makah maintain this is about culture. NOAA knows as well as I do that this is a lie. We still have the documents that were sent to NOAA about the Makah's intent to open a whaling processing plant so they can sell whales to Japan. The EIS needs to address the global impact of the U.S. allowing aboriginal coastal whaling. We all know Japan wants this and by the Makah doing so with the U.S.'s blessing opens pandora's box. NO WHALING ANYWHERE! EVER! FOR ANY REASON!!	Refer to the following Subsections: 1.4.3, Other Environmental Assessments and Court Decisions Informing this Action; 3.17, National and International Regulatory Environment; 4.17, Regulatory Environment Governing Harvest of Marine Mammals; and 5.16, National and International Regulatory Environment.
SA5	The Makah have proven they can't be trusted! In 2007 the Makah killed a gray whale after their permit was revoked. Given the sensitive populations of grays involved, the Makah cannot be trusted to follow regulations.	The Makah have a whaling ordinance that, among other provisions, addresses enforcement, permits, violations, penalties, training/qualifications, monitoring and reporting, and whaling administration. Refer to Subsection 1.4.2, Summary of Recent Makah

COMMENT CODE	COMMENT	RESPONSE
		Whaling ─ 1998 through 2014, and Appendix B of the new DEIS
SA6	The benefits of evolving beyond whaling and the positive impacts to the tribe for finally walking away from such a barbaric practice needs to be studied. NOAA has never demonstrated or evaluated the benefits to the tribe for not going forward.	The DEIS includes a No-action alternative. For other issues related to this comment refer to Subsection 2.4, Alternatives Considered but Eliminated from Detailed Analysis
SA7	NMFS needs to end their bias towards the Makah and deal with real science.	There is no information to support this comment.